



## ORIGINAL ARTICLE

# Fifty-year History of Gynecological Cancer in Nursing Research: A Mapping Hotspots and Theme Trends Evaluation: A Bibliometric Study

## Hemşirelik Araştırmalarında Jinekolojik Kanserin 50 Yıllık Geçmişi: Haritalama Noktaları ve Tema Eğilimleri Değerlendirmesi

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### Abstract

**Objective:** The present study aimed to determine the current status and development of nursing studies on gynecological cancer.

**Method:** A bibliometric study was performed using the Web of Science (WoS) database on 22<sup>nd</sup> February 2024 to search for original articles. Articles were accessed by searching using related terms "gynecologic cancer", "cervix cancer", "vaginal cancer", "endometrium cancer", "vulva cancer" and "genital cancer" without year limitation. The analysis was performed using 1307 records. The R software, version 4.3.0, Bibliometrix package was used to perform data analysis and visualization. Data were limited to publications that are in English and stored on WoS.

**Results:** One-third of the publications were conducted in the United States of America, where the incidence of gynecological cancer is lower. This is followed by other countries that conducted many fewer studies despite having the highest incidence of gynecological cancers worldwide. The high density and centrality in nursing research were identified in: cervical cancer and its prevention approach, rehabilitation, empowerment of cancer survivorship, and psychosocial issues. Oncology nursing, quality of life, chemotherapy, anxiety, gynecological cancer which have high centrality in nursing research is a central topic but it has lower density.

**Conclusion:** Nurse researchers aim to address the increased needs of women with gynecological cancer. It has been observed that the intensity of nursing research is related to country policies. Trends in research indicate that nurses are turning towards patient-centered care and critical research areas aimed at improving the quality of care. The study pointed to more actionable suggestions for nursing practice, research, education, and policy.

**Keywords:** Endometrial neoplasms, nursing research, oncology nursing, ovarian neoplasms, uterine cervical neoplasms, vaginal neoplasms

### Öz

**Amaç:** Bu çalışmanın amacı jinekolojik kanser üzerine hemşirelik çalışmalarının mevcut durumunu ve gelişimini belirlemektir.

**Yöntem:** Orijinal makaleleri taramak için 22 Şubat 2024'te Web of Science (WoS) veritabanı kullanılarak bibliyometrik bir çalışma olarak yapılmıştır. Makalelere yıl sınırlaması yapılmaksızın "jinekolojik kanser", "serviks kanseri", "vajina kanseri", "endometrium kanseri", "vulva kanseri" ve "genital kanser" anahtar kelimeleri kullanılarak yapılan tarama ile ulaşılmıştır. Analiz, 1307 kayıt kullanılarak yürütülmüştür. Veri analizi ve görselleştirmesi için R yazılım sürümü 4.3.0 Bibliometrix paketi kullanılmıştır. Çalışmanın verileri, İngilizce dilinde yayınlanan ve WoS'de depolanan makaleler ile sınırlıdır.

**Bulgular:** Yayınların üçte biri, jinekolojik kanser insidansının daha düşük olduğu Amerika Birleşik Devletleri'nde yapılmış, bunu dünya çapında en yüksek jinekolojik kanser insidansına sahip çok daha az çalışma yürüten diğer ülkeler izlemiştir. Hemşirelik araştırmalarındaki jinekolojik kanser konularında yüksek yoğunluk ve merkezilik, serviks kanseri ve önlenmesi yaklaşımı, rehabilitasyon, kanserden sağ kurtulanların güçlendirilmesi ve psikososyal konular olarak belirlenmiştir. Hemşirelik araştırmalarında yüksek merkeziliğe sahip olan onkoloji hemşireliği trend bir konudur ancak daha düşük yoğunluğa sahiptir.

**Sonuç:** Hemşire araştırmacılar, araştırma yoluyla jinekolojik kanserli kadınların artan ihtiyaçlarını karşılamaya çalışmaktadır. Hemşirelik araştırmalarının yoğunluğunun ülke politikaları ile ilişkili olduğu görülmüştür. Araştırmalardaki eğilimler, hemşirelerin hasta merkezli bakıma ve bakım kalitesini artıran kritik araştırma alanlarına yöneldiğini göstermektedir. Çalışmada hemşirelik uygulamaları, araştırmaları, eğitimleri ve politikaları için daha uygulanabilir önerilere yer verilmiştir.

**Anahtar Kelimeler:** Endometrial neoplazmalar, hemşirelik araştırmaları, onkoloji hemşireliği, over neoplazmaları, uterin servikal neoplazmalar, vajinal neoplazmalar

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## Introduction

Gynecological cancers have high incidence and cancer-related mortality rates worldwide (1). The International Agency for Research on Cancer, as reported on the Global Cancer Observatory platform, stated that gynecological cancers constituted a significant proportion of the 9.6 million new cancer cases in women. The incidence of all new cases is: cervix uteri: 14.1, corpus uteri: 8.4, ovary: 6.7, vulva: 0.83, and vagina: 0.36 per 100,000 person-years (2). The financial burden of gynecological cancers on countries' health systems is considerable. Also, for patients, cancer treatment may be inaccessible or some medical care may be delayed due to costs (3). Therefore, gynecological cancer needs to be prioritized in healthcare research, practice, and policies.

Gynecological cancers have vague symptoms that women may ignore may have no symptoms at all (3). To date, routine screening has been performed only for cervical cancer. Although women are increasingly surviving gynecological cancer treatment with current technologies, it remains a serious public health problem because of the lack of or ineffectiveness in current screening programs (4,5). Nurses are in a unique position to educate women about the importance of preventive measures and modifiable risk behaviors related to gynecological cancers. Likewise, nurses provide supportive care to patients diagnosed with gynecological cancer, aiming to meet their physical, social, spiritual, and sexual information needs, by providing symptom management (6).

Gynecological cancers affect women's physical and emotional capacity for sexual activity and fertility and are potentially life-threatening (7,8). Although women perceive gynecological cancer as a threat to their body image, sexual life, and reproductive capabilities (9), they still have unmet distinct supportive nursing care needs (6). Oncology nurses are closely involved with patients in the assessment and management of cancer symptoms. However, little is known about whether and how oncology nursing studies focusing on gynecological cancers have found that nurse-led interventions can improve the physical and psychosocial well-being of women with gynecological cancers (10,11). As far as it is known, no study has identified the current state and evolution of oncology nursing studies on gynecological cancer. The primary role of nurse scientists in conducting health research is to increase their knowledge of the discipline, and provide

evidence to inform and advance health policies to improve the health outcomes of society (12). Therefore, to bring renewed attention to the topic of gynecological cancer, this study aimed to identify the the current status and development of nursing studies on gynecological cancer using bibliometric analysis. The handling of knowledge from the present study will provide up-to-date insights into trending topics and encourage new directions for future research, informing not only practices but also healthcare policies.

## Material and Method

Ethical approval was not required for this study, as it did not have any direct impact on humans or animals.

## Study Design

This descriptive bibliometric study was conducted to explore the literature on gynecological cancer in nursing.

## Research Questions

- What is the number of gynecological studies in nursing?
- What are the most productive researchers, countries, and journals in the field of gynecology nursing research?
- What is the co-occurrence map of author keywords for gynecologic cancer research in nursing?
- What is the thematic map of keywords in gynecologic cancer research in nursing?
- What are the trending topic keywords in research on gynecologic cancer in nursing?
- What is the thematic evaluation of keywords in gynecologic cancer nursing research?

