

Visual Analysis of Hotspots in Oral Cancer Nursing Research Based on Citespace

Qin Guan¹, Lu Zhou¹, Zhipeng Xue¹, Xiaoling Zhu²

1.College of Nursing, Dali University, Dali 671000, China.

2.The First Affiliated Hospital of Dali University, Dali 671000, China.

Abstract: Objective: To understand the current research status of oral cancer nursing in China and abroad in the past 10 years, analyze the cutting-edge hotspots in this field, and provide reference for oral cancer nursing in China. Method: Retrieve oral cancer nursing related literature from the core collection of CNKI and Web of Science, and use CiteSpace software to visualize high-frequency keywords, keyword clustering, keyword emergence, and timeline maps in the included literature. Result: A total of 333 articles were included, including 258 in Chinese and 75 in foreign languages. Conclusion: The research scope in this field in China has transitioned from holistic nursing to detailed nursing; The scope of research abroad is broad, and promoting physical function recovery is its core. Improving the quality of life of patients is a key research direction in this field both domestically and internationally. Psychological care, nutritional support, and health education are future research hotspots for sustainable development.

Keywords: Oral cancer; Nursing; Visualization

1. Introduction

Oral cancer is a common malignant tumor worldwide, which occurs in multiple sub locations, such as oropharyngeal cancer, jawbone cancer, gingival cancer, tongue cancer, etc; It is one of the most common cancers worldwide^[1].According to the report, it is estimated that the global incidence of oral cancer may reach 865000 people by 2035^[2].Asia, Eastern Europe, and Latin America are high-risk areas for oral cancer, especially in countries such as India, China, and Brazil^[3].The incidence rate of oral cancer in China studied by the Chinese Center for Disease Control and Prevention is 48.1/100000^[4], It accounts for nearly 22% of the world's new cancer cases and nearly 27% of cancer deaths. The incidence rate of oral cancer is increasing year by year^[5].Compared with other regions, the incidence rate of oral cancer in northern and southwestern China is higher^[6].Surgery is the preferred treatment for oral cancer, but postoperative complications such as language and chewing dysfunction, changes in appearance, psychological problems, and nutritional issues may lead to poor recovery. Targeted physical and psychological care is crucial for patients after surgery.

This study utilized Citespace software to organize the current research status of oral cancer care at home and abroad in the past decade, and analyzed the hotspots and development frontiers of oral care to provide scientific basis for improving the care and quality of life of oral cancer patients.

2. Materials and methods

2.1 Source of Materials

The literature for this study was sourced from two major databases, China National Knowledge Infrastructure (CNKI) and Web of Science Core Collection, with a search period from January 1, 2013 to December 31, 2022. The search expression is ((TS=(Mouth Neoplasm *) OR TS=(Oral Neoplasm *) OR TS=(Mouth Cancer *) OR TS=(Oral Cancer *)) AND TS=(numbering), exported in "plain text file" format with "full record and cited references" content.

2.2 Discharge standard

Inclusion criteria: (1) Journal and degree papers publicly published in the core collection of CNKI and Web of Science; (2) The research subjects are oral cancer patients; (3) The research topic is oral cancer care. Exclusion criteria: (1) Repeated publications; (2) The types

of literature are various conference materials; (3) Non Chinese and English literature.

2.3 Research methods

Visualize the high-frequency keywords, keyword clustering, keyword emergence, and timeline map of the included literature using CiteSpace 6.2.R3 software. The time span (# Year Slicing) is from 2012 to 2022, and the slicing time (# Year Per Slice) is set to one year. The threshold is set as needed to analyze the research directions and hotspots of oral cancer nursing at home and abroad.

3. Results

3.1 High frequency keywords

High frequency keywords highly summarize the research topics in literature, and the centrality of keywords represents their importance in the overall co-occurrence view of keywords^[7]. The following are the top ten keywords both domestically and internationally (as shown in Table 1).

