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Bibliometric Analysis of Oral Mucositis Studies in the Nursing Field: A Descriptive Study

Hemşirelik Alanındaki Oral Mukozit Çalışmalarının Bibliyometrik Analizi: Tanımlayıcı Bir Çalışma

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ABSTRACT

The research aims to conduct a bibliometric analysis of studies on oral mucositis in the field of nursing. Data were obtained from the Scopus database using the keywords "oral mucositis", "stomatitis", "aphthous stomatitis" and "oral ulcer". A total of 16,863 studies were accessed and 344 studies that met the inclusion criteria were examined. VOSviewer 1.6.20 was used to analyze the data. The most published and cited authors on oral mucositis in the field of nursing, the most cited publications, and the distribution of these publications by journals and institutions were examined. The network map of co-author-authors, institutions, and country connections, as well as the common keyword analysis map, were also examined. It was discovered that publications and citations about oral mucositis in the nursing field have increased since 1990. It was determined that Laurie MacPhail was the most productive author, Chung Shan Medical University had the most publications, and the University of California had the most citations. The author with the most collaborations as a co-author was Rebecca Stone (3 co-authored articles, three clusters, 10 links, and 12 total link strength), the co-author-institution was Chung Shan Medical University (3 articles, 1 cluster, 12 links, and 12 total link strength), and the co-author- country was the United States (81 articles, 3 clusters, 15 links, and a total link strength of 19). Nutrients is the most widely published journal in this field, and the Journal of Pain and Symptom Management is the most cited. "Oral mucositis" is the most frequently used keyword in publications.

According to study results, the most published and most cited authors and institutions in this field are in the United States. Although Turkey is one of the top three countries in terms of publications and citations, the visibility of our institutions is limited because the authors do not cooperate. There have been few studies on OM-related pain, evidence-based practice, lymphoma, multiple myeloma, and pediatric oncology patients.

Keywords: Bibliometric analysis, Cancer, Nursing, Oral mucositis, Stomatitis.

ÖZ

Araştırmanın amacı, hemşirelik alanında oral mukozit ile ilgili çalışmaların bibliyometrik analizinin yapılmasıdır. Veriler "oral mukozit", "stomatit", "aftöz stomatit" ve "oral ülser" anahtar kelimeleri kullanılarak Scopus veri tabanından elde edildi. Toplam 16.863 çalışmaya ulaşıldı ve dahil edilme kriterlerini karşılayan 344 çalışma incelendi. Veri analizi VOSviewer 1.6.20 programı ile yapıldı. Hemşirelik alanında oral mukozit ile ilgili en fazla yayın yapan ve atıf alan yazarlar, en çok atıf alan yayınlar, bu yayınların dergilere ve kurumlara göre dağılımı incelendi. Ayrıca ortak yazarlar, kurumlar ve ülkeler arası iş birliği ağı ve yayınlarda en sık kullanılan anahtar kelimeler ağı çıkarıldı. Hemşirelik alanında oral mukozit ile ilgili yayınların ve atıfların 1990 yılından itibaren artış gösterdiği belirlendi. En üretken yazarın Laurie MacPhail, en çok yayın yapan kurumun Chung Shan Medical Üniversitesi ve en çok atıf alan kurumun ise California Üniversitesi olduğu saptandı. Ortak yazar olarak en fazla iş birliği yapan yazar Rebecca Stone (ortak yazarlı 3 makale, üç küme, 10 bağlantı ve toplam 12 bağlantı gücü), kurum Chung Shan Medical Üniversitesi (3 makale, 1 küme, 12 bağlantı ve toplam 12 bağlantı gücü) ve ülke Amerika Birleşik Devletleri'dir (81 makale, 3 küme, 15 bağlantı ve toplam 19 bağlantı gücü). Bu alanda en çok yayın yapan dergi Nutrients ve en çok atıf alan dergi ise Journal of Pain and Symptom Management'dır. "Oral mukozit" yayınlarda en sık tekrarlanan anahtar kelimedir.