## Study Population and Sample

The population of the present study was comprised of participants in gynecological cancer research within nursing areas. This study was conducted using data extracted from the Web of Science (WoS) Core Collection database. Since the WoS is the most selective database and almost all health sciences journals with high impact values are indexed, it was used for data extraction in this study (13).

## Search Strategy

The bibliometric methodology employs quantitative techniques to explore emerging trends in article and journal performance, collaboration patterns, research constituents, and the structure of a specific topic in the literature (14). The inclusion criteria were being a study on gynecologic cancer, having at least one author who was a nursing researcher, being an article, being in English, and being indexed Institute for Scientific Information (ISI), which provides access to

### Main Points

- Nurse researchers try to meet the increased needs of women with gynecological cancer through research.
- Nurses' research mostly focuses on cervical cancer and its prevention.
- Nursing research which may give a direct to the cancer care policies.
- Nurses place high priority on empowerment concepts for promoting health.
- Oncology nursing, quality of life, chemotherapy, anxiety, gynecological cancer, endometrial cancer, and ovarian cancer need to be studied further as distinct concepts.

publications in highly indexed journals. There was no year limitation during the search process. The data search was conducted on February 22, 2024. The subject headings medical and related terms “gynaecologic cancer”, “cervix cancer”, “vaginal cancer”, “endometrium cancer”, “vulva cancer” and “genital cancer” were used in the WoS database. Keyword groups were created by variations with different uses of word groups, such as “gynecological cancer” or “gynecologic cancer”. This includes English [United States of America (USA), United Kingdom] style pronunciation (gynecological, gynaecological, etc.) and different words used similarly in the field of “cancer” (neoplasm, malignancy). These variations aim to encompass gynecologic cancer and its types (endometrium, cervix, vagina, vulva, genital) in the topic area (please see supplementary file for search strategy).

### Data Collection

Data were extracted from the comprehensive WoS core collection database, which is a widely used source of abstracts and citations for peer-reviewed literature, particularly for bibliometric analysis (15). A literature search was conducted by two independent researchers A.D.D and A.B using the agreed filters (categories, document types, and languages). Due to the filters used, any study was not excluded. The data collection process took almost one week. This study only focused on 1307 records, of the document type “articles” in the field of nursing, indexed in the ISI. During the search process, the researchers used the predefined protocol, which strictly defined inclusion criteria and filters. After the independent literature search process, search results were compared and discussed. Because there was no disagreement about the search results, a single data file was used; it was checked by the researchers for typing errors and converted into a form suitable for data analysis. All information regarding publication settings (citation information, bibliographic information, abstract and keywords, other information, full records, and cited references) was exported in the TXT format. The exported publication records included the title, authors, name of the research institution, abstract, journal, publication date, and other bibliometric information, which provided a solid foundation for the analysis. The bibliometric results were visualized using R, enhancing the clarity of trends and relationships. However, the reliance on a single database and the exclusion of non-English studies may limit the comprehensiveness of the results.

### Statistical Analysis

This study utilized bibliometric data analysis techniques, including performance analysis and science mapping, to explore the contribution of nursing research on gynecological cancer to publication-related metrics. A performance analysis was conducted to examine the contributions made to nursing research on gynecological cancers. The analysis presents various publication-related metrics, including total publications, publication year, productive authors, countries in which the studies were conducted, and journals in which the studies were published.

Science mapping, including co-word analysis, is an effective method for identifying specific structures in a research field and for presenting its bibliometric and intellectual structure (16,17). A co-word map and word cloud were generated by setting the node number to 25 and the keyword co-occurrence rate to 2. The word cloud shows the most frequently used keywords among the 25 authors. These numbers are automatically suggested by the program with other choices. The authors selected the optimal outcomes based on findings, that guarantee the identified clusters are meaningful and representative of the underlying research structure. These results were deemed the most favorable.

The study used techniques to improve bibliometric analysis, such as thematic maps, thematic evolution analysis, and visualization. Thematic maps display the degree of centrality and density of the theme, with the upper map (motor themes, niche themes) showing high-density clusters and the lower map (basic themes, emerging, and declining themes) showing low-density clusters (18). The number of words in the thematic map analysis was 250. The minimum cluster frequency was 5, and the level number for each cluster was 1. A thematic evolution analysis, which explores evolutionary trends in thematic contexts and structures, was conducted to define the evolution of gynecological cancer research in nursing over the past 50 years.

Highly relevant keywords form thematic clusters based on the most frequently used keywords (19). During the analysis, the number of studies was considered when determining the year intervals, which were presented at three levels. The minimum word frequency was accepted as two, and the minimum number of words observed per year was taken as one. The R software version 4.3.0, Bibliometrix Package, Biblioshiny Interface was used to perform data analysis and visualization (20).

### Rigor

The data search strategy was transparent and replicable, demonstrating the validity and reliability of the bibliometric study. All data were retrieved from the WoS database in the TXT format. Two researchers A.D.D and A.B who both have experience in nursing research, literature review, and bibliometric analysis independently included and excluded articles. During the search process, the researchers used the predefined protocol which strictly defined inclusion criteria and filters. Therefore, there were no disagreements about the search results. Because of there were no any disagreement about search results, one data file used, it was checked by the researchers for typing errors, and converted into a form suitable for data analysis. To ensure the repeatability of the present study, all of the steps performed in the study are explicitly described. Due to the use of the Biblioshiny package, it does not require coding or entering commands. The TXT-format data retrieved from the WoS database was imported as new raw file. After clicking “start” following file import, labels description (such as for authors, titles, abstracts, keywords etc.) in biblioshiny

appeared in the “completeness of bibliographic metadata”. The authors checked data to detect and correct errors or inconsistencies in the data; there were no incomplete and ambiguous records.

## Results

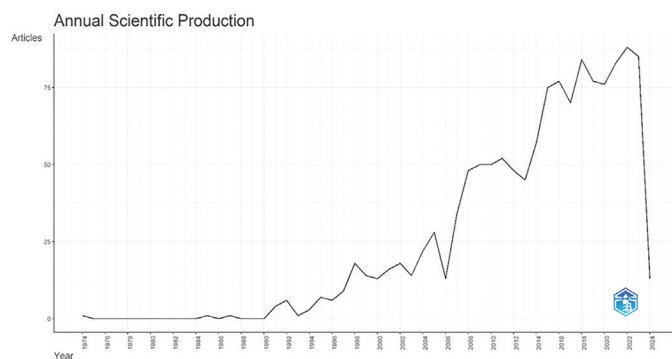
### Number of Gynecological Studies in Nursing

The results of the WoS database search indicated that nurses have been conducting research in the field of gynecological cancer in the last 50 years, since 1973. However, the number of publications, which were published once a year until 1990, has continued to increase with great momentum since 2013. Although there was a decrease in the number of publications between 2019 and 2020, it was determined that the number of publications was higher than previous years. Gynaecologic research in oncology nursing science will reach its peak in 2022 (Figure 1).

### The Most Productive Researchers, Countries, and Journals in the Field of Gynecology Nursing Research

A total of 1307 publications were produced with the contributions of 3,690 authors and published in 122 journals. The author who contributed the most to the field in terms of number of publications ( $n=23$ ) was Chan CWH, and the author who received the most citations in studies was Sekse RJT ( $n=114$ ). The country where the most studies were conducted was the USA ( $n=469$ ), showing a large difference compared to other countries. The second country was China, with 164 publications. The journals with the most publications in the field were cancer nursing ( $n=198$ ), European Journal of Cancer Care ( $n=149$ ), and European Journal of Oncology Nursing ( $n=106$ ). The first three journals that contributed to the field and were frequently cited as references were Gynaecol Oncol ( $n=1279$ ), Psycho-Oncology ( $n=973$ ), and cancer nursing ( $n=962$ ). The top ten lists for the performance analysis are presented in Table 1.