Table 1 High frequency keywords in domestic and foreign databases

CNKI					WOS			
Number	frequency	centrality	year	keyword	frequency	centrality	year	keyword
1	45	0.13	2012	Perioperative care	18	0.41	2013	quality of life
2	23	0.05	2012	quality of life	9	0.04	2013	impact
3	22	0.13	2012	Radical surgery for oral cancer	13	0.18	2013	radiotherapy
4	11	0.01	2013	complication	6	0.07	2013	diagnosis
5	9	0	2012	Holistic care	5	0.01	2012	knowledge
6	9	0.01	2017	Fast track surgery	5	0.1	2014	management
7	9	0	2016	Bundled care	5	0.03	2018	risk factors
8	7	0	2012	psychological nursing	4	0.06	2015	chemotherapy
9	7	0.04	2014	Nursing effectiveness	3	0.04	2015	fatigue
10	6	0.01	2012	repair	3	0.01	2012	health

3.2 Keyword clustering

Keyword clustering is the process of summarizing and organizing similar topic words, which can reflect the research hotspots and composition of various topics in the field. Citespace provides module value (Q) and contour value (s) as the basis for evaluating the effectiveness of graph drawing. $Q > 0.3$ indicates significant partition structure, $S > 0.5$ indicates reasonable clustering, and if $S > 0.7$ indicates efficient and convincing clustering^[7]. In this study, domestic keyword clustering $Q=0.4928$, $S=0.8021$; Foreign keyword clustering $Q=0.6415$, $S=0.8849$, the structure of domestic and foreign keyword clustering is significant, reasonable and efficient. The following are the top ten keyword clusters at home and abroad (as shown in Table 2).

Table 2 Keyword clustering in domestic and foreign databases

Number	Cluster labels	literature quantities		Outline value
#0	nursing care	53	0.671	CNKI
#1	bundled care	51	0.872	
#2	quality of life	39	0.765	
#3	anxiety	37	0.846	
#4	radical surgery for oral cancer	29	0.733	
#5	repair	25	0.917	

#6	postoperative patients	16	0.936	
#7	analysis	13	0.92	
#8	nursing efficacy	10	0.958	
#9	flap survival	8	0.969	
#0	care	35	0.864	WOS
#1	oral cancer	29	0.776	
#2	oral function	18	0.961	
#3	systematic review	18	0.961	
#4	oral therapy	15	0.972	
#5	individual symptom patterns	12	0.868	
#6	oral health	8	0.907	
#7	checklist	8	0.907	
#8	incidence	6	0.979	
#9	management issues	5	0.996	

3.3 Timeline trend

Timeline analysis can visually display the evolution and changes of keywords. From the evolution characteristics of domestic keywords, it can be inferred that the research scope in this field in China has shifted from broad to narrow, from shallow to deep, and from holistic nursing to refined nursing. Comfort and quality of life are key directions. Foreign countries are researching how to promote the rehabilitation of oral cancer patients from the aspects of treatment, management, psychology, and rehabilitation.

4. Discussion

4.1 Quality of life is a key research direction

In this study, “quality of life” appeared in high-frequency keywords and domestic keyword clusters both inside and outside China. “Quality of life” refers to the optimal level of psychological, physical, role, and social functioning of patients^[8]. Schliephake evaluated the quality of life of 83 patients undergoing oral cancer surgery, and the results showed that patients gradually showed lower value in role function, social function, and other aspects^[9]. Quality of life is an important indicator for evaluating the treatment effectiveness of oral cancer patients.

4.2 Research hotspots

4.2.1 Psychological care

Oral cancer patients may experience negative emotions such as anxiety, depression, and shame due to their condition and surgery, which can interfere with their psychological and social adaptation abilities^[10]. A meta-analysis showed that psychological nursing intervention can improve the quality of life of oral cancer patients and reduce adverse reactions^[11]. Clinical nursing work is busy and prone to neglecting mental health, which should be taken seriously.

