

APPLICATION OF CHRONIC DISEASE HEALTH MANAGEMENT MODEL IN COMMUNITY SERVICE FOR PEOPLE WITH MENTAL DISORDERS

Yicai Li^{1*}, Feng Jiang², Chunlan He¹ & Haoyu Jin¹

¹Department of Medical Devices, Guangdong Food and Drug Vocational College, Guangzhou 510520, China

²School of Management, Hangzhou Dianzi University, Hangzhou 310018, China

SUMMARY

Background: Chronic diseases easily lead to mental disorders in the course of the disease. At the same time, mental disorders also have repetitive characteristics similar to chronic diseases to a certain extent. At present, daily and community-based intervention for patients with mental disorders is one of the main methods of mental disorder treatment. Community disease intervention has certain intervention advantages for chronic diseases with mental disorders and inherent mental disorders in terms of daily disease tracking and timely intervention.

Subjects and methods: This study combines convolutional neural network with comparative experimental method, and takes the comparative experiment as the research basis. The control group adopts traditional treatment methods, while the intervention group adopts chronic disease health management mode to intervene mental disorders. The experiment lasted for 4 months. After obtaining the experimental data, the research will use the convolution neural network algorithm to classify and analyze the elements.

Results: The scores of anxieties and depression, cognitive impairment, disturbance of consciousness and delusion in the intervention group were 1.62, 1.53, 1.87 and 1.71 respectively, which were higher than those in the control group. It can be seen that the treatment effect of the intervention group is better.

Conclusions: The treatment effect of the four symptoms of anxiety and depression, cognitive impairment, consciousness disorder and delusion in the intervention group is significantly better than that of the traditional method. It has more extensive application significance in community treatment and is more conducive to improving the treatment experience and quality of life of patients.

Key words: chronic diseases - community management - mental disorders - mental health

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INTRODUCTION

The treatment and late intervention of mental disorders are similar to the intervention of chronic diseases (Plascak et al. 2018). At the same time, chronic diseases and mental disorders are often associated and complicated combined diseases, such as hypertension (Jaen-Moreno et al. 2021). Diabetes and other chronic diseases will affect the cognitive ability of patients, and then cause mental disorders of patients. The cases of concurrent physiological and psychological diseases are common (Costa et al. 2021). Mental disorders will not only have a serious impact on patients' quality of daily life, but also delay the treatment process of patients' physiological chronic diseases, resulting in difficulties in the process of community disease intervention (Júnior et al. 2021). Therefore, the use of chronic disease treatment mode for mental disorder intervention can provide patients with combined intervention of community-based chronic diseases and mental disorders, use the consistency between chronic disease management methods and mental disorders, improve the effect of mental disorder intervention, and intervene both physiological and psychological diseases (Taipale et al. 2021). At present, the research on the group of mental disorders is gradually in-depth and extensive (Tonari et al. 2020). Conducted a correlation study on the nursing burden and mental disorders for mothers receiving treatment for mental disorders. The results show that the

nursing burden of children is positively correlated with the degree of mental disorders of mothers (Matsuda et al. 2021). Studied the use proportion of benzodiazepines in patients with potential mental diseases other than formal diagnosis. The results showed that benzodiazepines were consumed more in men than in women, and were the main over-the-counter drugs for potential patients (Khan et al. 2021). Harris team studied the mental disorders of elderly patients with intestinal cancer. The results showed that patients with anal cancer, gastric cancer and esophageal cancer were more likely to suffer from mental disorders, with prevalence rates of 26%, 20% and 20% respectively (Harris et al. 2021). With the deepening of research for different groups of mental disorders, the formation of specialized treatment schemes for different groups has become a possibility.