### The Co-occurrence Map of Author Keywords for Gynecologic Cancer Research in Nursing



**Figure 1.**  
The number of gynecological cancer publications in nursing per year

The keywords most frequently used by the authors in oncology nursing research are visualized in the word cloud in Figure 2. In publications in this field, the most frequently handled topics are cervical cancer (246 times), gynecological cancer (155 times), quality of life (139 times), ovarian cancer (104 times), cancer (80 times), breast cancer (72 times), nursing (72 times), screening (58 times), chemotherapy (54 times), and women’s health (52 times).

Research was categorized by co-occurrence network analysis into two thematic clusters, covering the related topics and their connections: cervical cancer and gynecological cancer. Cervical cancer covers the following ten topics: cancer screening (Betw=37.597, Clos=0.013), women’s health (Betw=12.313, Clos=0.012), cervical cancer screening (Betw=1.702, Clos=0.011), human papillomavirus (Betw=7.886, Clos=0.011), knowledge (Betw=27.409, Clos=0.012), women (Betw=4.270, Clos=0.012), uterine cervical neoplasms (Betw=11.406, Clos=0.011), pap smear (Betw=1.389, Clos=0.010), cervical screening (Betw=1.019, Clos=0.010), and prevention (Betw=8.962, Clos=0.011). The top 10 topics which are related to the gynecological cancer topics are as follows: quality of life (Betw=65.171, Clos=0.014), ovarian cancer (Betw=67.168, Clos=0.014), oncologic nursing (Betw=39.374, Clos=0.014), chemotherapy (Betw=6.057, Clos=0.012), endometrial cancer (Betw=9.056, Clos=0.012), sexual health (Betw=5.608, Clos=0.011), qualitative (Betw=6.979, Clos=0.012), anxiety (Betw=2.547, Clos=0.011), social support (Betw=5.011, Clos=0.011), and symptoms (Betw=0.976, Clos=0.011). All the nodes, referred to as topics, and their networks are shown in Figure 3.

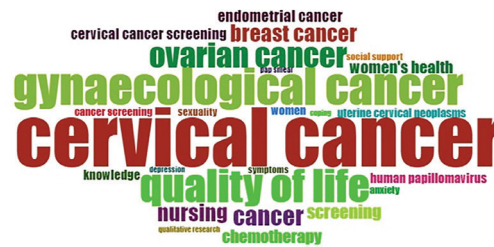
### Thematic Map of Keywords in Gynecologic Cancer Research in Nursing

The theme map presented topics based on their density, the development of themes, and the centrality of their relevance to gynecological cancer research in nursing science (Figure 4). Motor themes that had high density and centrality in oncology nursing research, which represent advanced knowledge in gynecological cancer research in nursing science, meaning these topics are important and intensively researched, were identified as cervical cancer, cancer screening, women’s health, breast cancer, genetic counselling, and genetics. Niche themes that exhibited high density but not high centrality in nursing science, signifying specialized knowledge that is highly studied due to its importance among special groups, included fear of cancer recurrence, focus groups, information needs, female sex, genital neoplasms, and brachytherapy. Basic themes with lower density but higher centrality, denoting foundational knowledge that is basic yet core to the field, indicating a need to focus more on research, were identified as quality of life, chemotherapy, anxiety, gynecological cancer, ovarian cancer, and oncologic nursing. Emerging or declining themes that had low density and centrality due to a lack of interest or current focus on the topic, such as breastfeeding and adherence, were listed.

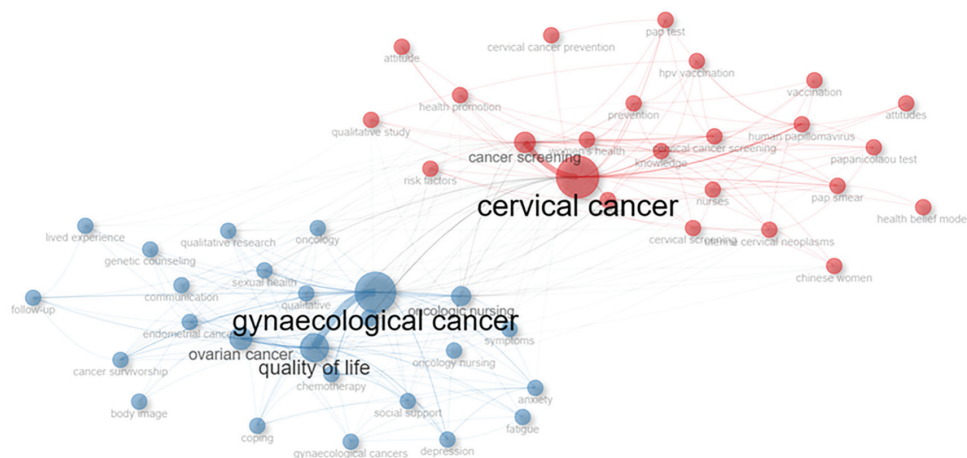


**Table 1.**  
**Top-10 List of Journals, Authors, and Countries of Gynecological Cancer Research in Nursing**

	Journal		Author		Country	
Rank	Articles published	Frequency	Articles published	Frequency	Articles published	Frequency
1	Cancer Nursing	198	Chan CWH	23	United States of America	469
2	European Journal of Cancer Care	149	Afiyanti Y	20	China	161
3	European Journal of Oncology Nursing	106	Miaskowski C	19	United Kingdom	79
4	Oncology Nursing Forum	82	Sekse RJT	18	Australia	61
5	Journal of Clinical Nursing	47	Hammer MJ	14	Brazil	60
6	Journal of Advanced Nursing	44	Bruner DW	12	Canada	50
7	Clinical Journal of Oncology Nursing	39	Carlson NS	11	Turkey	47
8	JOGNN	39	Maree JE	11	Korea	40
9	Asia-Pacific Journal of Oncology Nursing	32	So WKW	11	Indonesia	34
10	Enfermeria Clinica	24	Bai JB	10	Denmark	30



**Figure 2.**  
**Word cloud of gynecological cancer in nursing research**  
As the frequency of words increases, they appear bigger in the word cloud



