Research Article

Mental Health Assessment of Post-00s College Students Based on Knowledge Network

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The problem of college students’ mental health has become a hot research topic in the world. College students, as a new social force in the future of our country, has become an important challenge to quickly evaluate the mental health of college students, accurately understand the psychological state of college students, and take targeted measures to improve the level of college students’ mental health. To study college students’ mental health problem, based on medical university students after 00 as the research object, using literature analysis and relevant literature of college students’ mental health were analyzed, and the knowledge network mapping to reveal college students’ mental health research content and research hot spot, at the same time, use the symptom self-assessment scale knowledge network analysis method, carries on the analysis, to evaluate the mental health of post-00s college students in China by combining visual research and theoretical statistical research. The results show that through citation analysis software cite space retrieval of relevant literature, combined with the symptom self-rating scale SCL-90, college students have serious mental health problems accounted for 14%, and the overall mental health status is general; college students’ mental health has no correlation with gender and major, and there is no significant difference between hostile and paranoid emotions and gender and subject type, but there is a significant difference between interpersonal relationship, anxiety, depression, terror, mental illness and gender, and depression and anxiety, and interpersonal relationship and psychosis have a great correlation. All mild and severe symptoms were closely related; knowledge network method combined with traditional statistics is used to better evaluate the psychological state of post-00s college students, and the evaluation results are relatively complete. The research results provide theoretical guidance for college students to carry out psychological health education and counseling.

1. Introduction

Mental health is in the normal state of a person’s psychological activities, including cognition, emotion, will, personality, and adaptation, and gives full play to individual instinct to adapt to life, study, work, and social environment changes [1, 2]. College students’ mental health is closely related to the development of the country, and the research on college students’ mental health has become an important research topic.

College students, as a group with key social relationships, have changed from relying on their parents for life and study to relatively independent study and life, which requires the establishment of interpersonal communication and ability to cope with pressure [3–5]. In this case, college students’ thoughts, psychology, and behavior will be greatly affected. Along with the rapid development of society, interpersonal relationship is more complex, the college students, such as family, school, and society, under the pressure is more and more big, the mental health problems are also gradually increased, at the same time, students after 00 is in youth development in the late stages of transition to early adulthood, and their psychology also has not fully matured, leading to its greater incidence of psychological problems [6–8]. Some researchers have found that the common psychological problems among college students include depression, sensitivity, hostility, and interpersonal tension, with an incidence of about 30% and increasingly serious. Some scholars study found that a third of the college students have mental health problems in the United States, mainly depression,
anxiety, and mental disorders, and 10% had suicidal thoughts and some suicidal action, family economic status of poor students’ psychological problem is more serious, and they are easy to hurt themselves and their colleagues [8–10]. Some researchers take foreign students as research objects and find that American students have the most serious psychological problems [11]. At the same time, foreign students will have various psychological problems after studying in the United States, which is mainly due to cultural differences and the high crime rate in the United States and many behaviors harmful to society [12, 13]. Some researchers in the United States after 50 00 of the universities and colleges of undergraduate course college students as the research object found that students with psychological problems in the treatment had obvious differences in attitude; at the same time, some college students do not take own mental health problems and do not solve the psychological barriers, through the establishment of related support strategies to improve college students’ psychological health water as a whole [14–16]. Some scholars study found the increasing number of college students have psychological problems, 32% of college students had a variety of psychological problems, 25% of the mental health problem is severe, moderate mental problem of college students are also more than 20%, and the main psychological problems are of mentality, interpersonal anxiety, and hostility.