Araştırma sonuçlarına göre, bu alanda en çok yayın yapan ve en çok atıf alan yazarlar ve kurumlar Amerika birleşik Devletlerindedir. Türkiye yayın ve atıf sıralamasında ilk üç ülkeden biri olmasına rağmen yazarların işbirliği yapmaması nedeniyle kurumlarımızın görünürlüğü sınırlıdır. OM ile ilişkili ağrı, kanıta dayalı uygulama, lenfoma, multipl miyelom ve pediatrik onkoloji hastaları üzerine az sayıda çalışma bulunmaktadır.

Anahtar Kelimeler: Bibliyometrik analiz, Hemşirelik, Kanser, Oral mukozit, Stomatit.

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INTRODUCTION

Oral mucositis (OM) is a common inflammatory side effect that affects the esophagus, gastrointestinal tract, and oropharyngeal mucosa and is associated with chemotherapy (CT) and radiotherapy (RT).[1] This complication usually appears 3-5 days after the first dose of CT and peaks within 14 days.[2,3] The incidence of OM may vary depending on the antineoplastic treatment method. While the incidence of OM in cancer patients obtaining standard CT ranges between 20% and 40%, it can reach up to 85% in patients undergoing hematopoietic stem cell transplantation (HSCT) due to the high doses required to achieve myeloablation.[4] The incidence of OM in patients obtaining RT with or without concurrent CT for head and neck cancer reaches 90%.[5]

OM causes erythema, edema, ulceration, and bleeding in epithelial cells by disrupting the mucosal barrier. Severe OM causes severe pain in the oral cavity and/or throat of patients and the use of opioid analgesics.[6] Patients' ability to chew, swallow, and speak is impaired by pain, resulting in inadequate fluid/nutrient intake, malnutrition, and communication issues.[5,7,8] Severe OM causes sepsis, which prolongs hospital stays, raises treatment costs, and even causes chemotherapy doses to be skipped, resulting in morbidity and mortality.[5,7,9,10] Assessment and care of the oral mucosa are among the important clinical interventions of nurses caring for patients receiving CT/RT. Systematic examination of the oral cavity using a valid and reliable measurement tool provides essential data for guiding nursing interventions.[11] A variety of scales are used in clinical practice and research to assess the degree and severity of OM. The World Health Organization Oral Toxicity Scale (WHO OTS) is a simple scale that is widely used in clinical practice. However, other frequently used scales are the Oral Mucositis Assessment Scale (OMAS), National Cancer Institute Toxicity Criteria (NCI), RTOG Mucositis Assessment Scale, and Eilers Oral Assessment Guide.[2] Nurses, who are the most important team members in the care of cancer patients, must adhere to evidence-based practices and be well-versed to prevent the development of OM, monitor it, and provide effective care in its treatment.[12] Although there is no standard care practice in the literature for both prevention and treatment of OM, there are evidence-based clinical practice guidelines. The Mucositis Study Group of the Multinational Association of Supportive Care in Cancer/International Society of Oral Oncology (MASCC/ISOO) developed one of these. The first two guidelines, issued in 2004 and 2007, advised using basic oral care protocols to reduce OM caused by cancer treatment. In the MASCC/ISOO guideline last published in 2019, basic oral care (BOC) refers to all routine actions performed by the patient or caregiver to reduce bacterial load in the oral cavity, prevent infections, and provide comfort. Mechanical cleaning (tooth brushing and flossing), mouthwashes to reduce bacterial build-up (bland rinses), and hydration and lubrication (application of moisturizing agents) to the oral mucosal surfaces are commonly used.[8] For the prevention of OM, evidence-based clinical practice guidelines recommend the use of benzydamine mouthwash, low-level laser therapy, oral cryotherapy, and oral glutamine. Although the incidence or severity of OM decreases significantly with the use of these treatments, it is recommended to be supported by new studies.[13] Due to the limited effectiveness of traditional medical treatment in both the prevention and treatment of OM, cancer patients often resort to complementary and alternative treatment methods such as honey, black mulberry syrup, propolis, and aloe vera.[14-17]

