The current situation and development trend of social anxiety research in China based on CiteSpace

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Abstract: Objective: This paper uses CiteSpace to visually analyze 413 articles collected by CNKI, and discusses the trend of social anxiety in China, research hotspots, research trends, authors and institutions. The results showed that (1) social anxiety has attracted the attention of researchers. (2) The main research scholars Qian Mingyi, Cao Jianqin, Wang Yijun and others.The main research institutions are Central China Normal University, Beijing Normal University, Peking University and so on. There is still a need to strengthen cooperation between authors and institutions. (3) The high-frequency keywords of the research are 'college students', 'self-esteem', 'anxiety', 'mental health', 'adolescents', etc. (4) The research focuses on topics such as anxiety, mediation, peer victimization, cooperative learning, sleep quality, and personality, mainly targeting college students, left-behind children, and junior high school students. (5) 'Junior high school students', 'rumination', 'self-control', and 'mobile phone addiction' are the development trends in the field.

1. Introduction

Social anxiety refers to an emotional reaction and avoidance behavior that has a strong anxiety, nervousness or fear of one or more interpersonal situations. It is specifically manifested in fear of facing each other, fear of losing face, fear of writing in person, eating, etc.[1] Social anxiety is one of the major psychological problems with high incidence and long duration, which affects individual interpersonal relationship and mental health. It has aroused widespread concern in academia. At present, China has conducted a lot of research on social anxiety and achieved rich research results. In order to understand the current situation and trend of research in this field in China and provide ideas for subsequent research, this study uses CiteSpace software to visualize the Chinese literature with the theme of ' social anxiety ' in CNKI.

2. Analysis tools and strategies

2.1. Research tools

CiteSpace is an information visualization software developed by Dr.Chen Chaomei of Drexel University in the United States using Java language. It is based on cocitation analysis theory and

path-finding network algorithm to measure the collection of literature in specific fields, to explore the key path and knowledge turning point of the evolution of thesubject field, and to form the analysis of the potential dynamic mechanism of the evolution of the subject and the detection of the development frontier of the subject through a series of visual maps. CiteSpace can help researchers understand the research hotspots, major research institutions and countries, and research trends in the field of interest in an intuitive way by analyzing the selected literature from multiple perspectives.

2.2. Data sources

Taking China National Knowledge Infrastructure (CNKI) as the retrieval database, 'social anxiety', 'social fear' and 'communication anxiety' were selected as the keywords to search the literature published in the core journals. Literatures with the theme of 'social anxiety disorder', 'social anxiety disorder', 'social phobia', 'social phobia disorder', 'communication disorder' were excluded. Read the abstract of the literature and exclude the literature that does not meet the following criteria: (1) The research object is not the literature of social anxiety; (2) Repeated literature. After screening, a total of 413 articles were included (the literature was published as of December 30, 2022). The target literature is exported and transcoded, and the information is used as the data source for analysis[2-3].

2.3. Methods

Firstly, after deduplication of the literature in CiteSpace, the annual publication volume of the literature was counted by Excel software. Secondly, the standard literature was analyzed by CiteSpace software. According to the research purpose, the analysis contents such as ' Institution ', ' Anthor ' and ' Keyword ' were selected as nodes, and the knowledge map was drawn to explore the research status in the field of social anxiety.

3. Analysis of data results

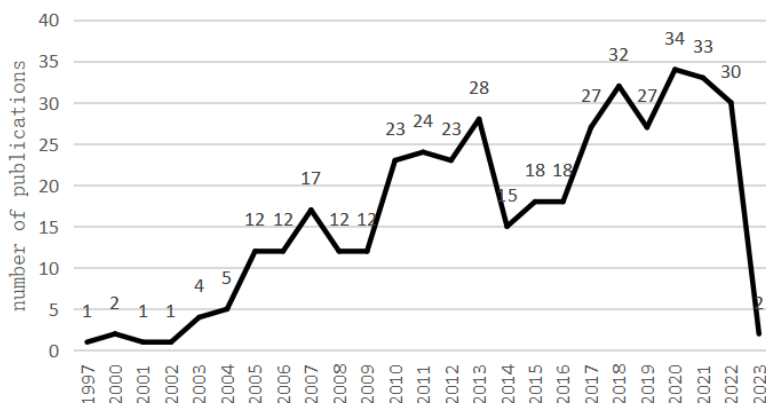## 3.1. Analysis of the number of publications

Figure 1: Number of published papers figure

The annual number of papers published in journals with the theme of social anxiety is shown in Figure 1. From 1997 to 2013, the annual number of papers on social anxiety increased year by year, and decreased from 2013 to 2016.From 2017 to 2022, the annual number of papers on social

anxiety remained in a relatively stable state, with an average annual number of 31 papers, indicating that the field of social anxiety has still received close attention from Chinese scholars in recent years[4].

