

Bibliometric Visualization Analysis of Chinese Medicine Treatment of Autism Spectrum Disorder in Recent 10 Years

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Abstract: Objective To analyze the current situation and hot spots of research on the treatment of ASD with traditional Chinese medicine, reveal the dynamic changes and development trend of research hot spots, and provide ideas and basis for clinical and basic research on the treatment of ASD with traditional Chinese medicine. **Method** Search and collect the research literature on the treatment of ASD by traditional Chinese medicine in the Chinese Journal Full Text Database (CNKI), Chinese Science and Technology Journal Database (WEP), Wanfang Medical Network Database, and China Biomedical Literature Service System (SinoMed). The search time is from January 1, 2011 to September 30, 2021. COOC9.94 software was used to remove duplicates from multiple databases and construct a column chart of keywords year by year. The VOSviewer 1.6.17 software is used for co occurrence analysis and a co occurrence diagram of the document issuing organization is made. Learn about the time, journal, key words and organizations of relevant documents, and the evolution of research topics. result 372 articles were included. In the past 10 years, the number of relevant articles was on the rise, mainly published in the medical and health science and technology field. The main research institutions are Shaanxi University of Traditional Chinese Medicine and Guangzhou University of Traditional Chinese Medicine. **Conclusion** The field of traditional Chinese medicine in treating ASD has made some progress in recent years, especially in the traditional fields such as acupuncture and rehabilitation training. The objectification and phasing of efficacy evaluation have been emphasized, but there is still a lack of long-term and stable research team in this field, and the frontier field needs to be further explored and developed.

Keywords: Traditional Chinese Medicine; Autism Spectrum Disorder; Document Metrology; Visualization

Introduction

Autism spectrum disorder (ASD) is a group of serious neurodevelopmental disorders in children. Its core symptoms include social communication disorder, language development disorder, narrow interest and stereotyped behavior^[1]. At present, there is no national epidemiological survey data of ASD in China. According to the latest prevalence survey of Centers for Disease Control and Prevention (CDC), one (2.3%) of every 44 8-year-old children is confirmed to have autism spectrum disorder^[2-3]. At present, there is no specific drug for ASD, which mainly focuses on behavioral and educational intervention^[4]. Therefore, it is urgent to give play to the theoretical advantages of traditional Chinese medicine and explore effective methods and drugs to improve ASD children.

1. Data and methods

1.1 Data source and retrieval strategy

Computer retrieval of China Journal Full Text Database (CNKI), Chinese Science and Technology Periodicals Database (Wiki), China Academic Periodicals Database (Wanfang Data), and China Biomedical Literature Database (CBM). Search strategy: subject/keyword="autism" or "autism", search time: January 1, 2011 to September 30, 2011.

1.2 Inclusion criteria and exclusion criteria

Inclusive criteria: (1) The subjects were autistic or autistic patients; (2) The research content is about the treatment of traditional Chinese medicine and traditional Chinese medicine. Exclusion criteria: (1) conferences, newspapers, patents, popular science and other documents; (3) The language is non Chinese literature.

1.3 Data screening

When screening literature, first read the title of the literature. After excluding obviously irrelevant literature, further read the abstract and the full text to determine whether to include them. The database literature is exported by refworks. The COOC9.94^[5] software is used for multi data mixing and de duplication, and manual re screening is carried out to form a literature format that can be used by COOC9.94. The missing data is manually added.