Mental disorder refers to the disorder of brain functional activities, which leads to different degrees of obstacles in mental dominant activities such as individual consciousness, cognition and behavior. Common mental disorders include brain organic mental disorder, affective mental disorder and so on. There are many factors of mental disorders, including personality characteristics, congenital heredity, physical factors, organic factors, social environmental factors and other individual and external environmental factors. The vast majority of patients with mental disorders lack sufficient self-knowledge and self-control, and lack sufficient cognition of their own condition. At present, common

mental disorders include schizophrenia, depressive mental disorder, manic mental disorder, paranoid mental disorder and mental disorder accompanied by various organic diseases. The emergence and development of mental disorders to a large extent show the characteristics that match the patients' own personality and childhood growth environment. Most patients with mental disorders also have some defects in their own personality development, imperfect social function and generally low quality of life. At the same time, mental disorders often occur in the concomitant symptoms of other diseases. The proportion of concomitant mental disorder symptoms in infectious diseases and acute diseases is relatively small, and more concomitant mental disorder symptoms occur in noncommunicable chronic diseases. During the treatment of patients, concomitant mental diseases often have a serious impact on the treatment effect and treatment mental state of patients. Chronic non communicable diseases, also known as chronic diseases, refer to the general name of diseases with a course of more than three months and excluding infectious diseases. Common chronic non communicable diseases cardiovascular and cerebrovascular diseases include cardiovascular and cerebrovascular diseases, such as hypertension, hyperlipidemia and stroke. Nutritional metabolic disorders, such as diabetes, gout, calcium deficiency osteoporosis, etc. Malignant tumors, such as gastric cancer, breast cancer, liver cancer, etc. The occurrence of chronic diseases is closely related to patients' own occupational factors, environmental factors and unhealthy lifestyle. In the process of treatment, it will not only cause serious damage to the patient's physical health, but also cause serious damage to the patient's mental health and quality of life. Mental disorders associated with chronic diseases will not only increase the physical and mental pain of patients, but also prolong and complicate the treatment process of chronic diseases. Some of the symptoms of mental disorders associated with chronic diseases are mental disorders normally generated in the course of chronic diseases, while others are mental disorders caused by patients' negative psychological state to a certain extent during treatment. The main causes can be divided into the following four main types, as shown in Figure 1.

Figure 1 classifies the main causes of mental disorders associated with chronic diseases. It can be seen that the causes of mental disorders associated with chronic diseases are mainly divided into four categories: psychosomatic disorders, organic mental disorders, derived psychological disorders and physiological and psychological comorbid disorders (Sharma et al. 2021). Psychosomatic disease refers to the complication of chronic disease itself, which is closely related to the psychological and mental status of patients. Such as hypertension and cerebrovascular diseases are psychosomatic diseases (Zhang et al. 2021). The adverse social and psychological factors of patients play an important role in the occurrence of such diseases. Organic mental disorder refers to that the patient's

physiological diseases have a certain impact on the patient's brain function, resulting in the patient's clinical mental symptoms 12 (Cga et al. 2021). Derivative psychological disorder refers to the negative psychological experience of patients in the treatment of chronic diseases, which leads to psychological stress and mental disorder. Physiological and psychological comorbidity disorder refers to the comorbidity of patients' physiological diseases and mental diseases at the same times (Tang et al. 2021). The occurrence of mental disorders associated with four chronic diseases is closely related to chronic diseases. This study is mainly aimed at mental disorder groups who have mental disorders in the course of chronic diseases or whose mental disorders have worsened under the influence of chronic diseases (Costa et al. 2021). By introducing the community chronic disease health management model into the daily mental and mental health intervention for patients with mental disorders, help relevant community mental disorder groups improve their physical and mental experience and quality of life during treatment, and improve the treatment effects (Karolaakso et al. 2021).