**Figure 3.**  
**Co-words (keyword co-occurrence) map of publications which are about gynecological in nursing**

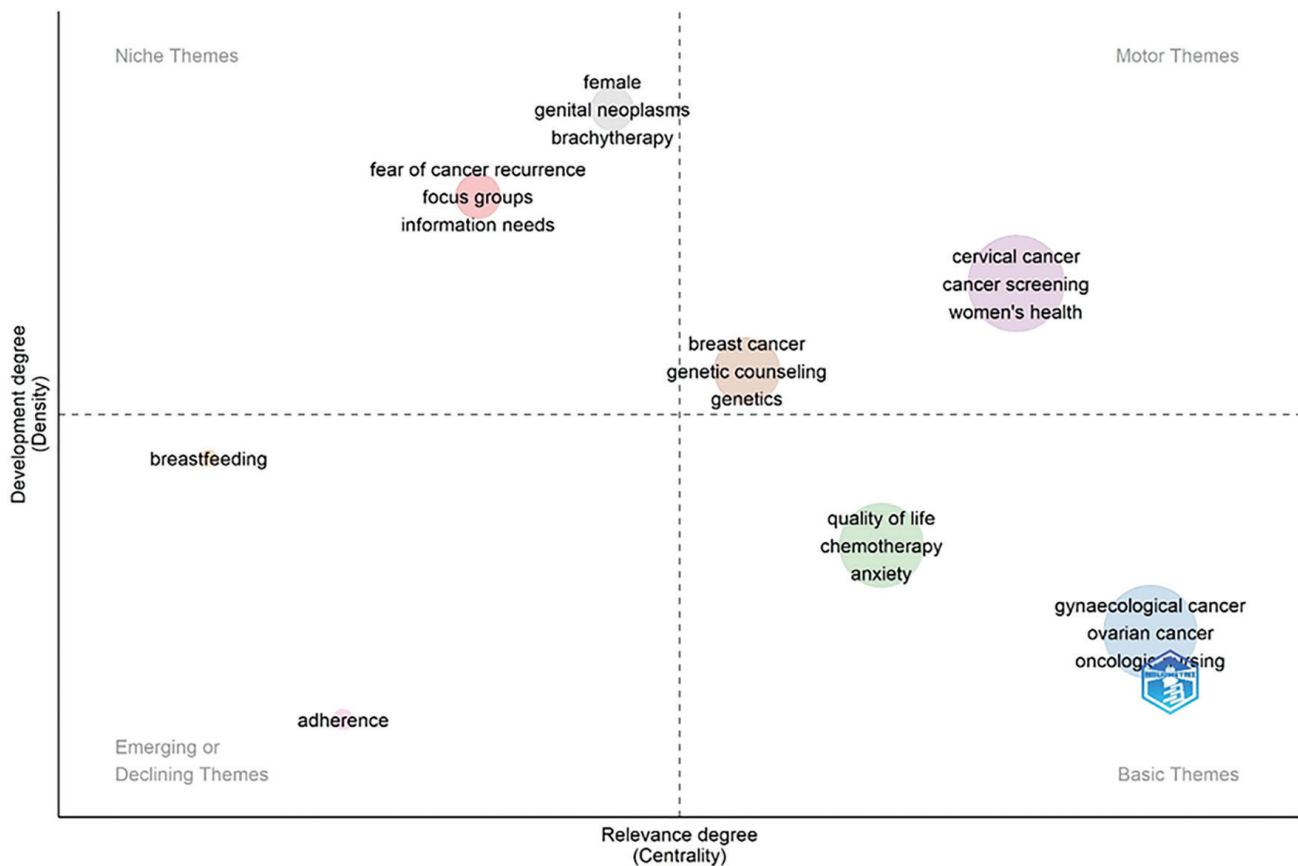
Any author keyword is represented by a node in a network, and in the case of Figure 3, that keyword is represented by a node, with the following features: (1) the size of the node indicates the occurrence of the keyword; (2) the link between the nodes represents the co-occurrence between keywords; and (3) the thickness of the link signals the occurrence of co-occurrences between keywords. Each colour indicates a thematic cluster, and the nodes and links within each cluster can be used to explain the topics (nodes) that each cluster covers as well as the connections (links) that exist between the topics (nodes) that are expressed under each cluster

### Trending Topic Keywords in Research on Gynecologic Cancer in Nursing

The trends in gynecological cancer studies in nursing over 20 years are shown in Figure 5. Earlier trends in gynecological cancer research in nursing were mostly focused on cancer prevention and diagnosis, using keywords such as cancer prevention, early detection, diagnosis, genetic counselling, and health beliefs. In recent years, the trends have shifted to focus on meta-analysis, gynecological cancers, cancer rehabilitation, coping, stress, self-management, chemotherapy, depression, body image, anxiety, cancer survivorship, and oncology nursing.

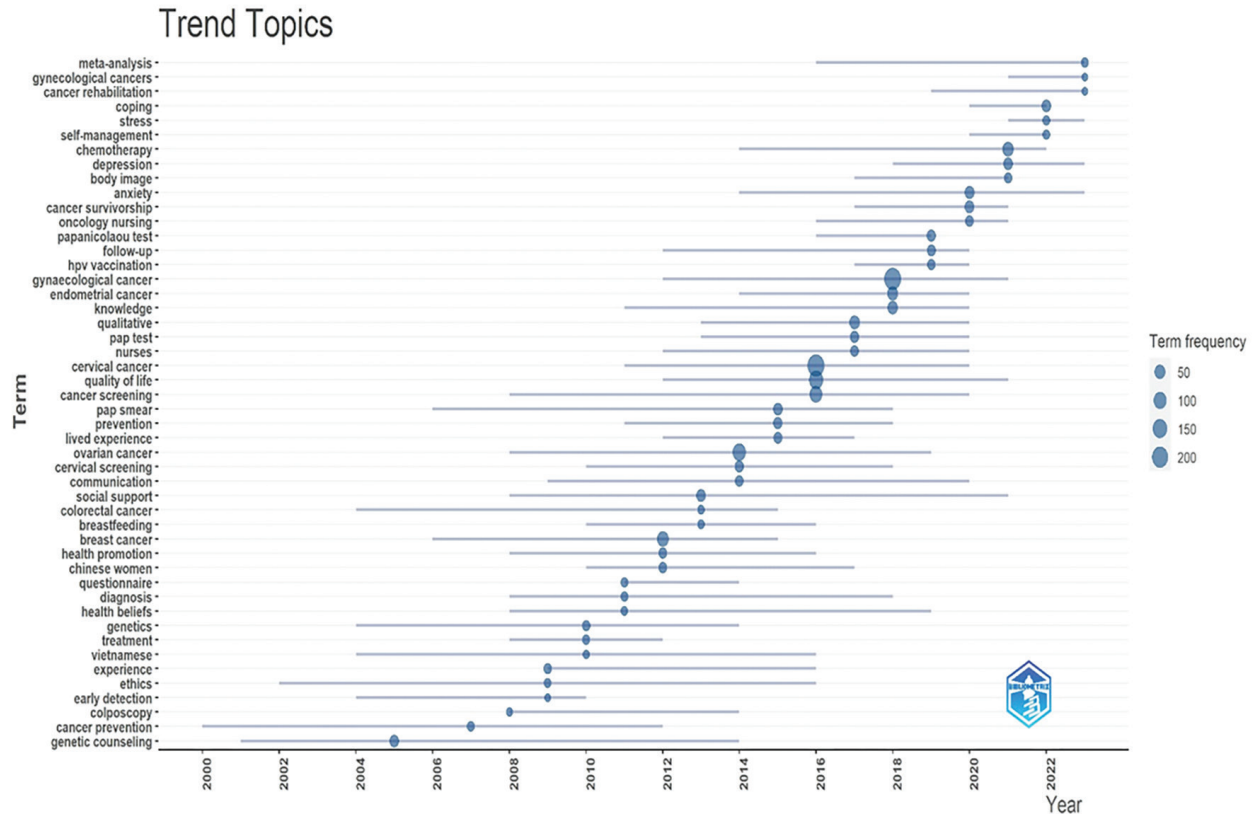
### Thematic Evaluation of Keywords in Gynecologic Cancer Nursing Research

Figure 6 shows the thematic evolution, presenting how research topics have changed according to the years. The most frequently used keywords were cervical cancer screening in 1974-1999; breast cancer, followed by cervical cancer; in 2000-2012; and cervical cancer, gynecological cancer, endometrial cancer, health literacy, and palliative care in 2013-2024 (Figure 6).