3.2. Author and organization analysis

3.2.1. Author analysis

With the help of CiteSpace software, the data are analyzed, and the node type is set as the author, so as to obtain the author co-occurrence knowledge map (figure 2), and the top 10 authors of the number of articles are intercepted and made into table 1. In Figure 2, the node is the author's information. The larger the size of the author's name is, the larger the number of articles published by the author is. The connection between the two nodes represents the relationship between the authors. The thicker the connection, the closer the connection between the authors. It can be seen from the figure that although a small number of scholars are closely related, such as Qian Mingyi, Yu Hongyu, Yao Nisha, etc., most scholars have less connections, are in a state of fighting alone, and have less cooperation and communication. From Table 2, it can be seen that Qian Mingyi (15 articles) has the largest number of articles, and other authors have published about 5-9 articles. Combined with the author 's co-occurrence map, it can be found that in the field of social anxiety, a few core members occupy an important position, have rich research results, and play a decisive role.
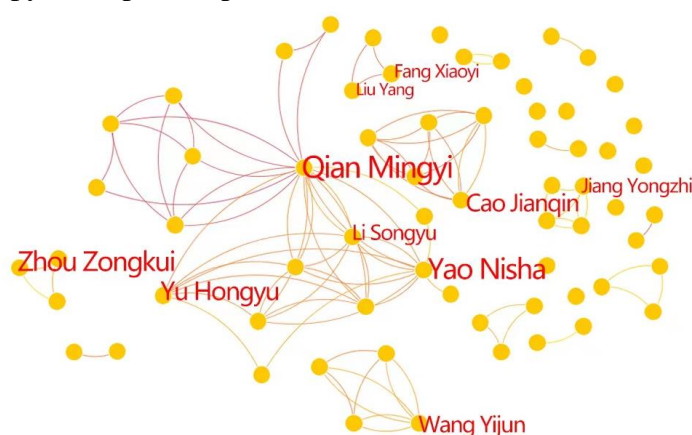

Figure 2: Author co-occurrence knowledge map

Table 1: Published information of top 10 authors.

Rank	Author	Number of publications	Initial publication year
1	Qian Mingyi	15	2004
2	Yao Sand	9	2012
3	Zhou Zongkui	9	2001
4	Yu Hongyu	8	2012
5	Cao Jianqin	7	2010
6	Wang Yijun	7	2009
7	Li Songwei	6	2012
8	Jiang Yongzhi	5	2016
9	FANG Xiaoyi	5	2003
10	Liu Yang	5	2009

3.2.2. Institutional analysis

In the CiteSpace operation interface, the node type is selected as the mechanism, and the visual analysis is carried out to obtain the mechanism knowledge map (Fig.3), and the top 5 institutions are intercepted to make Table 3. Combined with Figure 3 and Table 2, it can be seen that the institutions with more papers are the School of Psychology of Central China Normal University (18), the School of Psychology of Beijing Normal University (12), and the Institute of Developmental Psychology of Beijing Normal University (11). Some institutions have cooperative relations, especially those with more publications, but most of them are still in a state of single-handedness, with fewer links and a sense of cooperation to be strengthened [5-7].
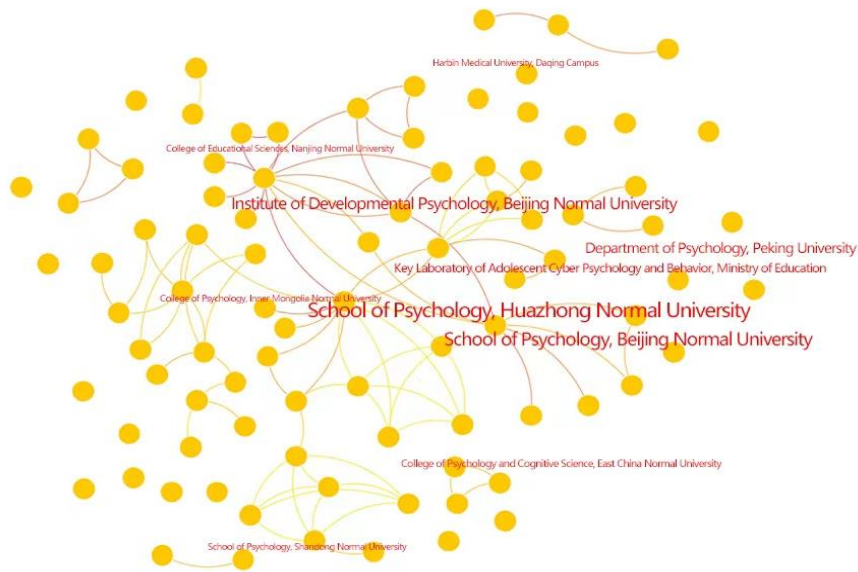

Figure 3: Institutional knowledge map

Table 2: Published information of Top 5 institutions.