Knowledge network is a network structure formed by the association of different nodes. It is a sociological research method, mainly studying the relationship between different social actions and the influence of group structure on function or individual. It is the product of interdisciplinary and methodological intersection of mathematics, sociology, informatics, computer science, and other disciplines. The main advantage is that the development process and internal relations of nodes can be visualized and visualized by sorting, processing, and graphical representation of big data information. In the knowledge network, some abstract knowledge information is simplified and expressed by diagrams to achieve efficient, convenient, and fast management and clearly reflect the dynamic development process of things [17]. It has been widely used in the research of various scientific problems. According to the characteristics of knowledge network atlas, some researchers use literature analysis and social network analysis to analyze the internal relationship of scientific knowledge by analyzing the interaction between knowledge elements and taking scientific problems as the research object. Some researchers study the exploration of the development of scientific knowledge based on knowledge network, and the development direction of knowledge can be clearly seen through visualization method. At the same time, as a multidisciplinary product, the main purpose of knowledge network is to simplify the complex processing of information and provide solutions for revealing the structure of knowledge development [18, 19]. Some researchers take knowledge network as a starting point and help researchers analyze the relationship between knowledge points by analyzing the advantages of knowledge network research method, so as to carry out knowledge research better [20, 21].

In order to comprehensively and objectivley study the mental health status of post-00s college students and improve their mental health level, knowledge network, as an effective research method to study the structure and relationship of network, has been applied to the study of college students’ mental health. 00 epigenetic based on medical university students as the research object, using literature analysis method combines knowledge network and college students’ mental health, making knowledge network map, assess college students’ mental state, through the network analysis software ucinet6 symptoms of self-rating scale for visualization, mapping relationship between all nodes, and assessment of China’s college students’ mental health after 00. It provides theoretical guidance for college students to carry out psychological health education and counseling.

2. Research Methods

2.1. Literature Analysis. Keywords of college students’ mental health were searched through Web of Science database from 2010 to 2020, and a total of 410 literatures were retrieved. By using the document sorting function of cite space software, this paper analyzes the research trends of college students’ mental health problems over time through multiple and dynamic visualization technology, summarizes the mental health status of college students, and reveals the research hotspots and trends.

Figure 1 shows the number of published papers related to college students’ mental health from 2010 to 2020. It can be seen from the figure that with the continuous development of society the number of college students’ mental health research papers has increased year by year with a large value-added range and the number has exceeded 100 each year since 2018. It can be seen that the mental health of college students has become a hot research issue and the society attaches great importance to the mental health of college students.

Table 1 statistics the number of research papers on mental health status of college students in different countries or regions of the world and draws a statistical chart. As can be seen from Table 1 and Figure 2, the United States has the largest number of articles on college students’ mental health each year, and its network centrality is as high as 0.84. In addition, the United States publishes 250 articles annually, far ahead of other countries and regions, accounting for about 46% of the total number of articles published. China ranked second in the number of papers published, with 120 papers published, accounting for only 22% of the total number of papers published, with a centrality of 0.4. The number of papers from Russia, Germany, Britain, and France is also quite large, and their centrality is relatively high, which fully proves that countries all over the world attach great importance to the research on college students’ mental health.

2.2. Traditional Statistical Analysis Methods. In this paper, 4000 medical college students born after 2000 were selected by random sampling method, including 1431 male students, 2569 female students, 2921 science students, and 1079 liberal
Using the questionnaire survey method, SCL-90 symptom self-rating scale was selected to evaluate the mental health of college students. 4000 questionnaires were distributed through WeChat mini program, 3834 were recovered, with a recovery rate of 96%. The results were imported into SPSS software for statistical analysis. The higher the score, the more serious the problem, the lower the mental health level.

Table 2 shows the number of freshmen with psychological symptoms of each factor. As can be seen from Table 2, through the questionnaire survey, there were 540 cases with a total score ≥ 200, with a detection rate of 14%. According to the statistical factor score ≥ 3, the number of college students’ mental health problems from most to least includes obsessive-compulsive disorder, depression, anxiety, hostility, terror, paranoia, and psychosis. Among them, the number of college students with depression is 142, accounting for 3.7% of the total number of students surveyed, while 123 students with obsessive-compulsive disorder is 3.21% of the total number of students surveyed.