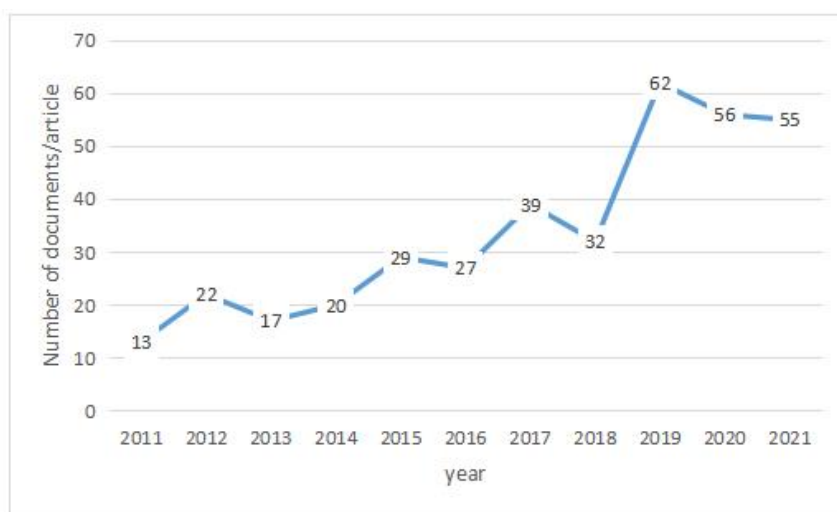
1.4 Data analysis

According to its node type, EXCEL was used to make statistics on the number of papers, author distribution and institutional distribution of the literature related to the treatment of ASD with traditional Chinese medicine in the past 10 years. The COOC9.94 software is used to construct the year by year column chart and key, the VOSviewer 1.6.17^[6] software is used to conduct co occurrence analysis, and the keyword co occurrence chart and the document issuing agency co occurrence chart are constructed in full display mode.

2. Results

2.1 Distribution of document issuing time

A total of 1093 relevant documents were retrieved, including 367 CNKI, 178 Wip, 373 Wanfang Data and 75 CBM. It can be seen from Figure 1 that from 2011 to 2021, the number of documents related to the treatment of ASD with traditional Chinese medicine will increase, with an average annual number of 33, the highest number of documents in 2019 will be 62, and the lowest number in 2011 will be 13. On the whole, the number of papers on the treatment of ASD with traditional Chinese medicine has risen slowly and fluctuated, indicating that the role of traditional Chinese medicine in the treatment of ASD has been increasingly valued by clinical and scientific researchers.



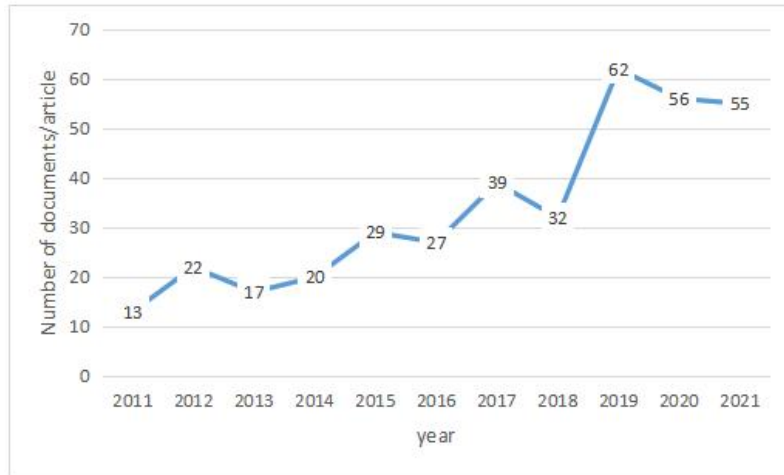


Figure 1 Time distribution line chart of literature related to the treatment of ASD with traditional Chinese medicine

2.2 Distribution of source journals

The number of published journals of literature related to the treatment of ASD by traditional Chinese medicine is ranked according to the number. The largest number of published journals are Chinese Journal of Traditional Chinese Medicine, Journal of Pediatrics of Traditional Chinese Medicine, Shanghai Journal of Acupuncture and Moxibustion, Global Journal of Traditional Chinese Medicine and so on. The number of published papers of literature related to the treatment of ASD by traditional Chinese medicine reaches 110 from 1 to 2. On the whole, the relevant literature on the treatment of ASD by traditional Chinese medicine is mainly published in the field of medical and health science and technology, involving a large number of high-level core journals, and widely accepted by various journals. It can be seen that the research related to the treatment of ASD with traditional Chinese medicine is relatively new, which is one of the focuses of researchers.