Rank	Institutions	Number of publications	Initial publication year
1	School of Psychology, Central China Normal University	18	2007
2	School of Psychology, Beijing Normal University	12	2009
3	Institute of Developmental Psychology, Beijing Normal University	11	2003
4	Department of Psychology, Peking University	11	2004
5	Key Laboratory of Adolescent CyberPsychology and Behavior, Ministry of Education	10	2014

3.3. Keyword analysis

CiteSpace's operation interface node type is set as a keyword, and the corresponding operation is performed to perform keyword high-frequency word analysis, cluster analysis and burst word analysis.

3.3.1. Keywords high-frequency word analysis

CiteSpace was used to analyze the high-frequency keywords to obtain the keyword

co-occurrence map (Fig.4), and the top 10 keywords were intercepted to make Table 3. Keywords with high frequency and high centrality can determine the research hotspot in a field. Words with high frequency and words connecting key hub stages in different fields can reflect the importance of content and nodes to a certain extent. Combined with Figure 4 and Table 3, it can be seen that the topics of high concern in the current field are ' college students ', ' self-esteem ', ' anxiety ', ' mental health ', ' youth ', etc.
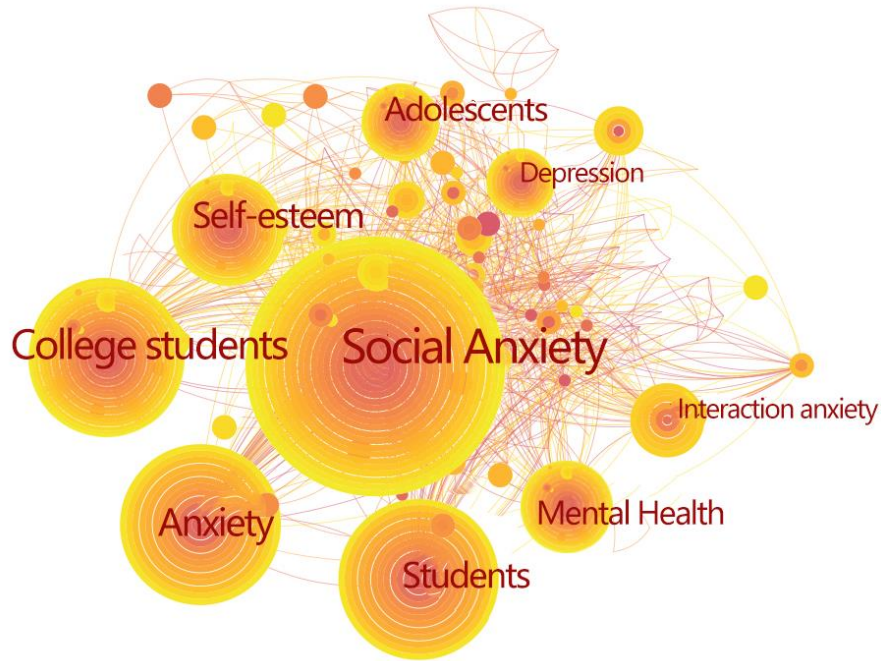

Figure 4: Keyword co-occurrence map

Table 3: Top 10 high frequency keywords of social anxiety.

Rank	Keyword	Frequence	Centrality	Year
1	Social anxiety	257	1.44	2000
2	College students	54	0.11	2003
3	Anxiety	45	0.21	2001
4	Students	43	0.09	2000
5	Self-esteem	29	0.03	2008
6	Mental health	23	0.05	2004
7	Teenagers	22	0.06	2003
8	Interaction anxiety	20	0.08	2004
9	Depression	18	0.03	2004
10	Children	16	0.06	2002