A review of the literature reveals that the amount of research on a wide range of topics, such as the treatment and care of OM, is increasing every day. It is becoming increasingly difficult for readers to follow the literature and identify important points such as relevant researchers, research themes, and content. It is recommended that the information obtained from these studies be classified so that it does not remain as a pile

of data. In this way, data can be analyzed better and accurately, and reliable and sufficient information can be accessed.[18] Recently bibliometric studies provide a convenient way to meet this need. Pritchard (1969) defines bibliometric analysis as "the application of mathematical and statistical methods to books and other media of communication".[19] Bibliometric analysis is a method of analyzing scientific publications that use content and citation analysis as well as visualization software to obtain formal and quantitative data about current developments in a field. Quantitative findings such as country, author, and university information of relevant research, productivity of journals on the subject, gaps in the literature, weak and strong research areas, collaboration networks, and potential opportunities are obtained through bibliometrics.[19] The research aims to conduct a bibliometric analysis of studies on oral mucositis in the field of nursing. Since it is the first bibliometric research conducted in this field, we hope that it will contribute to the field and researchers who want to work in this field.

MATERIALS AND METHODS

Design

This is a descriptive bibliometric study. It was reported using the STROBE (Standardized Reporting of Observational Studies in Epidemiology) checklist, which is used for descriptive studies.[20]

The questions of this research are:

1. In terms of the number of publications and citations, what is the yearly distribution of publications on oral mucositis in the field of nursing?
2. In terms of the number of publications and citation analysis, who are the most influential authors, institutions, and countries in the field of nursing regarding oral mucositis?
3. What is the network map of co-author-authors, institutions, and country connections?
4. In terms of the number of publications and citation analysis, which are the most cited publications and journals in the field of nursing related to oral mucositis?
5. What is the common keyword analysis map?

Data Collection

The comprehensive search was conducted on October 29, 2023, in the Scopus bibliographical database (Elsevier, Amsterdam, The Netherlands). Scopus and WoS are the most popular bibliographic databases for bibliometric analysis, but the Scopus database was chosen as the search database for this study because of its wider coverage and detailed indexing.[21] Searching was done with the keywords “oral mucositis” OR “stomatitis” OR “aphthous stomatitis” OR “oral ulcer”. A total of 16,863 articles were accessed. Studies that met the four criteria listed below were included: (1) the research is about oral mucositis, (2) the research focused on the field of nursing, (3) the research is peer-reviewed "articles" and "reviews," and (4) the research is published in English. The subject area in Scopus was selected as "nursing" and 404 articles were identified. The document types "article" and "review" were chosen, and the number of articles was reduced to 371. When "English" was chosen as the language, the number of articles decreased to 363. The data was downloaded as an "Excel file" file from the Scopus database. When duplicate publications were excluded, the study included 344 articles in total. Two separate authors independently examined the study's data, and the authors jointly decided which studies to include.

Data Analysis

VOSviewer 1.6.20 software program was used for bibliometric data analysis. The program allows in-depth analysis of data sets by providing visualization, mapping, and multidimensional analysis. For co-citation and co-occurrence network analysis, node types such as authors cited authors, countries,

institutions, journals, references, and keywords were selected. For co-citation and co-occurrence network analysis, node types such as authors cited authors, countries, institutions, journals, references, and keywords were selected. The VOSviewer program provides clusters, links, and total link strengths information for countries, institutions, and authors of OM studies in the field of nursing. VOSviewer network diagram consists of nodes and connections. Different colors represent different clusters, and nodes represent the analyzed elements such as countries, institutions, and keywords. The size of nodes reflects the frequency of elements, and the connection between nodes represents the cooperation and co-occurrence relationship.[22] The publication numbers and citation numbers of authors and journals were determined with the VOSviewer program. A co-authorship network map of authors, institutions, and countries was created. In addition, the most frequently repeated keyword network map in the publications was determined.

Ethical Considerations

It didn't require ethics committee approval since descriptive analysis of the articles is performed using a software program.

Limitations of Study

We may have missed other relevant articles in the literature because our study only included original articles and review studies in the field of nursing published in English and from a single database (i.e. Scopus). Another limitation is that the analysis was conducted with some specific keywords. Because of that the results of the study may not cover all studies conducted in this field.