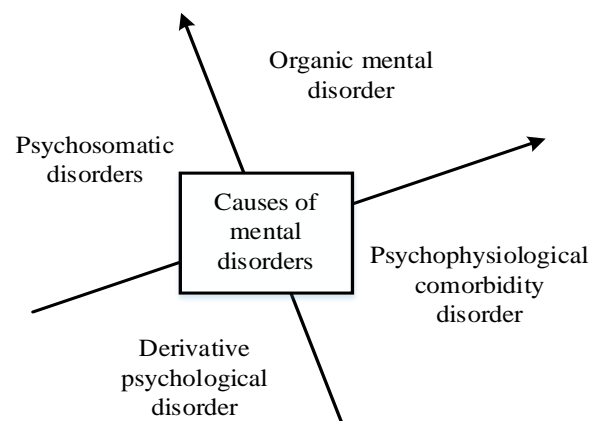


Figure 1. Causes of chronic mental disorders

SUBJECTS AND METHODS

Study setting

The subjects of this study include 120 patients with mental disorders from different communities. All patients participating in the study need to sign informed consent, and their families agree to participate in the study. This study was conducted in the form of a comparative experiment. In the experiment, the patients were divided into intervention group and control group. The two groups plan to include 60 patients each. Among the 120 selected patients, 18 patients left the experiment for various reasons, and the remaining 102 patients completed the experiment, including 47 community patients in the intervention group and 45 community patients in the control group.

Design

In this study, the intervention of chronic diseases was carried out in the way of intervention for the symptoms of mental disorders. The mental disorders associated with chronic diseases were mainly divided into four main types: anxiety and depression in the course of the disease, cognitive impairment symptoms of patients, disturbance of consciousness and delusional symptoms. First, anxiety and depression in the process of disease. This kind of psychology usually comes from the patient's own autonomic nerve dysfunction or the patient's concern about their own disease state. Anxiety and depression are also the most likely types of mental disorders in the process of chronic diseases. Second, the symptoms of cognitive impairment, especially the functional impairment of attention, memory, thinking

ability and language expression ability, and even dementia in severe cases. The third is the patient's consciousness disorder, which is mainly manifested in functional disorder and mental disorder. Functional disorder refers to the patient's inability to maintain clear consciousness and other symptoms, while disorder refers to the patient's confusion of consciousness, delirium and other symptoms. Fourth, delusional symptoms. These symptoms are mainly manifested in patients' illusions and hallucinations. False delusion refers to the wrong reasoning or judgment of patients in the process of thinking about common sense. It is usually manifested as victim delusion, and hallucinations are often reflected in serious mental disorders, mainly in patients' frequent hallucinations in daily life. See Figure 2 for details.

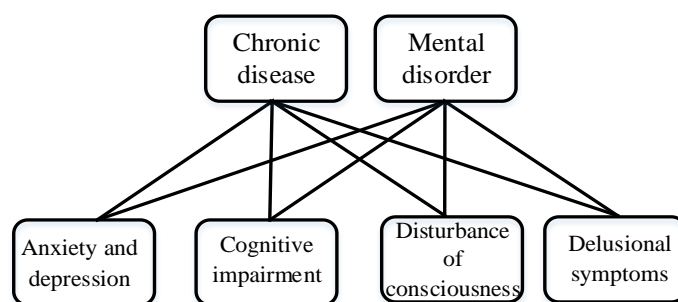


Figure 2. Types of mental disorders

The duration of the comparative experiment of this study was four months. In the process of the experiment, the intervention group used the chronic disease treatment mode for mental disorder intervention. In the process of mental disorder intervention, the disease management was carried out for four mental disorders: anxiety and depression, cognitive impairment symptoms, consciousness disorders and delusional symptoms, while the control group took the traditional mental disorder treatment mode for intervention. The chronic disease treatment management mode is mainly based on the comprehensive management mode, that is, before starting the management, the community medical staff will file and record the disease conditions of different patients, and on this basis, formulate the treatment intervention queue according to the severity of the disease, carry out the rotation intervention in batches and sections, and establish the form of follow-up and return visit for patients in batches. At the same time, for patients with deteriorating disease, a two-way referral scheme needs to be established to facilitate the combination of community management and diagnosis and treatment of local superior hospitals. During the study, the researchers will record the mental status of the two groups of patients in a tracking manner, and record the data in time to form the research medical records for different patient types, so as to provide an original experimental data for the follow-up analysis. In addition, in the follow-up data classification, the convolution neural network algorithm is used to classify and analyze the patients with different symptom types. The convolution neural network algorithm itself has strong

