Research Status and Early Warning System Design of College Students' Mental Health

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Abstract: The attention and education of college students & apos mental health is the necessary condition to help students shape sound personality and cultivate all-round development of people. With the end of the 13th five year plan, information technology has been applied in all aspects of education. Based on the summary of previous research, this paper puts forward a design of college students & apos mental health early warning system, which can change the original post-processing to pre prevention, and improve the level of mental health education.
Keywords: Mental Health; Colleges and Universities; Early Warning System

1. Introduction

The mental health problem of college students has always been the key content of Ideological and political work in Colleges and universities. In 2018, the Party group of the Ministry of education of the Communist Party of China issued the guiding outline of mental health education for college students, proposing that colleges and universities should strengthen the work of mental health education, and form a "four in one" mental health education pattern of education and teaching, practical activities, consulting services and preventive intervention. Improve the ability and level of prevention, identification and intervention of common mental disorders and psychological and behavioral problems.

2019 In the outline for the implementation of the quality improvement project of Ideological and political work in colleges and universities issued by the Department of Ideological and political work of the Ministry of education in, the implementation contents, carriers, paths and methods of the "ten major education" systems, such as curriculum, scientific research, practice, culture, network, psychology, management, service, funding and organization, are planned in detail. It is pointed out that psychological education should be vigorously promoted. It is proposed to establish a "Four-level" early warning and prevention system of schools, departments, classes and dormitories, develop Guidance Opinions on mental health education of teachers and students in colleges and universities, and cultivate and build a number of "demonstration centers of mental health education in colleges and universities".

Moreover, this year, the Ministry of education "Ideological and Political Work Department of the Ministry of education 2020 work points out that: since the founding of the people & apos Republic of China, Xinguan epidemic is the fastest spread, the widest range of infection, the most difficult prevention and control of a major public health emergency, is a major test of Party building and ideological and political work in Colleges and universities. In this context, it is proposed to strengthen

mental health education in an all-round way.

For three consecutive years, the central ministries and commissions have issued clear documents on college students & apos mental health education and management, which can obviously reflect the importance of the work. Especially this year, there are data proving that major emergencies have a great impact on students & apos psychology, so it is particularly important to study the mental health status of students after the epidemic.

2. Research status

In order to intuitively understand the development trend of research in this field, the corpus data of 4459 relevant research literatures in how net were collected for statistical analysis. It is found that the research in this field has entered a sustained growth trend since the beginning of the 21st century, and then turned to a downward trend after 2010, with a short peak around 2015. It shows that the theoretical research in this field is basically mature, and around 2015, there has also been a new situation of research combined with information technology. In recent years, the amount of relevant research has decreased, indicating that the main goal at present should turn to the application of theory in practice.

In terms of research content, the general practice of early school mental health work is to carry out a general survey of freshmen & apos mental health, find out the high-risk groups with suicide risk, and carry out preventive intervention. However, the most commonly used personality questionnaire for college students has the problem of high false-positive rate. Mental health workers in Colleges and universities often face such an embarrassing situation: there are a large number of suicide or self injury cases, suffering from psychological diseases in the freshmen & apos psychological census has not been screened out.

In recent years, researchers have been trying to establish various evaluation systems to evaluate the mental health quantitatively. However, due to many reasons for the formation of psychological crisis, there are a lot of random conditions and random phenomena. Only using quantitative prediction method, it is inevitable that there will be deviation. Some scholars suggest that the expert prediction method should be adopted, and the qualitative and quantitative methods should be combined. The early warning results can be used as an evaluation basis, and the main judgment still needs to be made by experts.