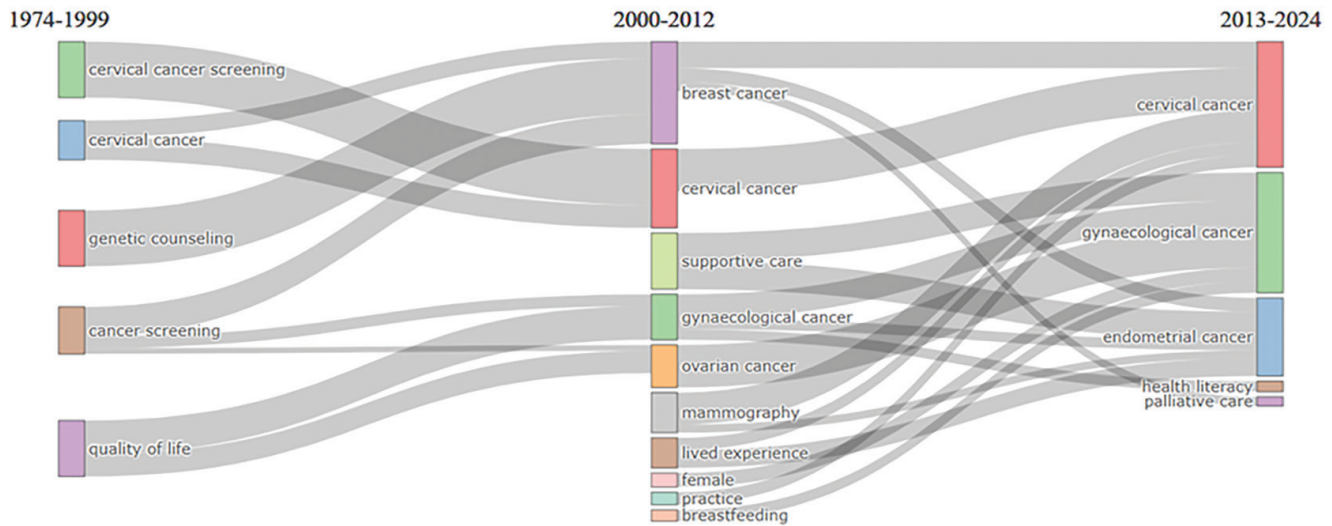


**Figure 4.**  
**Thematic map of gynecological cancer in nursing research**

Motor themes: the highly developed and significant theme clusters in the upper right quadrant. The quadrant contains dense clusters and strong centrality. Niche themes are represented by low centrality, and dense clusters in the upper left quadrant. These clusters'connections to other themes are significant, but their numbers are limited. Basic themes: the clusters in the lower right are themes that are mostly related to one another but have weak relationships with other themes. The clusters in the lower left quadrant represent themes that are either emerging or declining; they have few and weak connections to other themes



**Figure 5.**  
**Trend topics of gynecological cancer in nursing research**



**Figure 6.**  
**Thematic evolution of gynecological cancer in nursing research**

## Discussion

### Number of Gynecological Studies in Nursing

Gynecological cancers are an ongoing concern because of their morbidity and mortality rates (5,21). Therefore, this study aimed to identify the research focus and thematic trends in research on gynecological cancer in nursing using bibliometric analysis. Although gynaecologic cancer research in nursing began 50 years ago, it has gained momentum over the last decade. It is an indicator of knowledge about gynecological cancers that is just beginning to develop in the nursing field. Gynecological cancers accounted for 18.6% of all cancer incidences and 15.3% of all cancer-related deaths in women worldwide in 2002. These figures significantly increased to 40% and 30%, respectively, in 2020, doubling from their previous values (2). Despite concerted efforts by healthcare professionals, educators, and governments to raise awareness about cancer and implement risk-reduction strategies (22), the incidence and mortality rates of cancer continue to rise rapidly. This increase is attributed to factors such as an ageing population, tobacco consumption, and obesity (23-25). Cancer remains a major threat to global health and longevity, with approximately 19.3 million new cases and 10 million deaths reported worldwide in 2020 (25). Advancements in medical technology have introduced new methods to extend the lives of cancer patients, presenting both opportunities and challenges in oncology nursing (26). Consequently, "gynecological cancer research" has gained prominence in nursing science in recent years. A decline in publications was observed between 2019 and 2020, likely due to the coronavirus disease-2019 (COVID-19) pandemic, which was first identified in China in December 2019 and rapidly spread globally. This led the World Health Organization (WHO) to declare a Public Health Emergency of International Concern on January 30, 2020, and classify the outbreak as a pandemic on March 11, 2020 (27). The COVID-19 pandemic has significantly impacted oncology nursing research, creating challenges such as restricted access to research settings, difficulties in recruitment and retention, delays and contamination of data collection and interventions, modifications in data collection methods, increased costs, and heightened stress among researchers (28).

### The Most Productive Countries in the Field of Gynecology Nursing Research

It is remarkable that one third of the studies were conducted in the USA, followed by other countries that conducted many fewer studies. The incidence of gynecologic cancer is lower in the USA than in other countries. Because women are vaccinated, screened, and treated at higher rates (2,29,30). Africa and Southeast Asia are the regions with the highest incidence of gynecologic cancers worldwide (2). However, our study revealed the number of studies on gynecological cancers in these regions, is low. Previous studies have shown that women in those regions are unable to participate in cervical cancer screening due to poverty, rural location, lack of information, and difficulty accessing

health care services, reflecting income inequality (31-34). Prevention of gynecological cancers is necessary to protect and improve health. Gynecologic cancer research and interventions must be increased in underdeveloped and developing countries. Based on these studies, countries can take a strategic approach to cancer control in their health policies by identifying the needs of these regions. Nurse scientists conduct research to determine the health needs of the society and to improve health outcomes. In this context, the developing structure of nursing science has a great impact on guiding health policies (27). Nurses can participate in policy making and influence policy makers (12,35). This may explain the correlation between the increasing number of studies and the decreasing number of gynaecological cancers, due to the health services provided. Access to health services and the healthcare budget to prevent diseases and improve health are closely linked to a country's level of development (36).

### The Co-occurrence Map of Author Keywords for Gynecologic Cancer Research in Nursing

We found that most of the studies focused on cervical cancer, usually in the context of preventive measures (screening, Pap smears, etc.). Cervical cancer is the most common gynaecological cancer worldwide (2). It is also the only gynaecological cancer included in cancer screening programmes in countries with specific screening (37). This finding is not surprising in nursing research. In addition to being caregivers, nurses have important counselling and education roles in cervical cancer screening programmes. Therefore, nurses have carried out studies to raise awareness about health promotion and prevention by considering their roles in these areas. The inclusion of concepts such as sexual health and social support in gynaecological cancer studies, albeit to a lesser extent, is an important effort to improve nursing care in cancer. Studies found that gynaecological cancer was associated with the sexual quality of life and psychological concepts. Gynaecological cancer may lead to psychological symptoms such as depression, anxiety and stress in women (38). This situation shows that nurses should focus not only on the physical needs of women with cancer but also on their emotional and social needs. Future research addressing the gaps in these underrepresented areas and prioritising these issues will increase the chances of translating the findings into practice and thus ensure more efficient use of limited resources.