feature extraction performance. It is more suitable for the feature extraction of mental diseases. At the same time, the convolution neural network algorithm has stronger adaptability and is easier to implement. The feature extraction formula of convolution neural network algorithm is shown in formula (1):

$$W = \frac{(w + 2p - k)}{s} + 1 \quad (1)$$

In formula (1), W represents the eigenvalue generated after convolution, w represents the input matrix, k represents the convolution kernel, s represents the algorithm step, and p represents the number of zero filling layers.

RESULTS

Analysis of intervention effect on the types of chronic mental disorders

In the application effect analysis part of the chronic disease health management model in the community service for people with mental disorders, this study mainly analyzes the types of chronic mental disorders and the causes of chronic mental disorders. The type analysis part of chronic mental disorders is mainly analyzed in the form of the comparison of the treatment effect scores of mental disorders between the intervention group and the control group in the experiment. The etiology of chronic mental disorders is

mainly analyzed by quantitative impact level comparison. The analysis results of chronic mental disorder types are

shown in Figure 3.

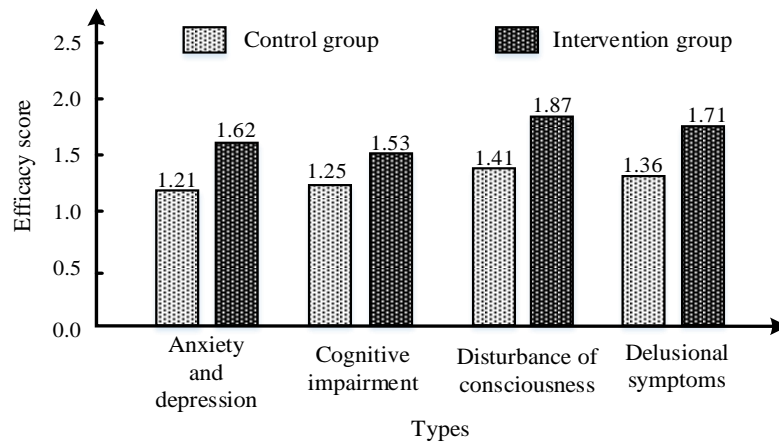


Figure 3. Intervention effects for different mental disorders

Analysis of intervention time points for the types of chronic mental disorders

The experiment lasted for 4 months. Therefore, this study tested and compared the mental disorder scores of the intervention group and the control group every month. The specific results are shown in Figure 4.

disorders

In the etiological analysis of chronic mental disorders, this study adopts the method of quantitative impact level. The quantitative level is divided into five levels. The higher the level, the stronger the benign force of chronic disease health management mode. The specific results are shown in Figure 5.

