

Simulation Study on EEG Images of Anxiety Disorder Treatment Effect Based on SPM Calorific Value Analysis

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Abstract: Among numerous psychological therapies, beck cognitive therapy was once considered a classic treatment for emotional disorders and anxiety neurosis. This study selected 30 college students diagnosed with diffuse anxiety disorder from a certain university as the research subjects. The experimental group participated in mindfulness cognitive behavior training for 8 weeks, 2 days a week, once a day, a total of 16 times. The control group did not receive any intervention. Use relevant scales for state detection. Mainly including: Self Rating Anxiety Scale (SAS), Self Rating Depression Scale (SDS), and related physiological indicators. In order to better control the impact of training on anxiety, this study arranged pre-test and post-test as external stressors during exam week. It can be used as an effective therapy to effectively regulate the anxiety of college students with anxiety disorder. It can improve individual negative emotional experience such as anxiety and depression.

Keywords: Simulation; EEG Images; Anxiety Disorder Treatment Effect; SPM Calorific Value Analysis

1. Introduction

Generalized anxiety disorder (GAD), also known as diffuse anxiety state, refers to excessive and uncontrollable worries about a series of life events or activities, accompanied by at least three of the six related negative or tension symptoms. The core symptom is floating anxiety. The symptoms of patients seem to be related to real life, but the content and severity of their worries are not commensurate with the trivial matters in daily life. The content of their anxiety also completely depends on the changes in the daily

life environment. They have no central theme and no clear social orientation, that is, they show diffuse characteristics [1]. In terms of external performance, patients often show: tense expression, locked eyebrows, stiff and unnatural posture, accompanied by tremor, and varying degrees of motor restlessness. In terms of somatic symptoms, the main manifestation is the hyperactivity of autonomic nerves, which can involve many systems, such as cardiovascular, digestive, respiratory and urinary systems. Such as palpitations, chest tightness, nausea, dry mouth, frequent urination, pale and sweaty skin, etc. [2-3]. In terms of emotion, it is often accompanied by irritation, difficulty in focusing, difficulty in making decisions and fear of making mistakes. The lifelong prevalence rate of the disease is 4.1%~6.6%, which is easy to recur and difficult to recover. Some patients even need to take medicine for life [4-8].

According to psychoanalytic theory, GAD is mainly due to repressed childhood experiences, which are hidden in the subconscious. Once aroused by special circumstances and pressure in adulthood, GAD becomes a conscious anxiety. Classical psychoanalysis specifically explains the root of GAD as the unconscious conflict between the conflict of ego and id. The neutral and aggressive desires of the id strive to be displayed in the ego, which, because of its unconscious fear of being punished, does not allow these impulses to be displayed, thus leading to a floating anxiety. The object relationship theory of psychoanalysis pays more attention to the development of self-concept in early intimate relationship. They believe that poor educational methods lead to fragile and conflicting self images, thus leading to GAD. Children who are less warm and caring and whose parents are too strict or criticized too much may develop an image of

themselves as vulnerable and others as hostile. When children reach adulthood, they will try their best to overcome and cover up their weaknesses, but the pressure often overwhelms their coping ability, so they are constantly attacked by anxiety. From the theoretical perspective of humanism and existentialism, GAD came into being when parents did not pay unconditional attention to it when they were young, which would enable them to learn to abandon their true feelings and wishes and only accept the part of themselves that their parents approved, forming a condition of value. In adulthood, the process of value conditioning continues, which will enable individuals to incorporate into their self-concept only what is most likely to be praised, loved and supported by important people in life. When the external information is inconsistent with the self-concept, the individual will have anxiety. In order to deal with anxiety, individuals use defense mechanisms such as distortion or negation to prevent information from going to the conscious level. Distortion and denial can effectively reduce anxiety in a short time, but each use of the defense mechanism will make individuals more and more far away from real life. When the gap between self-concept and reality is very large, the defense mechanism cannot play a role, which results in extreme anxiety. The theory of existentialism holds that GAD is attributed to the anxiety of existence, that is, human beings are afraid of their own limitations and responsibilities. When people face death, they will have anxiety about survival. The result is that people may unintentionally hurt some people, or think that their life is meaningless.