### Thematic Map of Keywords in Gynecologic Cancer Research in Nursing

A striking finding in thematic mapping is that cervical cancer is identified as a central and intensively studied topic, which has maintained this feature in thematic evolution over the years. This is because the success rate of preventive measures is low in low- and middle-income countries where cervical cancer is most common (39). It was observed that gynaecological cancers and related concepts were less frequently addressed in the studies. Although these concepts are at the centre of thematic



mapping, they have not been sufficiently studied. Studies revealed that the terms “ovarian” and “endometrial” cancer were used less frequently than gynaecological cancer and related terms. According to global statistics, ovarian cancer follows cervical cancer as the second most common, followed by endometrial cancer. While endometrial cancer is the most common type of cancer in Western and other developed countries, cervical cancer is a leading cause of cancer-related deaths (2). Ovarian and endometrial cancers, which have a worse prognosis and higher disease burden than cervical cancer, are less studied, possibly due to the delays in the search for treatment of these cancers. This is because these gynaecological cancers are diagnosed at an advanced or late stage, and patients with these cancers may have limited participation in clinical trials (40). In addition, resources allocated to cancer research are often directed to types that affect larger populations, such as cervical cancer. This study highlights the importance of greater inclusion of ovarian and endometrial cancers in the nursing literature, although they are often overlooked in existing studies. In order to draw attention to the importance of these cancers, policy makers should organize campaigns and private and public institutions should provide research funds. This will ensure that these cancer types are more thoroughly addressed in nursing research, leading to an increase in nursing knowledge.

#### **Trending Topic and Thematic Evaluation Keywords in Research on Gynecologic Cancer in Nursing**

In gynecologic cancer research, there is currently an increased emphasis on themes such as “meta-analysis”, “cancer rehabilitation”, “self-management” and “oncology nursing”. These trends indicate that nurses are focusing on patient-centered care and critical research areas that improve the quality of care. Moreover, the trending topics of “anxiety”, “depression”, and “body image” in nursing research are a reflection of the growing awareness of the psychosocial aspects of patient care. Thus, the concept of nursing care that includes not only physical recovery but also psychological, social, and cognitive support for patients has become increasingly prominent in nursing research. In line with the results of this research, integrating a patient-centered and holistic approach into the care of women with gynecologic cancer may improve health outcomes. In addition to these, the concepts of “cancer survivorship” and “self-management” have emerged as current topics in gynecologic cancer research in nursing. This trend may be because cancer treatment processes are long and survival rates are increasing. Therefore, nursing care should focus on enabling patients to make active decisions about their own health and better manage their recovery. However, future research should prioritize these areas to effectively address these new needs.

Thematic analysis has evolved in recent years to include broader topics such as “health literacy” and “palliative care”. The importance of health literacy in improving public health at low cost has been emphasised by both the WHO and the United Nations, in line with the Sustainable Development

Goals (41,42). According to the health literacy model proposed by WHO, health literacy is integrated into interacts with concepts such as empowerment and sustainability (43,44). In addition, health literacy is closely related to “self-management”, which is another trending topic, as it improves individuals’ ability to cope with health and related physical and emotional problems (45). In addition, palliative care is another prominent topic in the thematic development analysis. Palliative care is of great importance in terms of improving the quality of life of cancer patients, managing their symptoms and providing psychological, physical and emotional support for treatment (46,47). The need for palliative care is increasing with improved survival rates in gynecological cancers. Therefore, since this is a developing field in nursing studies, more research is needed about palliative care. “Oncology nursing” is one of the trending topics in the thematic evolution analysis. Oncology nurses are at the heart of tackling the increasing global cancer burden (48). In addition, the future importance of the oncology nursing workforce has been highlighted in the call from the International Council of Nurses, Nursing Now, and the WHO to address the growing global burden of cancer. Nurses are called upon to take responsibility for their key role in achieving global cancer control goals by moving to higher levels of leadership, advocacy, and policy-making (49). This indicates that oncology nursing should be frequently addressed in future studies. Nurses can demonstrate strong leadership by taking an active role in identifying problems in the health system and areas for improvement in the care they provide, specifically to gynecologic cancer patients and their families, with whom they interact directly. In addition, they not only provide nursing care but also raise awareness at the societal level and influence health policies by voicing the needs of their patients. Furthermore, nurses act as advocates in the dissemination and implementation of cancer screening programs so that cancer patients have equal access to treatment and receive quality care.

#### **Study Limitations**

This study’s strength is that it is the first bibliometric study to identify the performance, focus of research, thematic trends, and evolution of gynaecologic cancer studies in nursing. Data analysis was carried out using several complementary techniques, such as visualization, thematic maps, and thematic assessments, to present and reinforce the results. However, the current study had some limitations. For example, only articles published in English were included in the study. Although English is the most common language in the literature, there are articles in other languages that can be informative. Furthermore, only the WoS databases were used in this study.

**Implications for practice:** This study indicates that a patient-centered and holistic approach is being integrated into new trends in gynecologic cancer research in nursing. To reflect this trend in clinical practice and increase positive health outcomes, it may be important to develop patient-centered care plans that support psychological and social well-being for women with gynecologic cancer. Evidence-

based care protocols should be developed, clinical guidelines should be updated, and current evidence-based information should be periodically shared with clinician nurses. Current trends emphasize not only cancer prevention but also holistic approaches to health promotion and patient empowerment. Patients' self-management should be encouraged, and education and counseling should be organized to strengthen their quality of life and psychosocial health at home. Interventions should be planned to increase the health literacy of patients with gynecologic cancer by enabling them to access accurate information, and make decisions about their health. In addition, clinician nurses should be able to recognize the current and basic needs in the field by following nursing research and incorporate them into their interventions. These practices may improve the quality of care for cancer patients by encouraging nurses to take a more active clinical role.

**Implications for research:** This study showed that nursing studies on gynecological cancers often focus on common cancers, such as cervical cancer, and routine screening programs. Future studies should not neglect the needs of women diagnosed with other gynecological cancers such as endometrial and ovarian cancer. Due to the mostly focused cancer prevention process, which presents "cervical cancer, cancer screening, women's health, breast cancer, genetic counselling, and genetics" as advanced knowledge in the nursing science, there is a need to conduct studies that examine which nursing interventions could promote and rehabilitate the health of women with gynecological cancers. It is also important to have a holistic nursing approach in the studies, which addresses not only physical but also psychosocial domains of their health. Because of this, some topics could be presented more, such as long-term survivorship care and the intersection of mental health with gynecological cancer outcomes. Due to the ongoing development of the "oncology nursing" concept, there is a need for further studies which promote this specialized concept. It is also suggested to adopt an approach as a researcher that catches the current trends and needs of women. Due to suggestions that some areas are foundational in gynecological nursing research but with limited knowledge about them in nursing science, there is a need to conduct studies related to quality of life, chemotherapy, anxiety, gynecological cancer, ovarian cancer, and oncology nursing. Future bibliometric studies should integrate additional databases and consider multilingual searches to enhance comprehensiveness.

**Implications for healthcare policy:** Nursing policy-makers should prioritize the development of evidence-based policies that reflect these emerging trends. Policies should support nurses to expand their clinical knowledge, provide individualized and holistic care, and address emotional and social needs in addition to physical symptoms. In this framework, national guidelines should be developed and published, health professionals should be informed about current research results in the field, and supported in transferring research results into practice. In this direction,

health policy makers, academics, and hospitals should work in cooperation. In-service trainings for nurses should be increased to provide treatment, rehabilitative and preventive approaches, as well as individual empowerment approaches to gynecological cancers. Strengthening these areas will improve patient care and ensure that women with gynecologic cancer receive comprehensive support throughout their cancer journey.