RESULTS AND DISCUSSION

OM is a serious side effect of anti-neoplastic therapy, such as cancer treatment and HSCT.[23] The risk of systemic infection in patients increases as a result of OM, as does the quality of life, the length of hospital stay, and the cost of treatment.[24,25] Considering all these negative outcomes, there is an imperative to evaluate publications in the field of nursing regarding the prevention and treatment of OM. In this study, the VOSviewer program was used to conduct a bibliometric analysis of 344 publications in the Scopus database about OM in the field of nursing, and the findings were discussed in line with the literature.

A total of 16,863 publications were accessed in the Scopus database. After excluding articles that did not meet the inclusion criteria, the analysis included 344 articles. When the distribution of OM-related publications and citations in the field of nursing was examined by year, it was discovered that until 1997, the number of publications and citations was insufficient and followed a horizontal course. The first publication (n=1) was made in 1972, and most publications (n=35) were made in 2022 (Figure 1). It has been reported that the global incidence and mortality rate of early-onset cancers has increased significantly since 1990.[26] Considering the increase in cancer cases as of 1990, this increase in the number of publications and citations related to OM after the 1990s is to be expected. In practice, various non-pharmacological and pharmacological agents are used to prevent and treat OM in cancer patients. However, due to a lack of evidence-based recommendations, there is currently no gold standard.[27] Due to the lack of an effective and standard protocol for its prevention and treatment, OM remains a very common side effect. As a result, the number of research studies on this issue is expected to rise further.

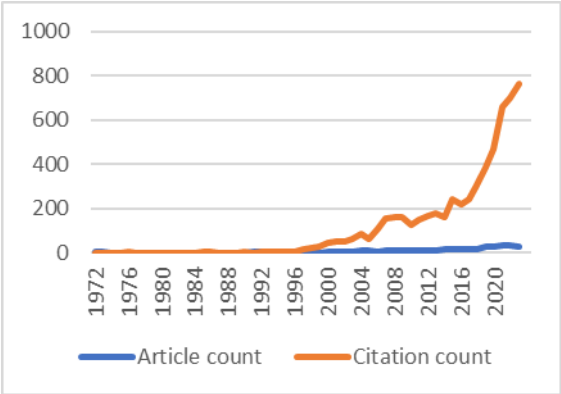

Figure 1. Distribution of publications and citations by years

Table 1 shows the distribution of the most published and cited authors, institutions, and countries related to OM in the field of nursing. Research in this field was carried out by 1639 authors. It was determined that the top four authors with the most publications were also the top four authors with the most citations. Laurie MacPhail, the most published (n=7) and most cited (n=289) author, was found to be the most productive author. The institution with the most publications is Chung Shan Medical University (n=9) and the institution with the most citations is the University of California (n=168). The United States of America (US) has the most publications (n=81) and the most citations (n=2059). The fact that the top ten most published authors in the field have at least three articles on the subject indicates that this field has highly productive authors. The top ten papers in our study each had between 98 and 289 citations. The number of citations is considered an objective indicator of the quality of research.[28] An article published by nursing scholars who have been cited more than 150 times is considered an "exceptional paper."[29] In this context, we can say that publications on OM in the field of nursing are of high quality. Furthermore, researchers who want to access more comprehensive and up-to-date information in the field of OM should follow the most published and cited authors in this field. When the distribution of the institutions and countries that publish the most and receive the most citations regarding OM in the field of nursing is examined, Chung Shan Medical University is the most productive institution, and the United States is the most productive country (Table 1). Taiwan and the United States are the leading countries in terms of OM publications, and studies in this field are generally published by developed countries and institutions in these countries. This might be related to the advantages of developed countries in technology, education, and economic fields.[22]

Table 1. The distribution of the most published and cited authors, institutions, and countries regarding oral mucositis in the field of nursing

