

Visual Analysis of The Citespace-based COPD Research On The Stable Care Field

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Abstract: Objective To explore the research hotspot and development frontier of stable care in COPD. Methods The CNKI database was searched, and the search year was set from January 1,2013 to March 31,2023. citespace software was used to visually analyze the distribution of publications, authors and institutions, keyword co-occurrence and clustering. Results A total of 511 articles were included, among which the number of articles showed a significant upward trend from 2013 to 2019;Xiaolei Shang Shang , Guifang Yu and other 21 authors; the school of Nursing of Nanjing Medical University has 3 articles; The research focus focus on quality of **life, extended nursing, compliance, TCM nursing, etc. The research frontier is mainly in exercise endurance. Conclusion Clinical medical staff should establish scientific evidence-based intervention program and establish evidence-based patient care in stable COPD to improve patients' exercise endurance.

Keywords: Copd Stable Period; Nursing; Citespace

Introduction

Chronic obstructive pulmonary disease (COPD) is a common, preventable and treatable chronic airway disease characterized by persistent airflow limitation and corresponding respiratory symptoms, which is not completely reversible and progressive^[1].According to statistics, the number of COPD patients in China is about 100 million, among which 13.7% are patients over 40 years old. According to the statistics of the World Health Organization, COPD ranked the third in the disease burden in 2020^[2].Clinical studies show that the etiology of chronic obstructive pulmonary disease is complex, long course of disease, and difficult to cure. The treatment in the stable period mainly includes exercise, diet guidance, pulmonary rehabilitation training and drug treatment, which can improve patients' cough, dyspnea and other symptoms, and is also of great significance to improve the quality of life of patients [3,4].Information visualization analysis is an important research method in the field of metrology in recent years, and has been widely used in various fields^[5].With the help of the CiteSpace visualization software^[6] developed by Dr. Chen Chaomei, this study analyzed the domestic literature in the field of COPD stable nursing from January 1,2013-March 31,2023,To understand the hotspot and development frontier of COPD stable nursing research in China, in order to provide reference for COPD stable nursing research and development.

1. Data and methods

1.1 Search strategy

CNKI was selected for the literature search, The search strategy: (theme = “chronic pulmonary disease stable and care” or “COPD stable and care”),The search time is limited to January 1,2013-March 31,2023, and the search date is April 5,2023 in Chinese. Include the literature on stable phase care in COPD. Meeting notices, news reports, and inconsistent research literature were excluded. The retrieved documents were exported in refworks format and downloaded in the download.txt file name.

1.2 Literature analysis

The literature was visualized using citespace6.2.2.msi software, The time slice is set from 01 January 2013-31 March 2023, a single time slice (years per slicing) for 1 year; TOP N = 50, the node is set with “Author”, “Keyword”, “Institution” as the network nodes, to extract the author, keywords, organization and other information, According to the frequency of keywords, the visual co-occurrence map was analyzed, the high frequency keywords were clustered, and the emergence of keywords was analyzed.

2. Results

2.1 Basic characteristics analysis of the literature

2.1.1 Distribution of post volume

In this study, 511 articles were finally included in the annual publication statistics. This study shows that the number of articles published from 2013 to 2019, the number of documents gradually increased, indicating that this stage is a period of rapid development. From 2019 to 2021, the number of articles published was relatively stable, while the number of articles published in 2022 decreased, and the number of articles published was 39.

2.1.2 Distribution of the authors and the institutions

The results showed 276 nodes, 129 lines and a network density of 0.0034. In this study, the size of the nodes represents the number of the author. The larger the nodes means the more the author posts. The connection between the authors represents the cooperative relationship. The study found that Xiaolei Shang, Guifang Yu, Chao Xia, Shuang Li, Jie Tian and other 21 people had the largest number of articles, with two articles respectively. There have also formed several cooperative networks represented by Ying Zeng, BaolanLi, Qian Liu, Xin Xia and Li Guan respectively, and other published authors have no cooperative relationship with each other; Using the organization as the network node, the study results showed 254 nodes, 32 lines, and a network density of 0.001. In this study, a node represents a publishing agency, and the connection between the nodes represents the cooperation between the publishing agencies, and the thickness of the connection represents the close cooperation between the publishing agencies. The results show that COPD stable care institutions are scattered and less cooperation between institutions. The School of Nursing of Nanjing Medical University published the most articles with 3 articles.

2.2 Keyword co-occurrence and cluster analysis

2.2.1 Keyword co-occurrence analysis

The results show that 224 nodes, 634 attachment, network density 0.0254, the same keywords, the top 10 high frequency keywords are stable, quality of life, lung function, nursing, extended nursing, nursing intervention, elderly, compliance, COPD, traditional Chinese medicine care.

2.2.2 Keyword cluster analysis

This study generated a keyword cluster map, which formed 10 meaningful clusters, namely, patients with lung function, stable period, quality of life, nursing, respiratory function, nursing intervention, self-management, compliance, rehabilitation and nursing, and stable period. The map shows $Q=0.4208$, indicating that the cluster structure is significant, $S=0.8372$, indicating that the cluster structure is reasonable, it can be seen that the cluster structure and high frequency words are basically consistent.