2.3 Keyword distribution

Keyword analysis was conducted on the literature related to the treatment of ASD with traditional Chinese medicine. In the field of the treatment of ASD with traditional Chinese medicine, autism, acupuncture, rehabilitation training and other keywords appeared more frequently, 322 times, 151 times and 35 times respectively, suggesting that the research on the treatment of ASD with acupuncture and rehabilitation training was relatively mature, accounting for more than half of the relevant research. The related keywords such as autism, acupuncture, efficacy, massage Key words such as famous doctor's experience and intestinal flora appeared more frequently than 9 times. It is suggested that the treatment of ASD by traditional Chinese medicine is mainly based on external therapies (acupuncture, rehabilitation training).

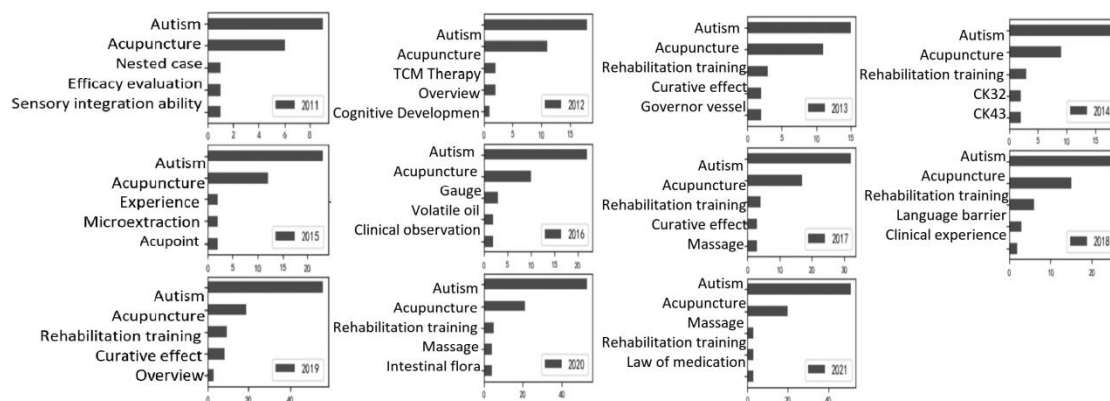


Figure 2 Key words of literature on medical treatment of ASD year by year histogram

The keywords in the literature related to the treatment of ASD by traditional Chinese medicine are analyzed year by year, and a column chart is constructed year by year based on the top five keywords in terms of frequency, as shown in Figure 2. On the whole, the research related to acupuncture and moxibustion has long been the first place in the research of ASD by traditional Chinese medicine, suggesting that acupuncture and moxibustion are in the long-term In - depth research also suggests the clinical effectiveness of acupuncture in treating ASD; Since 2013, the research on the treatment of ASD by rehabilitation training has gradually received attention.

2.4 Distribution of research institutions

Scientific research institutions are the main authors of the research. Through the analysis of scientific research institutions, we can understand the distribution of research power of traditional Chinese medicine in treating ASD. In this study, we made a visual analysis of the institutions to which 372 articles belong, and merged the words of institutions with the same meaning or affiliated departments, such as Guangzhou University of Traditional Chinese Medicine and the Academic Affairs Office of Guangzhou University of Traditional Chinese Medicine. The results are shown in Figure3. The issuing institutions of the literature related to the treatment of ASD in traditional Chinese medicine are mainly the University of Traditional Chinese Medicine and its affiliated hospitals and some research institutions. Beijing University of Traditional Chinese Medicine, Heilongjiang University of Traditional Chinese Medicine, Guangzhou University of Traditional Chinese Medicine, and Shaanxi University of Traditional Chinese Medicine send more papers, but the issuing institutions are scattered and the cooperation between institutions is small, so the effective cooperation output is not carried out.