Top 10 most published authors	Documents count	Citations count	Total Link Strength	Top 10 most cited authors	Documents count	Citations count	Total Link Strength
Laurie MacPhail	**7**	**289**	**35**	Laurie MacPhail	**7**	**289**	**35**
Christine Miaskowski	6	257	32	Christine Miaskowski	6	257	32
June Eilers	5	249	7	June Eilers	5	249	7
Marylin J. Dodd	5	185	24	Marylin J. Dodd	5	185	16
Lillian Sung	4	138	28	Nathaniel Treister	3	159	8
Nathaniel Treister	3	159	21	Deborah Greenspan	3	152	12
Deborah Greenspan	3	152	20	Joel B. Epstein	2	150	1
Suzanne Dibble	3	120	16	Lillian Sung	4	138	15
Rebecca Stone	3	78	12	Suzanne Dibble	3	120	11
William N. Dudley	3	67	14	Aishan Shih	2	98	5
Top 10 most published institutions	**Documents count**	**Citations count**	**Total Link Strength**	**Top 10 most cited institutions**	**Documents count**	**Citations count**	**Total Link Strength**
Chung Shan Medical University	**9**	**11**	**18**	University of California	4	168	8
University of California	4	168	8	Nebraska Medical Center	2	133	7
The Hospital for Sick Children	4	70	10	Leicester Cancer Research Centre	1	111	2
Chongging Medical University	4	44	4	Yale University	1	95	0
Bank of Cyprus Oncology Center	2	50	5	Massachusetts General Hospital Cancer Center	1	87	4
Nebraska Medical Center	2	133	7	Stanford University	1	79	7
Amgen Europe GMBH	2	37	10	Tehran University	1	68	3

Tablo 1. (Devamı)

Mayo Clinic	2	18	5	São Paulo University	1	62	3
Chang Gung University	2	13	16	Dana Farber Cancer Institute	1	56	4
Tehran University	2	1	6	Amgen Europe GMBH	2	37	10
Top 10 most published countries	**Documents count**	**Citations count**	**Total Link Strength**	**Top 10 most cited countries**	**Documents count**	**Citations count**	**Total Link Strength**
United States	**81**	**2059**	**19**	United States	**81**	**2059**	**19**
Turkey	24	356	0	United Kingdom	23	510	26
China	24	239	4	Turkey	24	356	0
United Kingdom	23	510	26	Australia	13	285	4
Japan	19	200	7	Brazil	17	272	1
Iran	18	258	3	Netherlands	12	260	16
Brazil	17	272	1	Iran	18	258	3
Taiwan	14	177	2	China	24	239	4
Australia	13	285	4	Canada	8	227	8
Netherlands	12	260	16	Japan	19	200	7

The network map of co-author, co-author-institution, and co-author-country is given in Figure 2. Research in this field was carried out by 1081 institutions from 70 countries. When the co-author analysis was limited to a minimum of one publication and one citation per author, the total number of authors was 1639 and the number of authors who met the threshold values was 1397. The most collaborating authors (n= 41) were found to have four clusters, 201 links, and 205 total link strengths. The author with the most collaborations as a co-author was Rebecca Stone (3 co-authored articles, three clusters, 10 links, and 12 total link strength) (Fig. 2A). In the co-author-institution collaboration analysis, when the threshold value per institution was limited to a minimum of one publication and one citation, the number of collaborating institutions was 1081. The number of collaborating institutions that met the thresholds was 944 (Fig. 2B). Analysis of these 944 institutions showed that Chung Shan Medical University (three articles, 1 cluster, 12 links, and 12 total link strength) was the most collaborative institution (Fig. 2B). When the co-author analysis was limited to a minimum threshold of one publication and one citation per country, the number of collaborating countries was 70. The number of collaborating countries that met the thresholds was 66. In the co-author country collaboration analysis, it was found that 47 countries collaborated, formed eight clusters, and 122 links, and the total link strength was 142. The USA ranked first among co-author collaborators (81 articles, three clusters, 15 links, and 19 total link strengths) (Fig. 2C). In general, it is seen that authors publishing in the field of OM cooperate, but the cooperation is not at the desired level. Although Turkey is one of the top three countries in terms of publications and citations in this field, Turkish universities cannot be among the top ten most productive because authors do not collaborate. Collaboration among researchers has been reported to enable the emergence of new ideas and fields as well as increase research efficiency through the sharing of information, ideas, and resources.[30,31] Furthermore, to obtain evidence-based information in the field of health, it is recommended that countries and institutions collaborate and that multinational or multicenter research with large sample groups is conducted.[32,33] As a result, collaboration between nurse researchers interested in OM in our country and researchers who are experts in the field at both home and abroad will increase our country's visibility in this field. Furthermore, researchers who wish to conduct multinational research may be recommended to work with the institutions and countries that have published the most in this field.