2.3 Prompt word analysis

Emergent words contain two important aspects: mutation strength and duration, the former represents the emergent strength of keywords, and the latter includes ^[7], the onset of the beginning and end of keywords. In order to understand the frontier progress and development trend of COPD stable nursing research, "Burstness" in keyword analysis is selected, and the top 14 emergent words are obtained. The key word in the recent and still growth stage is exercise endurance, and the emergent intensity is as high as 3.08, and the emergent time is 2021-2023.

3. Discussion

Analysis of the study status: The number of COPD stable nursing research literature showed a ladder upward trend between 2013 and 2019, indicating that this field was valued, which is closely related to the policy at that time. According to the author cooperative map analysis, only 21 authors published more than two articles, indicating that the research of COPD stable care is scattered and has not yet formed a certain scale system. Through institutional cooperation map analysis, Nanjing medical university and Shanghai jiaotong university school

of medicine, Suzhou Kowloon hospital, Lianyungang city first people's hospital, Nanjing university of Chinese medicine nursing college cooperation is better, the second people's hospital of Shandong Dongying city disability rehabilitation center cooperation is better, other institutions are cooperation. Therefore, the cooperation among the various institutions should be strengthened to promote resource sharing and improve the research level.

Analysis of research hotspots: Through the analysis of high-frequency keywords and clusters in cnCNKI database, it is found that the research hotspots of COPD stable nursing in China mainly focus on quality of life, extended nursing, compliance, traditional Chinese medicine nursing, etc. It is now analyzed from the following 4 points. ① Compliance with stable COPD patients: long-term standard inhalation medication is the core of treatment for stable COPD patients, but a considerable number of patients have reduced compliance (such as self-increase / reduction of dose, withdrawal or non-standard inhalation technology), leading to poor prognosis^[8]. Some studies have shown that the pharmaceutical care intervention^[9], health education lecture^[10], and comprehensive intervention^[11] of the "nurse + pharmacist" medication education model are conducive to the improvement of patients' medication compliance. However, medication compliance is influenced by many factors including patients themselves, disease, family, medical staff and so on^[12]. Therefore, the cooperation of society, family, medical staff, patients and other aspects is needed to improve the medication compliance of COPD patients, so as to increase the treatment effect of drugs, reduce the occurrence of adverse reactions, and promote the recovery of patients. ② Extension nursing for COPD patients in stable period: extended nursing is a new nursing mode, which can extend hospital nursing to families, realize the effective connection between in-hospital intervention and out-of-hospital intervention, and play a positive role in stabilizing the patient's condition^[13]. The COPD treatment cycle is long, and most of the stable patients recuperate at home, so it is difficult for the compliance with their lung function exercise to be effectively guaranteed, so it is necessary to give effective continuous nursing intervention^[14]. The ways of extended nursing implementation include telephone follow-up, family visit, health education based on network platform, and knowledge lectures. The main contents include health education, respiratory function exercise, dietary guidance, medication guidance, oxygen safety, and psychological nursing^[15]. There are a large number of studies [16-20] show that quality continuity care can significantly improve the living conditions of COPD patients after returning home, improve the symptoms of dyspnea, delay the development of the disease, improve patients' mobility, improve the quality of life, and reduce the fatality rate, which is an important measure to implement overall nursing and quality nursing. ③ TCM nursing of patients in stable COPD: TCM nursing intervention is guided by the overall concept of TCM, provides disease prevention and syndrome differentiation nursing to patients, takes the patient as the center, evaluates the patient's condition, guides the patient's diet, conducts health education for patients, eases their feelings, and makes them cultivate the TCM health habits, such as^[21]. The study shows that^[22] TCM nursing technology combined with routine nursing has better efficacy compared with routine nursing, it has obvious advantages in lung function and quality of life, and the application of appropriate TCM nursing technology has the advantages of less adverse reactions and higher safety. Clinically, TCM nursing combined with routine nursing for COPD patients can improve the improvement degree of lung function and the quality of life of patients. ④ Quality of life of patients with stable COPD: Quality of life refers to the subjective experience^[23] of the survival status related to their expectations, standards and things they care about in different cultures and value systems. COPD has a complex disease, long course and recurrent episodes, and the quality of life of patients during treatment is often low^[24]. Some studies have shown that disease course, comorbidities, disease perception and self-management are the influencing factors affecting the quality of life of COPD. Therefore, targeted interventions should be developed in the clinic to improve the quality of life of patients^[25].

Research frontier analysis: Through the analysis of the emerging keywords in CNKI, it is found that the emerging keyword is exercise endurance. Due to the decline of patients with lung function, exercise endurance is weakened. How to improve the exercise endurance of COPD patients is still the future research direction. Studies are emerging to improve patients' exercise endurance, and in future studies, healthcare professionals should establish scientific evidence-based intervention programs combined with evidence-based interventions for patient care with stable COPD.

In conclusion, based on the visual analysis of citespace software, this study summarizes the research hotspots and development frontiers of stable care for chronic obstructive pulmonary disease in China from 2013 to 2023. This study also has some limitations. The literature data are from China, and comparative research can be conducted in the future. At the same time, the author's subjective judgment may have

an impact on the combination of keywords, so the research results may be biased.

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