Analysis of etiological types of chronic mental

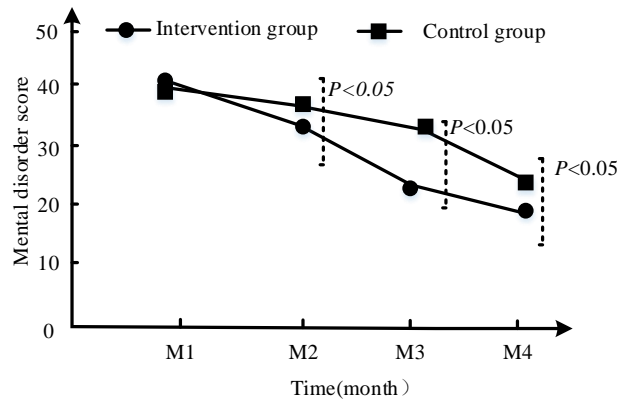


Figure 4. Intervention effects for different mental disorders

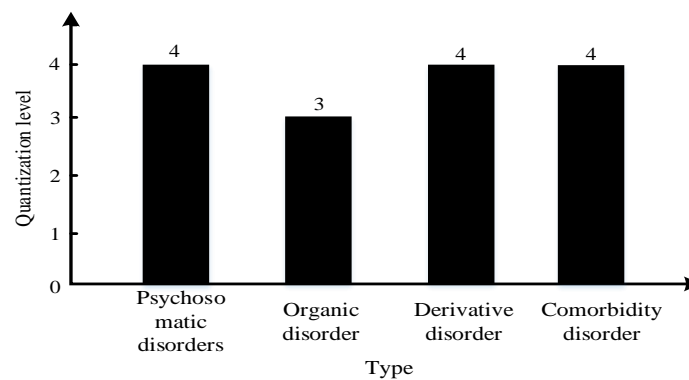


Figure 5. Effects on the causes of different diseases

DISCUSSION

The study quantified the treatment effect of community chronic mental disorder groups in the form of efficacy score before and after the intervention experiment, and compared the efficacy between the intervention group and the experimental group. The results showed that in the comparative experiment, the score of mental disorder treatment in the intervention group was 1.62, while that in the control group was only 1.21. It can be seen that the application of chronic disease health management model in mental disorder groups can effectively prevent the occurrence of anxiety and depression. In terms of cognitive impairment symptoms, the treatment score of mental disorders in the intervention group was 1.53, while that in the control group was only 1.25. It can be seen that the chronic disease health management model has a better therapeutic effect on the cognitive impairment symptoms of mental disorders. In terms of symptoms of mental disorders, the treatment score of mental disorders in the intervention group was 1.87, while that in the control group was only 1.41. It can be seen that the health management model of chronic diseases is also more effective in the symptoms of mental disorders. In terms of delusional symptoms, the treatment score of mental disorders in the intervention group was 1.71, while that in the control group was only 1.36. It can be seen that the chronic disease health management model also has a stronger effect on the symptoms of consciousness disorders of mental disorders than the traditional method. It can be seen that the application of chronic disease health management model in mental disorder groups can effectively improve the curative effect of patients' mental symptoms, and then improve the quality of life of patients.

The study analyzed the changes and comparison of mental disorder scores between patients in the intervention group and patients in the control group with the increase of time during the intervention period. It can be seen that with the growth of time, the intervention group that adopts the chronic disease management mode for the management of mental disorders and the control group that adopts the traditional management mode for the management of mental disorders show a downward trend. The starting point scores of mental disorders of the two groups are similar, while the overall decline speed of the broken line in the intervention group is faster than that in the control area, and the overall broken line distribution is lower than that in the control group. In the first month of intervention, the mental disorder score of the intervention group was 41.8, while the mental disorder score of the control group was 39.7. At this stage, the mental disorder score of the intervention group was similar to that of the control group, and the score of the control group was slightly lower than that of the intervention group. The data difference was not statistically significant. It can be seen that there was little difference between the intervention group and the control group in the first month. In the

second month of intervention, the mental disorder score of the intervention group was 35.7 points, while the mental disorder score of the control group was 39.2 points. At the same time, the data difference in this month was statistically significant ($P < 0.05$). There was significant difference between the mental disorder data of the intervention group and the control group at the beginning of the second month of intervention, and the mental disorder score of the intervention group was significantly lower than that of the control group. In the second month of intervention, the mental disorder score of the intervention group was 25.6, while the mental disorder score of the control group was 34.7. At the same time, the data difference in this month was statistically significant ($P < 0.05$). The third month of intervention was the month with the greatest difference between the mental disorder data of the intervention group and the control group, and the mental disorder score of the intervention group was also significantly lower than that of the control group. In the fourth month of intervention, the mental disorder score of the intervention group was 22.1, while the mental disorder score of the control group was 27.3. At the same time, the data difference in this month was $P < 0.05$, which was statistically significant. In the fourth month of intervention, the mental disorder data difference between the intervention group and the control group still maintained a certain gap, and the mental disorder score of the intervention group was significantly lower than that of the control group. It can be seen that starting from the second month of intervention, the mental disorder data of patients in the intervention group are significantly less than those in the control group, indicating that the intervention effect of chronic disease management method on patients with mental disorders is better, and can effectively improve the living standard and treatment effect of patients. In the process of experimental intervention, the time efficacy advantage of chronic disease management method in the intervention of patients with mental disorders effectively reflects the dynamic perception ability and timely intervention ability of chronic disease management method for the real condition of patients. This intervention method is more suitable for the daily incidence state and treatment process of patients with mental disorders.