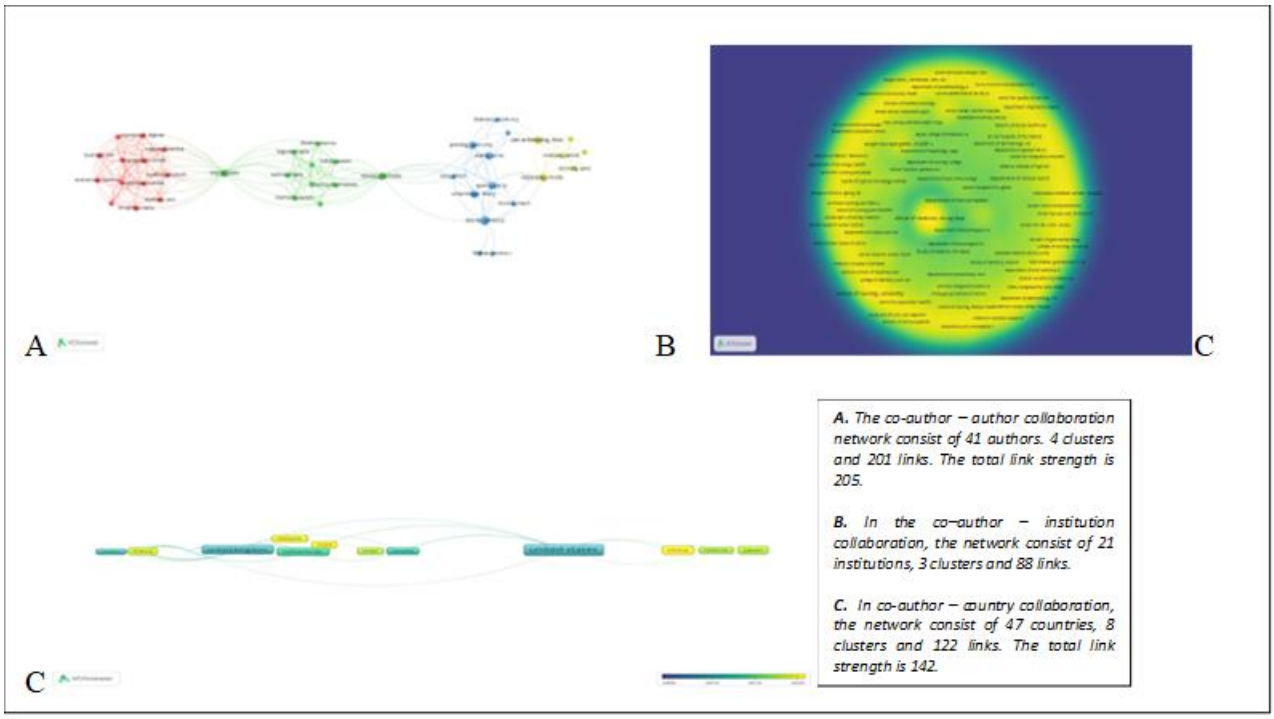

Figure 2. Co-author-author,co-author - institution, and co-author - country analysis network map

Table 2 shows the distribution of the most published and cited journals, as well as the most cited publications, related to OM in the field of nursing. Nutrients (n= 21) is the most widely published journal in this field, and the Journal of Pain and Symptom Management (n= 767) is the most cited (Table 2). Furthermore, all of the top ten most published and cited journals were found to have a high impact factor and were scanned in the Science Citation Index Expanded or Social Sciences Citation Index. Journals with a high impact factor are thought to publish high-quality research and are frequently cited.[34] It is suggested that good international journals be chosen so that the study results reach more researchers and the publications are visible.[35] For maximum impact, nurse researchers working on OM should choose to publish their research in these journals.