Among the students tested with serious mental health problems, 165 are male, accounting for 11.78% of the total number of male students and 4.3% of the total number of students. There are 375 female students, accounting for 15.41% of the total number of female students and 9.78% of the total number of students. Through the analysis, it is concluded that there is no significant difference between hostility, paranoia, and gender among college students’ psychological symptoms, while obsessive-compulsive disorder, depression, anxiety, terror, and psychosis have significant difference with gender. Meanwhile, the number of obvious male students’ depression and psychosis is much higher than that of female students, and other symptoms are lower than female students.

The collected 3834 questionnaires were screened, and 760 questionnaires were screened with SCL-90 and the total score was more than 170 points. The systematic clustering method was adopted, and the research idea of analyzing one classification and one systematic clustering was used to analyze the clustering relationship of each factor. The 7 indicators of SCL were divided into 4 categories, namely, the first category: terror, paranoia, and hostility; type 2: depression; type 3: obsessive-compulsive disorder; and type 4: anxiety, psychosis.

3. Network Analysis Method

760 data with a total score of more than 170 points were screened by SCL-90. 3 < any factor score ≤ 4 points were considered mild symptoms, and any factor score ≥ 4 points was considered severe symptoms. Therefore, 7 factors could be converted into 14. That is, mild and severe obsessive-compulsive disorder, mild and severe depression, mild and severe anxiety, mild and severe hostility, mild and severe phobia, mild and severe paranoia, and mild and severe psychosis.

In this paper, the application of data analysis is the use of UCINET social network analysis software to analyze the data, an automatic generation of visual knowledge network. The cooccurrence matrix scale was made according to the frequency of the common occurrence of two symptoms. The 14 factors in SCL-90 were input into the factor matrix table through UCINET and imported into net draw to generate the factor network structure chart. The length of nodes and the connection between nodes were set by centrality. Therefore, it can be concluded that mild anxiety and mild compulsion are located at both ends of the network, and other symptoms are in the center of the network.

<table>
<thead>
<tr>
<th>Country</th>
<th>Number of papers</th>
<th>Centrality</th>
</tr>
</thead>
<tbody>
<tr>
<td>America</td>
<td>250</td>
<td>0.84</td>
</tr>
<tr>
<td>China</td>
<td>120</td>
<td>0.4</td>
</tr>
<tr>
<td>Russia</td>
<td>63</td>
<td>0.32</td>
</tr>
<tr>
<td>Germany</td>
<td>35</td>
<td>0.28</td>
</tr>
<tr>
<td>The U.K.</td>
<td>27</td>
<td>0.22</td>
</tr>
<tr>
<td>France</td>
<td>18</td>
<td>0.19</td>
</tr>
<tr>
<td>Canada</td>
<td>15</td>
<td>0.16</td>
</tr>
<tr>
<td>Australia</td>
<td>12</td>
<td>0.11</td>
</tr>
</tbody>
</table>

Table 1: Number of published papers on mental health of college students in different countries or regions of the world.
Meanwhile, mild psychosis symptoms are the least near the center, which is mild anxiety-mild compulsion-mild depression from small to large, and the centrality of depression, anxiety, and compulsion is low.

The condensed subgroup of \( k \)-kernel is used to form the action subset of positive relation among factors, and the tightness relation among factors in the network is revealed. Through condensed subgroup analysis, the 14 factors were divided into 6 subgroups. Mild anxiety, mild depression, mild terror, and mild hostility were the first subgroup, which had a high density and the factors were closely related. According to the statistics of the density of each subgroup, the relationship between mild symptoms was closer than that between symptoms.

4. Results and Analysis

4.1. Research and Analysis of College Students’ Mental Health. College students, as the future successor of the country, are at a turning point when they step into adulthood. Their outlook on life and values are gradually mature. At the same time, they are prone to disharmony with their parents, teachers, and classmates, which is easy to induce psychological problems. At the same time, college students’ physical health but psychological quality needs to be further improved, which makes college students’ mental health problems become an indispensable link of higher education.