2. Treatment of generalized anxiety disorder

In terms of GAD treatment, it is difficult to achieve ideal results with simple drug or psychological treatment, and generally, drug treatment and psychological treatment are combined. In terms of drug treatment, benzodiazepines and antidepressants are mainly used for the treatment of generalized anxiety disorder at present. However, the drug treatment has a slow onset and a long course of treatment. In addition, patients often have many adverse reactions in the course of medication, and the patient's treatment compliance is not ideal. Therefore, many

studies have pointed out that psychological treatment and drug treatment can be implemented for patients to improve clinical efficacy. GAD's psychotherapy techniques mainly include psychoanalysis, humanistic therapy, cognitive therapy, behavior therapy, relaxation therapy, mindfulness therapy, etc. Research shows that psychoanalysis is effective in the treatment of GAD (Comer, 2002). The classical psychoanalytic theory is mainly devoted to relieving the suppressed psychological conflicts and helping the patients to find the real root of the conflicts. The theory of object relationship mainly focuses on the early relationship between childhood and mothers, helping them understand and solve the relationship problems in childhood. Karl The human centered therapy founded by Rogers has been clinically verified in the treatment of GAD. This therapy attaches importance to the trauma as a kind of interpersonal relationship conducive to the growth of the patient, unconditionally pays active attention, and creates a basic condition of sincerity and empathy. In a good atmosphere of sincere acceptance and care, the patient has a sense of psychological trust and security, so that they can freely express themselves and explore themselves, so as to understand the real needs, thoughts and emotions. When they finally reach the understanding and acceptance of themselves and achieve the harmony between self-concept and experience, anxiety or other symptoms will be eliminated naturally. In behavioral therapy, there are many forms of techniques that can be used for GAD, such as relaxation training, systematic desensitization, biofeedback, etc. If the patient has a relatively clear anxiety situation, systematic desensitization can be used; If it is difficult to identify the object and situation of anxiety, relaxation training can be used to help patients reduce physical and psychological discomfort through physical relaxation when anxiety occurs, and prevent the cycle of anxiety reflection. Studies have confirmed that relaxation training can effectively reduce the symptoms of GAD patients. In the cognitive field, Beck cognitive therapy was once regarded as the classic therapy of GAD. Beck believes that people's emotional and behavioral problems are related to individual distorted cognition, and abnormal cognition produces

abnormal emotions and behaviors. A large number of "automatic negative thinking" in the minds of patients with depression is the root cause of depression, anxiety and other mood disorders. Finding and correcting these unreasonable cognitive patterns is the key to treatment. The key point of its treatment is to change the patient's assessment of the "danger" of external stimuli.

3. Research progress of mindfulness therapy

General data: With college students diagnosed with generalized anxiety disorder as the research object, 30 subjects were recruited in a university. They were randomly divided into experimental group and control group by computer, with 16 in the experimental group and 14 in the control group. In the experimental group, there were 4 males and 12 females, aged 18-22 years, with an average age of (19.18 ± 6.23) years; There were 5 males and 9 females in the control group, with an average age of (20.23 ± 7.48) years. There was no significant difference in gender, age and other data between the two groups ($p > 0.05$).

(1) Inclusion criteria: ① The definite diagnosis of the subject's professional institution is extensive. ② All patients and their families had informed consent to the study, which was voluntary. ③ It is approved by the school's psychological center and the ethics committee of the local hospital. ④ There is no cognitive disorder and mental disorder, and they can communicate well. "2) Exclusion criteria: ① there are organic brain diseases and somatic diseases. ② recent use of antipsychotic and antidepressant drugs. ③ there are serious mental disorders. ④ women in lactation or pregnancy. Comparison of general conditions between the experimental group and the control group is shown in Table 1.