The most cited study was "Randomized clinical trial of chlorhexidine versus placebo for prevention of oral mucositis in patients receiving chemotherapy" published by Dodd et al. in 1996, in the Oncology Nursing Forum (Table 2). This study stated that using water as a mouth rinse was more effective than 0.12% chlorhexidine and may be effective in preventing oral mucositis. The use of chlorhexidine (CHX) in the prevention of OM is still controversial, so the number of citations to this publication is thought to be high. Due to conflicting or limited data, there is no possible guideline regarding the use of CHX for the prevention of OM in all other cancer populations. MASCC/ISOO recommends against using CHX to prevent OM in patients undergoing head and neck RT (LoE III).[36] Furthermore, because there is no gold standard for the prevention and treatment of OM related to cancer treatment, studies are conducted using a variety of pharmacological and non-pharmacological methods. Previous systematic reviews, however, show that the level of evidence for publications on OM in nursing is low.[27,36,37] The MASCC/ISOO panel's report states that basic oral care is still a crucial best practice for cancer patients; however, there is limited evidence from high-quality, rigorous studies in this area.[36] In the field of nursing, it is recommended to conduct studies with a high level of qualified evidence on the prevention and treatment of OM.

Table 2. Distribution of the most published and cited journals and most cited publications regarding to oral mucositis in the field of nursing

Top 10 most published journals	**Documents count**	**Top 10 most cited journals**	**Citations count**
Nutrients	21	Journal of Pain and Symptom Management	767
European Journal of Oncology Nursing	20	European Journal of Oncology Nursing	522
Clinical Journal of Oncology Nursing	16	Cancer Nursing	405
Journal of Pain and Symptom Management	16	Nutrients	287
Nutrition and Cancer	16	Clinical Journal of Oncology Nursing	282
Cancer Nursing	14	Seminars in Oncology Nursing	268
Oncology Nursing Forum	13	Complementary Therapies in Medicine	247
Seminars in Oncology Nursing	12	Nutrition and Cancer	201
Complementary Therapies in Medicine	11	Journal of Nutrition	172
Journal of Pediatric Oncology Nursing	8	Journal of Pediatric Oncology Nursing	127
Publications	**Authors and year**	**Journals**	**Citations count**
Randomized clinical trial of chlorhexidine versus placebo for prevention of oral mucositis in patients receiving chemotherapy.	Marylin J. Dodd ve ark., 1996	Oncology Nursing Forum	135
Mucositis-related morbidity and resource utilization in head and neck cancer patients receiving radiation therapy with or without chemotherapy.	Barbara A. Murphy ve ark., 2009	Journal of Pain and Symptom Management	104
Oral capsaicin provides temporary relief for oral mucositis pain secondary to chemotherapy/radiation therapy. Journal of pain and symptom management.	Ann Berger ve ark., 1995	Journal of Pain and Symptom Management	95
Evidence-based interventions for cancer treatment-related mucositis: putting evidence into practice.	June Eilers ve ark., 2014	Clinical Journal of Oncology Nursing	87
Guideline for the prevention of oral and oropharyngeal mucositis in children receiving treatment for cancer or undergoing haematopoietic stem cell transplantation.	Lillian Sung ve ark., 2017	BMJ Supportive & Palliative Care	79

The most frequently repeated keywords in publications and the network map of the relationship between these words are given in Figure 3. When the common keywords used are selected as 2, 139 out of 739 keywords meet the threshold value, according to the common word analysis. The network consisted of 139 keywords, 14 clusters, and 707 links, and the total link strength was 1076. "Oral mucositis" is in the center because it is the word that is most frequently repeated and combined with other words. The larger circle sizes in the figure indicate that the keyword it represents is more frequently repeated and dominant in the publications. The fact that the circles are all the same color indicates that they are part of a cluster with a similar structure. As a result of the analysis, the keyword usage frequencies are respectively; oral mucositis (n= 98), chemotherapy (n= 51), mucositis (n= 45), head and neck cancer (n= 27), radiotherapy (25), cancer (n= 23), nursing (n= 23), quality of life (n= 18), cryotherapy (n= 13) and oral care (n= 12). The least frequently occurring keywords are oral pain, evidence-based practice, lymphoma, MM, child, adverse event, safety, fatigue, infection, and oral candidiasis. Since the most commonly used keywords indicate the most researched topics in a field, keyword analysis can help determine the trend of research topics.[38] When the most frequently used keywords in OM studies in the nursing field were examined, it was discovered that the publications were related to oral care for OM and RT-related OM and focused on quality of life. However, research on oral pain, evidence-based practice, lymphoma, multiple myeloma, and pediatric oncology patients has been limited. It may be recommended that nurse researchers interested in the field of OM focus on these areas when planning their studies.