In the analysis of etiological types, the health management model of chronic diseases has a positive impact on the mental disorders caused by psychosomatic disorders, organic mental disorders, derived mental disorders and physiological and psychological comorbid disorders. The results showed that in terms of psychosomatic diseases, the benign effect of chronic disease health management model on patients with mental disorders reached level 4, which constituted a significant impact. It can be seen that chronic disease health management model has a significant benign effect on mental disorders caused by psychosomatic diseases; At the same time, among the mental disorders caused by derivative problems and physiological and psychological cooccurring problems, the chronic disease health

management model also shows a more significant benign impact effect, and the impact levels of both reach level 4, forming a significant impact. In terms of organic mental disorders, the benign impact of chronic disease health management model on patients with mental disorders reaches level 3, which constitutes a significant impact. It can be seen that the benign impact of chronic disease health management model on mental disorders caused by organic functional problems is not significant, but it is still obvious. This is because the organic function problem is the mental disorder caused by the brain function injury of patients, and the chronic disease health management model has limitations for the clinical intervention of patients' brain. It can be seen that the chronic disease health management model has a significant positive impact on the psychosomatic disorders, derived psychological disorders and physiological and psychological comorbid disorders of patients with mental disorders, and can be used as a daily disease intervention program for community mental disorder groups.

CONCLUSIONS

The chronic disease management model also has a certain effect in the disease intervention of patients with mental disorders. This study aims at the group of mental disorders associated with chronic diseases, and uses the combination of convolutional neural network and comparative experiment to analyze the intervention effect of chronic disease management model on patients with mental disorders. The results showed that the scores of anxieties and depression, cognitive impairment, disturbance of consciousness and delusion in the intervention group were 1.62, 1.53, 1.87 and 1.71 respectively, which were higher than 1.21, 1.62, 1.41 and 1.36 in the control group. It can be seen that the chronic disease management model has a stronger intervention effect than the traditional intervention method in the four main mental disorder symptoms. At the same time, in terms of intervention on the causes of mental disorders, the influence level of chronic disease management model in psychosomatic disorders, derived psychological disorders and physiological and psychological comorbid disorders reaches level 4, which constitutes a significant impact. It can be seen that the chronic disease management model can mainly carry out disease intervention from the perspective of these three causes. The application of chronic disease management model in mental disorder intervention can carry out targeted community disease intervention from the perspective of disease symptoms and causes, so as to achieve better control effect in daily treatment.

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Contribution of individual authors:

Yicai Li: conception and design of the manuscript and interpretation of data, literature searches and analyses, clinical evaluations, manuscript preparation and writing the paper;

Feng Jiang, Chunlan He & Haoyu Jin: made substantial contributions to conception and design, literature searches and analyses, participated in revising the article and gave final approval of the version to be submitted.