3. Design of early warning system for college students & apos mental health

3.1 Overall design

The modeling object of the system is the whole process of the whole life cycle of students from entering school to leaving school. Due to the dynamic complexity, non-linearity, feedback and other characteristics of human behavior mode, it is necessary to use artificial intelligence technology combined with the concept of psychological education to establish a model, which can dynamically monitor the development of students & apos psychological (emotional) state, pay attention to the risk that can occur at a certain time node, and give early warning. Combined with the relevant research results of domestic and foreign scholars in recent years, firstly, it is necessary to construct the mental health indicators of students, and then to match and optimize the existing data resources of the school. Secondly, based on the influencing factors of various factors, the necessary data collection and mutual evaluation mechanism is designed, so as to construct the big data prediction model of school students & apos emotional health, and create a quasi real-time emotional health big data of students data prediction platform, and the establishment of students & apos emotional health "early warning-intervention-monitoring" platform to improve the school students & apos mental health education and management system by means of information technology.

3.2 Data index design

The rapid development of modern information technology provides us with various opportunities to collect data. Schools can record students & apos life and learning behavior in real time through smart phones online, campus Wifi and all-in-one card consumption data. Through the analysis of student behavior data, this paper explores different student behavior patterns, and formulates different mental health management models for different students, so as to ensure the physical and mental health of students. Data sources are mainly divided into two parts: campus life data and campus network data.

3.2.1 Campus life data

For each student, whether he has borrowed different books and the number of times of borrowing each category; whether he has borrowed different books and the number of times of borrowing books in each category shows the students & apos preference for a certain kind of books, which can also reflect the students & apos learning attitude to a certain extent.

According to the data of dormitory access control, the access control time is divided into several time periods, and the

corresponding number of entrance, exit, total number and corresponding frequency are recorded. For each student, the earliest and the latest time of door ban are extracted. According to the time interval of students entering and leaving the dormitory, the total time of the students staying in the dormitory can be calculated, so as to further judge the personality characteristics of the students; the access control frequency on weekdays can reflect the enthusiasm of students to participate in school management activities; the maximum monthly access control frequency can reflect the active situation of students in a certain day.

All in one card data reflects students & apos consumption actions. The consumption patterns of students can be roughly divided into the following situations: library, School Hospital, supermarket, boiling water, canteen, laundry room, others, academic affairs office, printing center and shower. The consumption situation of each student in various places can reflect the students & apos preferences and living habits to a certain extent, while the consumption category reflects the frequency of students & apos using campus smart card to a certain extent.

3.2.2 Campus network data

Hadoop technology is used to build the big data platform, and the campus network basic data platform and user behavior analysis system are realized. Among them, the basic data platform realizes online record query, AP operation and online data statistics. The mining and analysis of users & apos online behavior is based on the data mining from multiple dimensions of campus network users, including online time, Internet content, Internet frequency, Internet access track, etc. it can deeply mine users & apos behavior from different angles in various aspects, which can reflect students & apos personal characteristics and life state to a certain extent.

3.3 Analysis dimension

Analysis of users & apos online activity: according to the online records of the user & aposs campus network billing system, we can analyze the online activity of campus users, that is, the longer the online time and the higher the Internet traffic per unit time, the higher the frequency of users & apos visiting the website, that is, the higher the Internet activity.

Online content analysis: the online access link can directly reflect the user & aposs access preference. The more times the same type of link is visited, the more interested the user is in this type of access content. The user & apos access preference can be analyzed by logging the online user name, access time and access content type.

Location preference analysis: if a user is online for a long time, it indicates that his daily work, study or entertainment are mainly here. At the same time, according to the nature of the location, the user & apos life habits can also be understood from the side.

4. Conclusion

In the past research on big data related fields in colleges and universities, most researchers take educational administration data and all-in-one card data as the main data sources, and use simple statistical methods or basic data mining for statistical analysis. In terms of college students & apos mental health, most of the former psychological scholars used questionnaire survey to make statistical analysis on college students. This method may contain many elements, but it lacks objectivity and accuracy. In order to solve these two problems and provide early warning analysis, this project fully investigates and collects structured and unstructured data, combines system data with questionnaire data and hypothetical rule data, and constructs early warning model to dynamically predict the development of college students & apos; emotional health, which is comprehensive and systematic. It provides an applicable tool for college students & apos mental health education and early detection and prevention of extreme events.

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