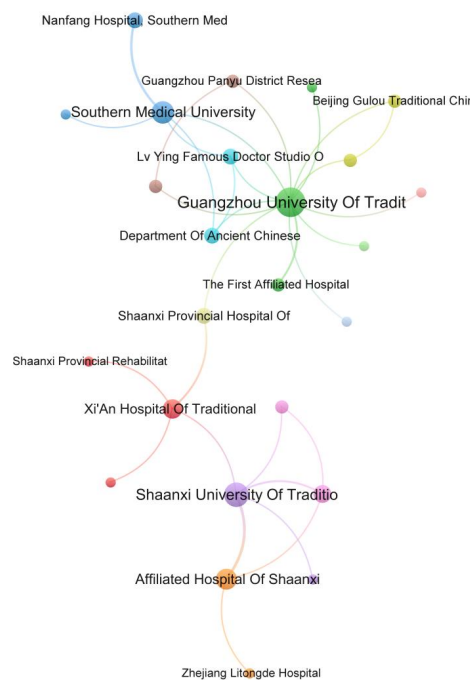


Figure3 Co occurrence Chart of Document Issuing Organizations of Traditional Chinese Medicine in Treating ASD

3. Discussion

This study uses CNKI, Weibo database, Wanfang database and China Biomedical Literature Database as data sources to visually analyze the time, journals, keywords, agencies and other nodes of 372 articles on the treatment of ASD by traditional Chinese medicine included from January 1, 2011 to September 30, 2021. The results show that in the past 10 years, the number of documents issued by relevant documents has been on the rise as a whole, with a relatively slow rise in the number of documents issued, showing a fluctuating rise. Although the research on the treatment of ASD with traditional Chinese medicine has made great progress, and the research in recent years has been deepening and expanding, attracting

more and more scholars to research in this field, compared with other disciplines, the research on ASD with traditional Chinese medicine is still in its early stage, which needs continuous long-term development and exploration. Relevant literatures were mainly published in Chinese Journal of Traditional Chinese Medicine, Journal of Pediatrics of Traditional Chinese Medicine, Shanghai Journal of Acupuncture and Moxibustion, Global Journal of Traditional Chinese Medicine, etc., suggesting that most relevant researchers tend to publish their papers in more professional journals of traditional Chinese medicine. In recent 10 years, external acupuncture and moxibustion therapy has become an important hot spot in the treatment of ASD in traditional Chinese medicine. Among them, Jin's three needles can improve intelligence and brain function, coordinate movement, and have a significant clinical effect on children with intellectual and language disorders^[7-9]. At the same time, rehabilitation training, traditional Chinese medicine and other therapies began to emerge and get attention; The research on the syndrome types of ASD has been gradually paid attention to, and the analysis of the therapeutic effect of traditional Chinese medicine on patients with different syndrome types has been paid attention to. The main research institutions in this field are the University of Traditional Chinese Medicine and its affiliated hospitals, sports universities and some scientific research institutions, represented by Beijing University of Traditional Chinese Medicine, Heilongjiang University of Traditional Chinese Medicine, Guangzhou University of Traditional Chinese Medicine and Shaanxi University of Traditional Chinese Medicine, which are the main positions for the research of traditional Chinese medicine in treating ASD.

On the whole, traditional Chinese medicine has unique advantages in treating ASD, especially in acupuncture, rehabilitation training, traditional Chinese medicine treatment and other fields. However, there is still a lack of long-term and stable research team in this field, and frontier fields need to be further explored and developed. As bibliometric measurement mainly focuses on "quantity" indicators such as document quantity and subject words^[10], the professional quality of the literature itself cannot be evaluated, and the contribution of different authors has not been given weight, therefore, the professional depth of analyzing discipline development trends from the perspective of bibliometrics needs to be strengthened.

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