3.3.2. Keyword clustering analysis

Keyword clustering analysis in the research field can automatically classify according to the relationship between nodes, and can understand the main content of topic research. The keywords in the keyword co-occurrence graph are clustered and summarized according to the relevant algorithms, and the keyword clustering graph can be obtained (Fig.5). Figure 5 shows that there are 11 clusters in the field of social anxiety, which are # social anxiety, # 1 anxiety, # 2 interaction anxiety, # 3 college students, # 4 mediation, # 5 peer victimization, # 6 cooperative learning, # 7 left-behind children, # 8 sleep quality, # 9 junior high school students, # 10 personality[8-10].
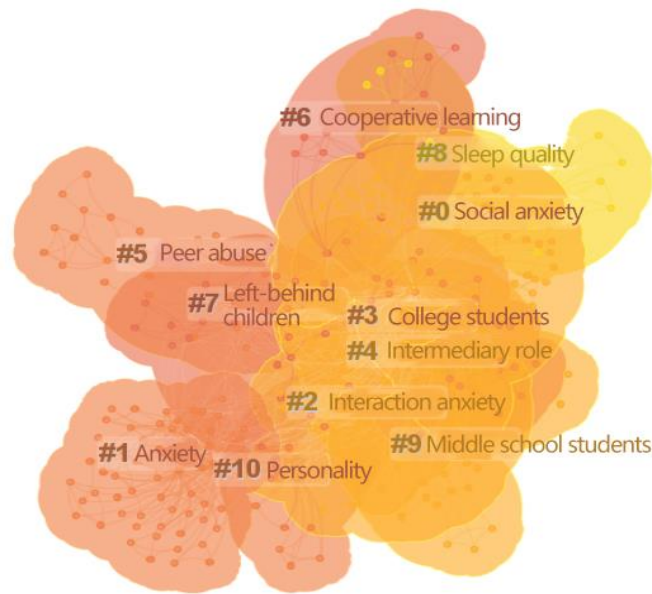
Figure 5: Keyword clustering network map

3.3.3. Analysis of emergent words

By setting the parameter ' Burstness ', the keyword burst diagram is obtained, which can further explore the development trend of research hotspots in the field of social anxiety. According to the chart, the early hotspots are ' anxiety (2001-2008)', ' students (2005-2010)', ' mental health (2007-2015)', ' coping style (2008-2015)', ' medical students (2008-2011)', ' self-consistency and congruence (2009-2013)', ' communication anxiety (2010-2014)'. The heat of these directions gradually declines over time. The recent hot directions, that is, the current research frontiers are ' junior high school students ', ' rumination ', ' self-control ', and ' mobile phone addiction '. These directions are still of concern to researchers, and in-depth research can be conducted in these directions in the future, as shown in Figure 6.
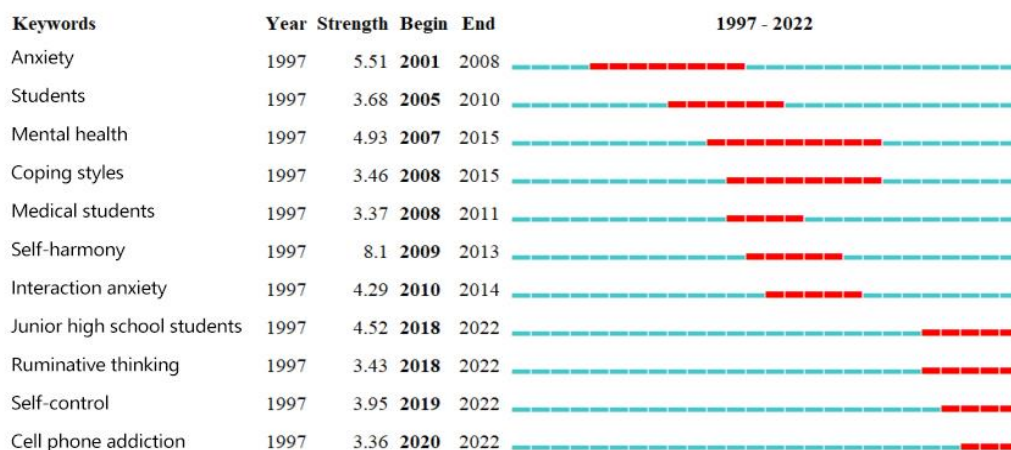

Figure 6: Keyword emergent graph

4. Conclusion

Based on the analysis of the research status of social anxiety in China, it is found that: 1 From the published articles on the theme of "social anxiety", the trend of the overall number of articles is increasing year by year, indicating that the field of social anxiety is more and more concerned by Chinese scholars. From the perspective of authors and research institutions, relevant scholars and institutions have left rich achievements in this field, but there are few cooperation and exchanges between institutions and institutions, and between scholars and scholars. Therefore, it is suggested that scholars should enhance the sense of cooperation and make the study of social anxiety more comprehensive. From the perspective of research hotspots and trends, the main contents are around anxiety, college students, intermediary role, peer abuse, cooperative learning, left-behind children, sleep quality, junior high school students and personality. The early hot topics in the field are anxiety, students, mental health, coping style, medical students, self-harmony, and communication anxiety. The recent hot topics are ' junior high school students ', ' rumination ', ' self-control ', and ' mobile phone addiction '. In the future, in-depth research can be conducted in these directions.

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