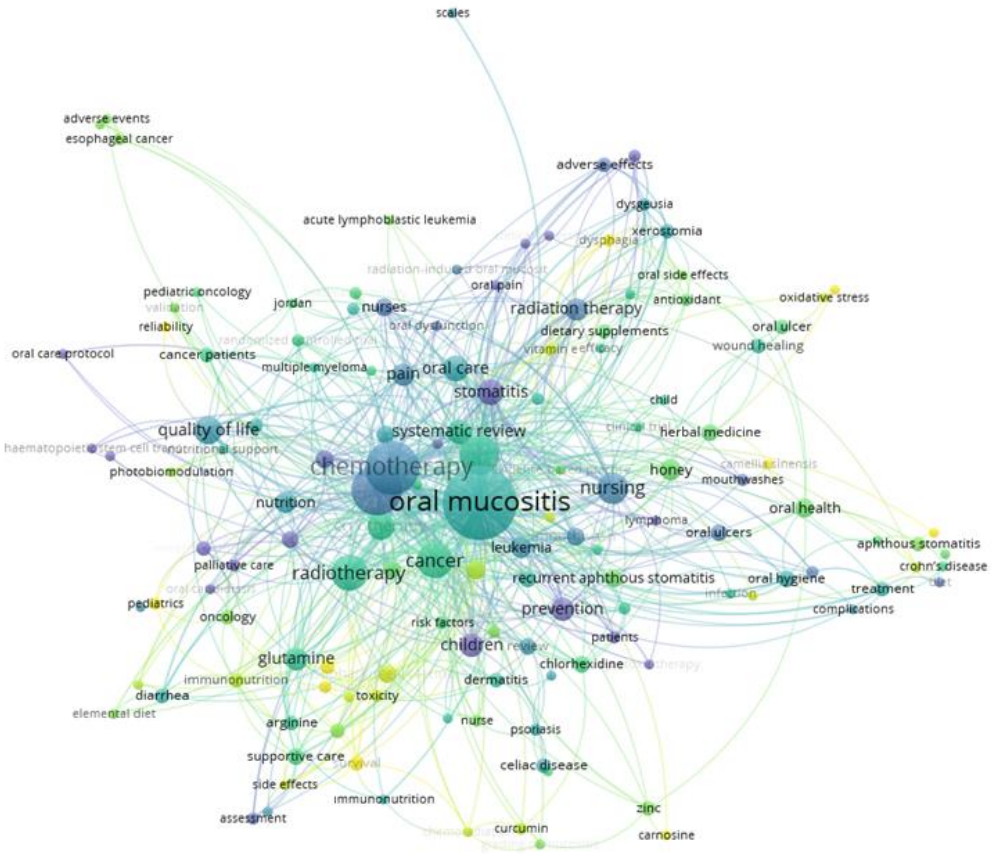

Figure 3. Keyword analysis network map

CONCLUSION AND RECOMMENDATIONS

The first publication on OM in nursing was in 1972, and the number of publications and citations increased after 1990. Laurie MacPhail is the most productive author in this field, Chung Shan Medical University is the most published institution, and the University of California is the most cited institution. Although Turkey is one of the top three countries in terms of publications and citations, the visibility of our institutions is limited because the authors do not cooperate. The top ten most published and cited journals in this field have a high impact factor, and they are all indexed in the SCI-E or SSCI indexes. OM research in nursing is frequently focused on RT-related OM and oral care for OM. There have been few studies on OM-related pain, evidence-based practice, lymphoma, multiple myeloma, and pediatric oncology patients.

According to these findings, nurse researchers in the field of OM should prioritize collaboration between institutions and countries in order to increase our country's international visibility. It would be advantageous to conduct multi-center research in collaboration with the United States, which has the most productive authors and universities in this field. Due to the limited number of studies on OM-related pain, evidence-based practice, lymphoma, MM, and pediatric oncology patients in the field of nursing, it is recommended to give priority to these areas when planning future research.

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