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Correspondence:

Yicai Li,

Department of Medical Devices, Guangdong Food and Drug Vocational College, Guangzhou 510520, China

E-mail: happycai163@163.com

RESEARCH ON THE INFLUENCE OF RURAL CULTURAL CONSTRUCTION ON ALLEVIATING THE SPIRITUAL PRESSURE OF RURAL GOVERNANCE

Xin Liu^{1,2} & Chang Liu^{3*}

¹School of Marxism Studies, Harbin Normal University, Harbin 150025, China

²School of Marxism Studies, Northeast Agricultural University, Harbin 150030, China

³College of Economics and Management, Northeast Agricultural University, Harbin 150030, China

SUMMARY

Introduction: Mental stress is a psychological concept with two-way force in psychology. In a positive sense, appropriate psychological stress helps social individuals form behavioral driving force in social competition, so as to help individuals achieve better competitive effect in social competition, and then promote the competitive intention in the next stage. However, excessive mental pressure will lead to the formation of escape psychology and withdrawal behavior under the pressure of competition, which is not conducive to the formation of individual behavioral self-confidence. At the same time, it may also lead to many psychological obstacles. This study aims at the sources and characteristics of mental stress of rural groups, connects the mental stress intervention of rural groups with the behavior of rural cultural construction, and explores the changes of mental stress and psychological state of rural groups under the behavior of rural cultural construction.

Subjects and methods: This study uses a questionnaire to analyze the impact of rural cultural construction on the mental stress of rural groups, and takes 200 rural people in a rural area, aged between 18 and 70. 200 questionnaires were distributed to 200 people, and 200 were recovered, with a recovery rate of 100%. Before and after the construction of rural culture, the mental stress of the subjects was analyzed and evaluated. In this study, the self-made rural residents' emotional scale, Symptom Checklist 90 (SCL-90) and Eysenck questionnaire (EPQ) were used to analyze and evaluate the mental stress of the subjects.

Results: After the construction, the scores of the people in the four dimensions of the scale were significantly higher than those before the construction ($P < 0.05$), indicating that the construction of rural culture can significantly improve the psychological and emotional problems of the people.

Conclusions: From the perspective of improving the mental health of rural people, this study studies the impact of rural cultural construction on alleviating the spiritual pressure of rural governance, in order to improve the psychological negative emotions of rural people. This study suggests that the construction of rural fitness and entertainment facilities should meet the psychological needs of local people, pay attention to the construction of rural psychological and cultural activity groups, and the content and mode of rural activity facilities and community construction cannot be the same.

Key words: cultural construction - rural governance - mental stress - sustainable development

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INTRODUCTION

With the continuous development of society, people's spiritual and cultural life is becoming richer and richer (Shaygan & Shayegan 2019). As a special group in social development, rural people are affected by various factors from society, and their spiritual field is also changing. Some rural people are facing various pressures (Turner et al. 2018). Mental stress is a psychological concept with two-way force in psychology. In a positive sense, appropriate mental stress helps social individuals form a behavioral driving force in social competition, so as to help individuals achieve better competitive effect in social competition, and then promote the competitive intention in the next stage (Bourdon et al. 2020). However, excessive mental pressure will lead to the formation of escape psychology and withdrawal behavior under the pressure of competition, which is not conducive to the formation of individual behavioral self-confidence. At the same time, it may also lead to many psychological obstacles (Auerbach et al. 2018; Treharne 2020). In the current social environment, social

individuals face different types of mental stress due to different specific environments. By summarizing different types of mental stress, they can be divided into three main sources of stress, including social pressure, life pressure and competitive pressure (Pampouchidou et al. 2019; Liang et al. 2015). Among them, social pressure refers to the mental pressure that may be generated by individuals in the specific social environment. This kind may be self-identity pressure in the social environment, social development pressure such as social pressure, or the most basic social survival pressure. Life stress refers to the mental stress caused by the negative events that individuals may encounter in life and the basic negative life experience. The basic negative life experience can be improved by improving the living standard, and the mental stress caused by negative events reflects different characteristics due to different individual characteristics. Competitive pressure refers to the mental pressure produced by individuals in the face of external competition (Poletti et al. 2019).

Some scholars have studied individual mental stress. Orsila (2015) and others have compared the perceived