According to the literature analysis, it can be seen that in the new century, the research on college students’ mental health increases every year and is highly valued by scholars at home and abroad. In developed countries, the research on college students’ mental health is carried out earlier, and the results are relatively rich. Especially, the United States has published the most papers on college students’ mental health, and the center degree is also the largest. Papers have been published in the journals ARCHGEN PSYCHIAT, JAM LOLL HEALTH, SYCHOL MED, among others, and the most influential of which are Anonymous, Eisenberg D.

According to the distribution of disciplines in literature, it can be seen that the current research on college students’ mental health involves a wide range of disciplines, including medicine, public health, sociology, psychology, and other disciplines. The evaluation and application of college students’ mental health from different perspectives are studied.

Keywords mainly reflect the focus of the research topic, reflecting the core content of the current research results of language vocabulary. According to the keyword statistics of literature, it is found that depression, anxiety, excitement, social disorder, college students, and mental illness are the most frequent keywords, which are strongly correlated with the mental health status of college students, and also an effective method of multiangle statistics of college students’ mental health. By analyzing the evolution of the research
topics of college students’ mental health, as well as the common and individual characteristics of these keywords, it shows that the research scope is wider, the theme is diversified, and the aspects are wider, but the research focus is concentrated, the connection is stronger, and the research tends to a certain hot spot. By analyzing the frequency of the occurrence of keywords, we can better grasp the current situation of subject research and reveal the research hot spots in related fields.

According to the research route of literature analysis, it can also be found that most of college students’ mental health studies are based on the research status through literature analysis and the use of traditional statistical methods to quantitative evaluation of statistical data according to the research results to propose solutions. At the same time, the current research method is relatively simple only from a certain angle to analyze the psychological status of college students cannot do a comprehensive study. This paper will combine traditional statistical methods and social network analysis methods to analyze the mental health status of college students through knowledge network so as to make the conclusion of the study more objective and scientific.

4.2. Traditional Statistical Methods to Study the Mental Health of College Students. According to the literature statistics method, it is found that the proportion of post-00s college students with psychological problems through different research methods is basically between 4% and 26%. In this study, the detection rate of 14% was obtained through the analysis of the data, which belongs to the medium level, indicating that the mental health level of the college students under investigation is average, and there are still some students with mental health problems, mainly because of the high scores of interpersonal communication and personality paranoia.

The Pearson correlation coefficient is used to obtain the correlation coefficient between each factor, as shown in Table 3. As can be seen from Table 3, there is a significant positive correlation between all psychological symptoms and the correlation between depression and anxiety and the total score is greater than 0.8, and the descending order is depression, anxiety, psychosis, obsessive-compulsive disorder, paranoia, hostility, and terror.

Through analysis, the main psychological problems of post-2000 college students are as follows:

(1) Psychological problems of anxiety and depression are caused by inability to adapt to college life. College freshmen really start to live and study independently. If they cannot adapt to this kind of life, a series of psychological problems will occur. At the same time, students are from all provinces of the country, and the different living environment and habits are also easy to cause maladaptation, resulting in mental health problems of anxiety and depression.

(2) Interpersonal relationship tends to be strained. College students all come from different provinces in China. Due to the differences in family environment and living habits, roommates are prone to quarrels and conflicts, which greatly affect normal interpersonal relationships and also accompany negative emotions such as anxiety and psychosis.

(3) Self-evaluation cannot adapt to the times. The recognition between college students is not simply to the academic performance as the only evaluation index, the ability of all-round development is particularly important, some outstanding students because of not being taken seriously and depression and other psychological problems, affecting their normal study and life.