**Implications for education:** There is advanced knowledge about cervical cancer and its prevention and diagnosis, while foundational knowledge in gynecological cancer nursing was described as including quality of life, chemotherapy, anxiety, gynecological cancer, ovarian cancer, and oncology nursing. Nursing curriculum need to be organized to reflect the foundation and advanced knowledge integration in the program. It is also suggested to educate nurses to have a holistic approach during their care. Specialization in oncology nursing needs to be provided in the curriculum. Nursing students should have education such follow-up trends in the gynecological cancer in nursing science such promote women's resilience to the process: coping stress, self-management, health literacy, etc. and such nursing care components as palliative care, cancer rehabilitation, etc.

## Conclusion

The present study clarifies which nursing research topics are related to gynecological cancer research. This study showed that nursing studies on gynaecological cancers typically focus on common cancers such as cervical cancer and routine screening programmes. Although the general trend in cervical cancer screening publications in current nursing studies in the field is positive, research efforts for other gynaecological cancer prevention interventions are insufficient. Future studies should not neglect the needs of women diagnosed with gynaecological cancer such as endometrial and ovarian cancer. Therefore, future large-scale, cross-sectional population-based nursing research could address the gap and increase the recognition of gynaecological cancers that remain in the background. At the same time, preventive approaches to cancer have often been addressed in previous studies, and rehabilitation and health promotion have recently become more prominent. Nursing studies should focus more on supportive interventions for cancer symptoms and treatment side effects, including self-management, palliative care and cancer rehabilitation. Thus, it emphasizes the increasing importance of holistic empowerment in nursing as an essential approach to improve the well-being of women living with and surviving cancer. Finally, for all gynaecological cancers, this approach should be adopted to improve the quality of life of women and their families from diagnosis to death. This approach enables them to go through these processes optimally. It is also a remarkable point that nursing research can promote healthcare policy. Therefore, there is a need to collaborate with researchers from regions with high gynecological cancer incidence, which may enhance research and care policies.

**Ethics Committee Approval:** Ethical approval was not required for this study, as it did not have any direct impact on humans or animals.

**Informed Consent:** Since the study was conducted using open data, patient consent was not required.

## Footnotes

**Author Contributions:** Concept - A.D.D., A.B., A.A.C., A.A.; Design - A.D.D., A.B., A.A.C., A.A.; Data Collection or Processing - A.D.D., A.B.; Analysis or Interpretation - A.D.D., A.B.; Literature Search - A.D.D., A.B., A.A.C., A.A.; Writing - A.D.D., A.B., A.A.C., A.A.

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## References

1. Wang Q, Peng H, Qi X, Wu M, Zhao X. Targeted therapies in gynecological cancers: a comprehensive review of clinical evidence. *Signal Transduct Target Ther*. 2020;5(1):137. [\[Crossref\]](#)
2. Ferlay J, Lam F, Laversanne M, Colombet M, Mery L, Piñeros M, Znaor A, Soerjomataram I, Bray F. Global Cancer Observatory: Cancer Today [Internet]. Lyon (France): International Agency for Research on Cancer; 2024 [cited 2024 Mar 15]. Available from: <https://gco.iarc.who.int/today> [\[Crossref\]](#)
3. Ledford LRC, Lockwood S. Scope and epidemiology of gynecologic cancers: an overview. *Semin Oncol Nurs*. 2019;35(2):147-150. [\[Crossref\]](#)
4. Arbyn M, Gultekin M, Morice P, Nieminen P, Cruickshank M, Poortmans P, et al. The European response to the WHO call to eliminate cervical cancer as a public health problem. *Int J Cancer*. 2021;148(2):277-284. [\[Crossref\]](#)
5. D'Augè TG, Giannini A, Bogani G, Di Dio C, Laganà AS, Di Donato V, et al. Prevention, screening, treatment and follow-up of gynecological cancers: state of art and future perspectives. *Clin. Exp. Obstet. Gynecol*. 2023;50(8):160. [\[Crossref\]](#)
6. Mawardika T, Afiyanti Y, Rahmah H. Gynecological cancer inpatients need more supportive nursing care than outpatients: a comparative study. *BMC Nurs*. 2019;18(Suppl 1):28. [\[Crossref\]](#)
7. Eaton L, Kueck A, Maksut J, Gordon L, Metersky K, Miga A, et al. Sexual health, mental health, and beliefs about cancer treatments among women attending a gynecologic oncology clinic. *Sex Med*. 2017;5(3):e175-e183. [\[Crossref\]](#)
8. Beesley VL, Alemayehu C, Webb PM. A systematic literature review of trials of survivorship interventions for women with gynaecological cancer and their caregivers. *Eur J Cancer Care (Engl)*. 2019;28(3):e13057. [\[Crossref\]](#)
9. Klapheke AK, Keegan THM, Ruskin R, Cress RD. Changes in health-related quality of life in older women after diagnosis with gynecologic cancer. *Gynecol Oncol*. 2020;156(2):475-481. [\[Crossref\]](#)
10. Kelly D, Campbell P, Torrens C, Charalambous A, Östlund U, Eicher M, et al. The effectiveness of nurse-led interventions for cancer symptom management 2000–2018: a systematic review and meta-analysis. *Health Sciences Review*. 2022;4:100052. [\[Crossref\]](#)
11. Paşalak Şİ, Selçukbiricik F, Seven M. Evaluation of the Nurse-led symptom management program for patients with gynecologic cancer undergoing chemotherapy. *Cancer Nurs*. 2024;47(1):31-42. [\[Crossref\]](#)
12. Ellenbecker CH, Edward J. Conducting nursing research to advance and inform health policy. *Policy Polit Nurs Pract*. 2016;17(4):208-217. [\[Crossref\]](#)
13. Singh VK, Singh P, Karmakar M, Leta J, Mayr P. The journal coverage of Web of Science, Scopus and Dimensions: a comparative analysis. *Scientometrics*. 2021;126:5113-5142. [\[Crossref\]](#)
14. Liu W, Tang L, Hu G. Funding information in Web of Science: an updated overview. *Scientometrics*. 2020;122:1509-1524. [\[Crossref\]](#)
15. Su X, Li X, Kang YJ. A bibliometric analysis of research on intangible cultural heritage using CiteSpace. *SAGE Open*. 2019;9(2):2158244019840119. [\[Crossref\]](#)
16. Baker HK, Kumar S, Pattnaik D. Research constituents, intellectual structure, and collaboration pattern in the Journal of Forecasting: a bibliometric analysis. *J Forecast*. 2021;40(4):577-602. [\[Crossref\]](#)
17. López-Robles JR, Cobo MJ, Gutiérrez-Salcedo M, Martínez-Sánchez M, Gamboa-Rosales NK, Herrera-Viedma E. 30th anniversary of applied intelligence: a combination of bibliometrics and thematic analysis using SciMAT. *Applied Intelligence*. 2021;51:6547-6568. [\[Crossref\]](#)
18. Guleria D, Kaur G. Bibliometric analysis of ecopreneurship using VOSviewer and RStudio Bibliometrix, 1989–2019. *Library Hi Tech*. 2021;39(4):1001-1024. [\[Crossref\]](#)
19. Aria M, Cuccurullo C. Bibliometrix: an R-tool for comprehensive science mapping analysis. *J Informetr*. 2017;11(4):959-975. [\[Crossref\]](#)
20. Korenaga TK, Tewari KS. Gynecologic cancer in pregnancy. *Gynecol Oncol*. 2020;157(3):799-809. [\[Crossref\]](#)
21. Deo SVS, Sharma J, Kumar S. GLOBOCAN 2020 report on global cancer burden: challenges and opportunities for surgical oncologists. *Ann Surg Oncol*. 2022;29(11):6497-6500. [\[Crossref\]](#)
22. Fernández-Ortega P, Los Ríos de la Serna CD. Cancer nurses, are we really contributing to reduce burden via cancer prevention? *Asia Pac J Oncol Nurs*. 2022;9(6):100066. [\[Crossref\]](#)
23. Soerjomataram I, Bray F. Planning for tomorrow: global cancer incidence and the role of prevention 2020-2070. *Nat Rev Clin Oncol*. 2021;18(10):663-672. [\[Crossref\]](#)
24. Solary E, Abou-Zeid N, Calvo F. Ageing and cancer: a research gap to fill. *Mol Oncol*. 2022;16(18):3220-3237. [\[Crossref\]](#)
25. Sung H, Ferlay J, Siegel RL, Laversanne M, Soerjomataram I, Jemal A, Bray F. Global Cancer Statistics 2020: GLOBOCAN estimates of incidence and mortality worldwide for 36 cancers in 185 countries. *CA Cancer J Clin*. 2021;71(3):209-249. [\[Crossref\]](#)
26. Garg S, Williams NL, Ip A, Dicker AP. Clinical integration of digital solutions in health care: an overview of the current landscape of digital technologies in cancer care. *JCO Clin Cancer Inform*. 2018;2:1-9. [\[Crossref\]](#)
27. WHO. Coronavirus disease (COVID-19). WHO. [Internet]. 2024. [cited 2025 Feb 10]. Available from: [https://www.who.int/health-topics/coronavirus#tab=tab\\_1](https://www.who.int/health-topics/coronavirus#tab=tab_1) [\[Crossref\]](#)
28. Giordano NA, Bai J, Yeager KA, Frediani JK, Im EO. Impacts of coronavirus disease 2019 on oncology nursing research. *Cancer Care Research Online*. 2021;1(3):e009. [\[Crossref\]](#)
29. Chen HY, Kessler CL, Mori N, Chauhan SP. Cervical cancer screening in the United States, 1993-2010: characteristics of women who are never screened. *J Womens Health (Larchmt)*. 2012;21(11):1132-1138. [\[Crossref\]](#)
30. Watson M, Benard V, King J, Crawford A, Saraiya M. National assessment of HPV and Pap tests: changes in cervical cancer screening, National Health Interview Survey. *Prev Med*. 2017;100:243-247. [\[Crossref\]](#)