4.2.2 Nutritional support

Postoperative oral cancer patients have difficulty eating and often suffer from malnutrition, which is also one of the causes of postoperative complications^[12]. The continuous decrease in protein levels three days after surgery is not conducive to recovery. Nutritional support can improve the tolerance and resistance of perioperative patients to surgery, reduce the occurrence of complications, and shorten hospital stay.

4.2.3 Health education

Scientific and effective health education interventions can enhance patients' awareness of risk factors and early symptoms of oral cancer^[13]. Wood pointed out^[14], a practical educational method that is conducive to establishing a strong doctor-patient relationship and improving patient treatment compliance. Online interactive education is a rising health education mode.

5. Summary

The research scope of domestic keywords ranges from broad to narrow, from shallow to deep, transitioning from holistic care to detailed care. The research focus is on improving patient comfort and quality of life; Research abroad focuses on treatment, management, psychology, and rehabilitation, with a wide scope. The key research directions at home and abroad are quality of life, and psychological care, nutritional support, and health education are future research hotspots for sustainable development. Compared with foreign countries, China currently tends to focus on researching how to improve patient comfort through detailed nursing care. This study can provide clear reference and inspiration for the research hotspots of oral cancer nursing.

References

- [1] Gupta B, Bray F, Kumar N. Associations between oral hygiene habits, diet, tobacco and alcohol and risk of oral cancer: a case-control study from India. *Cancer Epidemiol.* 2017;51:7-14.
- [2] [1]Gupta B, Bray F, Kumar N. Associations between oral hygiene habits, diet, tobacco and alcohol and risk of oral cancer: a case-control study from India. *Cancer Epidemiol.* 2017;51:7-14.
- [3] Warnakulasuriya S, Ballal M, Tilakaratne W M, et al. Review of global oral cancer: Epidemiology, risk factors, and pathogenesis[J]. *Oral Diseases*, 2019, 25: 661-678.
- [4] Warnakulasuriya S, Ballal M, Tilakaratne W M, et al. Review of global oral cancer: Epidemiology, risk factors, and pathogenesis[J]. *Oral Diseases*, 2019, 25: 661-678.
- [5] Lin HH, Lin YH, Hwang TZ, et al. The effects of a diet education program on nutritional status and quality of life in oral cancer patients who underwent surgery [J] *The Journal of Nursing*, 2020, 67 (1) : 33-43.
- [6] Li M, He H, Zhang Z, et al. Risk factors for oral precancerous lesions: a systematic review and meta-analysis. *Oral Oncol.* 2020;106:104716.
- [7] Chen, C. (2017). Science mapping: A systematic review of the literature. *Journal of Data and Information Science*, 2(2), 1-40.
- [8] Theofilou P. Quality of life: definition and measurement[J]. *Europe's journal of psychology*, 2013, 9(1).
- [9] Schliephake H, Jamil M U. Prospective evaluation of quality of life after oncologic surgery for oral cancer[J]. *International journal of oral and maxillofacial surgery*, 2002, 31(4): 427-433.
- [10] Suresh K, Chandrasekaran V C, Ahamed S S, et al. Psychological factors influencing head and neck cancer patients. *Journal of pharmacy & bioallied sciences.* 2015; 7(Suppl 2): S319-23.
- [11] Cao H, Li X, Zhang T, et al. The effectiveness of psychological intervention on depression and anxiety of patients with head and neck cancer: a meta-analysis. *International Journal of Nursing Studies.* 2020;102:103472.
- [12] Jiang C, Zhang Z, Shang J, et al. Effect of percutaneous endoscopic gastrostomy on survival of elderly patients with head and neck cancer: a PRISMA-compliant systematic review and meta-analysis. *Medicine.* 2019; 98(30): e16379.
- [13] Expósito M R A, Herrera-Martínez A D, García G M, et al. Early nutrition support therapy in patients with head-neck cancer[J]. *Nutricion hospitalaria*, 2018, 35(3): 505-510.
- [14] Wood L. A review on adherence management in patients on oral cancer therapies[J]. *European Journal of Oncology Nursing*, 2012, 16(4): 432-438.