<table>
<thead>
<tr>
<th>Psychological symptoms</th>
<th>Obsessive compulsive disorder</th>
<th>Depression</th>
<th>Anxiety</th>
<th>Hostile</th>
<th>Terrorist</th>
<th>Paranoid</th>
<th>Mental illness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aggregate score</td>
<td>0.64</td>
<td>0.83</td>
<td>0.81</td>
<td>0.62</td>
<td>0.58</td>
<td>0.63</td>
<td>0.77</td>
</tr>
</tbody>
</table>

Table 3: Correlation coefficient matrix of each factor and total score.
4.3. Social Network Analysis Method to Study the Mental Health Status of College Students. Through centrality analysis, it can be concluded that in addition to mild anxiety symptoms and mild compulsion symptoms, other symptoms are in the center of the network, which is mainly due to the post-00s college students after entering the university, the life and learning environment, interpersonal contacts, and so on have undergone great changes, there are various maladaptations. At the same time, facing all kinds of pressure caused interpersonal tension, lack of self-recognition, anxiety, depression, and other psychological problems.

The clustering subgroup analysis method was used to draw the tree diagram of each symptom (Figure 3), and the 14 factors were divided into 6 subgroups. Terror, depression, hostility, and anxiety were the first subgroup of mild symptoms, with the highest density and close connection. Meanwhile, the density of subgroup 1 is 339, that of subgroup 2 is 108, that of subgroup 3 is 132, that of subgroup 4 is 18, that of subgroup 5 is 12, and that of subgroup 6 is 23. Condensed subgroup analysis found that mild symptoms were more closely associated with severe symptoms than severe symptoms and that severe symptoms were associated with other psychological problems.

By comparing the traditional statistical method and social network analysis found that the traditional statistical methods in the study of all respondents, through a general statistical description 00 after college students' mental health, using T test to obtain the score of each factor, through the correlation, and factor and cluster map analysis, provide the basis for college students' mental health status of the research. The research of social network analysis method is further refined, and each factor is divided into mild and severe symptoms. Through centrality and condensed subgroup analysis, the network structure diagram of each factor is obtained, and the factors are divided into subgroups. According to the density of each subgroup, the correlation of college students' psychological symptoms is revealed. Therefore, compared with traditional statistical methods, the social network analysis method combines the internal connection of the indicators of college students' mental health problems, making the results more comprehensive and reliable, closer to the actual situation, and has rich practical significance.

5. Conclusions

The problem of college students' mental health has become a hot research topic all over the world. With the deepening of the research on college students' mental health, the research scope is expanding, the theme is increasingly diversified, the field is more extensive, and the research focus is also more concentrated. In this paper, the post-2000 college students in medical universities are taken as the research object, and the literature analysis method is used to reveal the research content and hot spots of college students' mental health. At the same time, the symptom self-rating scale of knowledge network analysis method is used to analyze, and the visual research and theoretical statistical research are combined to evaluate the mental health situation of post-2000 college students in China. Main research results are as follows:

1. The detection rate of mental health problems among post-00s college students is 14%, which is at a medium level compared with the national statistical results, indicating that the mental health level of the surveyed college students is average, and some students still have mental health problems, mainly due to the high scores of interpersonal communication and personality paranoia. There was no significant difference in each factor of SCL-90 total score, while there was no significant difference in hostility, bigotry, and gender, and the other factors were significant difference. The incidence of depression and psychosis in male students was significantly higher than that in female students, and other factors were lower than that in female students.

2. Through the traditional statistical method, the 7 indicators of SCL were divided into 4 categories, namely, the first category: terror, paranoia, hostility; the second category: depression; the third category: obsessive-compulsive disorder; and the fourth category: anxiety, psychosis, and the correlation between each factor was large. Knowledge network method was used to find that mild symptoms were more closely related to severe symptoms, and when one symptom was very severe, other psychological problems were associated with it. The social network analysis method combines the internal relationship of the indicators of college students' mental health problems, which makes the results more comprehensive and reliable, closer to the actual situation, and has rich practical significance.

Data Availability

The figures and tables used to support the findings of this study are included in the article.

Conflicts of Interest

The authors declare that they have no conflicts of interest.

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