31. Buskwofie A, David-West G, Clare CA. A review of cervical cancer: incidence and disparities. *J Natl Med Assoc.* 2020;112(2):229-232. [\[Crossref\]](#)
32. Amy NK, Aalborg A, Lyons P, Keranen L. Barriers to routine gynecological cancer screening for white and African-American obese women. *Int J Obes (Lond).* Jan;30(1):147-155. [\[Crossref\]](#)
33. Isa Modibbo F, Dareng E, Bamisaye P, Jedy-Agba E, Adewole A, Oyeneyin L, et al. Qualitative study of barriers to cervical cancer screening among Nigerian women. *BMJ Open.* 2016;6(1):e008533. [\[Crossref\]](#)
34. Salehiniya H, Momenimovahed Z, Allahqoli L, Momenimovahed S, Alkatout I. Factors related to cervical cancer screening among Asian women. *Eur Rev Med Pharmacol Sci.* 2021;25(19):6109-6122. [\[Crossref\]](#)
35. International Council of Nursing (ICN). <https://www.icn.ch/news/our-nurses-our-future-international-nurses-day-2023-theme-announced>. [Internet]. Our Nurses. Our Future. [cited 2024 Mar 22]. Available from: <https://www.icn.ch/news/our-nurses-our-future-international-nurses-day-2023-theme-announced> [\[Crossref\]](#)
36. Garcia-Subirats I, Vargas I, Mogollón-Pérez AS, De Paepe P, da Silva MR, Unger JP, et al. Inequities in access to health care in different health systems: a study in municipalities of central Colombia and north-eastern Brazil. *Int J Equity Health.* 2014;13:10. [\[Crossref\]](#)
37. Perkins RB, Wentzensen N, Guido RS, Schiffman M. Cervical cancer screening: a review. *JAMA.* 2023;330(6):547-558. [\[Crossref\]](#)
38. Shirali E, Yarandi F, Ghaemi M, Montazeri A. Quality of life in patients with gynecological cancers: a web-based study. *Asian Pac J Cancer Prev.* 2020;21(7):1969-1975. [\[Crossref\]](#)
39. Bray F, Ferlay J, Soerjomataram I, Siegel RL, Torre LA, Jemal A. Global cancer statistics 2018: GLOBOCAN estimates of incidence and mortality worldwide for 36 cancers in 185 countries. *CA Cancer J Clin.* 2018;68(6):394-424. Erratum in: *CA Cancer J Clin.* 2020;70(4):313. [\[Crossref\]](#)
40. Koshiyama M, Matsumura N, Konishi I. Subtypes of ovarian cancer and ovarian cancer screening. *Diagnostics (Basel).* 2017;7(1):12. [\[Crossref\]](#)
41. WHO. WHO guideline on self-care interventions for health and well-being, 2022 revision. Geneva: World Health Organization; 2022. [Internet]. 2022. Available from: <https://www.who.int/publications/i/item/9789240052192> [\[Crossref\]](#)
42. Cruickshank V, Otten C, Evans J, Jarvis M, Nash R. The Importance of health literacy for sustainable development. Education and the UN Sustainable Development Goals, 2023:491-505. [\[Crossref\]](#)
43. Fernández-González L, Bravo-Valenzuela P. Effective interventions to improve the health literacy of cancer patients. *Ecancermedicalscience.* 2019;13:966. [\[Crossref\]](#)
44. van der Gaag M, Heijmans M, Spoiala C, Rademakers J. The importance of health literacy for self-management: a scoping review of reviews. *Chronic Illn.* 2022;18(2):234-254. [\[Crossref\]](#)
45. Chen YC, Chang LC, Liu CY, Ho YF, Weng SC, Tsai TI. The roles of social support and health literacy in self-management among patients with chronic kidney disease. *J Nurs Scholarsh.* 2018;50(3):265-275. [\[Crossref\]](#)
46. Nottelmann L, Jensen LH, Vejlgård TB, Groenvold M. A new model of early, integrated palliative care: palliative rehabilitation for newly diagnosed patients with non-resectable cancer. *Support Care Cancer.* 2019;27(9):3291-3300. [\[Crossref\]](#)
47. Christiansen B, Feiring M. Challenges in the nurse's role in rehabilitation contexts. *J Clin Nurs.* 2017;26(19-20):3239-3247. [\[Crossref\]](#)
48. Young AM, Charalambous A, Owen RI, Njodzeka B, Oldenmenger WH, Alqudimat MR, et al. Essential oncology nursing care along the cancer continuum. *Lancet Oncol.* 2020;21(12):e555-e563. [\[Crossref\]](#)
49. Challinor JM, Alqudimat MR, Teixeira TOA, Oldenmenger WH. Oncology nursing workforce: challenges, solutions, and future strategies. *Lancet Oncol.* 2020;21(12):e564-e574. [\[Crossref\]](#)