(1) The control group was treated with paroxetine hydrochloride, a conventional anti-anxiety drug. (2) The treatment group was treated with anti-anxiety drug paroxetine hydrochloride combined with mindfulness training. The study was conducted with a pretest and posttest design in a randomized experimental group and a control group. There are 16 subjects in the experimental group and 14 in the control group. The experimental group participated in mindfulness cognitive behavior training for 8 weeks, 2 days a week,

once a day, a total of 16 times. The control group did not carry out any intervention. One week before the study, the organizer conducted short-term training for the experimental group. In this stage, guidance was the main focus. The consultant should strengthen communication with patients, evaluate the cognitive and behavioral status of patients, understand their interests and hobbies, and inform them of the relevant knowledge of mindfulness training, such as content Advantages, purposes, and related precautions, so as to improve the degree of cooperation. Then, we will carry out phased treatment experience as planned, and complete the following mindfulness themes: "live in the present", "be aware of the body", "walk in the present", "emotion and body", "be mindful and aware of feelings", "smart life, future life", etc. ③ The third stage: this stage mainly focuses on consolidation, mainly reviewing the methods of mindfulness training, and conducting circular training, facing and perceiving the surrounding things with a non critical, non responsive and non analytical attitude, not being affected by the outside world, and consolidating the results. ④ The fourth stage: this stage mainly focuses on promotion, and extends the above training to real life. During the whole training process, the consultant should be patient and correct and guide his mistakes. During the training, encourage patients to communicate their physical feelings and questions. At the same time, the study used a correlation scale for state detection. It mainly includes: Hamilton Anxiety Scale, Self Rating Anxiety Scale (SAS) and dynamic detection of related physiological indicators. In order to better control the impact of training on anxiety, this study arranged pre-test and post test in the exam week as an external stressor. However, according to the two results of the pre-test and post test of the two groups, the paired sample test within the group and the independent sample test between the groups were conducted respectively. In the inter group difference test, in order to exclude the impact of the initial state, we first conducted an independent sample test on the baseline value of variables, and then conducted an independent sample test on the difference between the subsequent test scores and the pre-test scores.

The test results of the experimental group and the control group in terms of gender, only child and other major influencing factors show that there is no significant difference, and the two groups can be considered as homogeneous.

Hamilton Anxiety Scale (HAMA) includes 14 items, which were prepared by Hamilton in 1959; It is one of the scales that are widely used in psychiatry and evaluated by doctors. It is mainly used to assess the severity of anxiety symptoms of neurosis and other patients. The consistency of the scale is quite good: the reliability coefficient of its total score is 0.93; The reliability coefficient of each single symptom score was 0.83-1.00; P value is less than 0.01. Validity: The total score of HAMA can well reflect the severity of anxiety. The validity of the correlation test with the total score of HAMA was also good, and its validity coefficient was 0.36 ($P < 0.05$). After comparison within the group, the paired

sample test was conducted for the two groups and the pre-test and post test values. The results showed that the scores of the experimental group and post test were lower than those of the pre-test, and the difference was significant, while the difference was not significant in the control group. See Table 2. For comparison between groups, first of all, the pre-test values of and two groups were tested with independent samples. The results showed that there was no significant difference between the two groups. Then, an independent sample test was conducted for the difference between the two groups (the post test value of the difference minus the pre test value, the same below). The results showed that the post test scores of the experimental group and the experimental group decreased more than those of the control group, and the difference between the two groups was significant. See Table 3.

Table 1. Comparison of general conditions between the experimental group and the control group

Category		Test group	Control group	t	P
		(N=16)	(N=14)		
Gender	male	4	5	0.87	0.45
	Female	12	9		
only child	male	10	8	-0.16	0.22
	Female	6	4		

Table 2. Intra group comparison of Hamilton scale

Category	Test group		t	P	Control group		t	P
	Front side	Rear side			Front side	Rear side		
Hamilton	27.50±2.38	10.23±2.34	3.78	0.000	25.90±2.42	21.57±2.17	1.22	0.19

Table 3. Comparison between groups of Hamilton Scale

Category	Front test		t	P	difference		t	P
	experience group (N=16)	Control group (N=14)			experience group (N=16)	Controlgroup (N=14)		
Hamilton	27.50±2.38	25.90±2.42	0.89	0.55	-17.27±3.33	-4.33±2.02	-8.56	0.000

The results showed that in the intra group comparison, the scores of the experimental group and the post test were lower than those of the pre-test, and the difference was

significant, while the difference was not significant in the control group; In the inter group comparison, the reduction of post test scores in the experimental group was higher

than that in the control group, and the difference between the two groups was significant. The above results indicate that mindfulness training has a positive effect on improving the diffuse anxiety state and the accompanying depressive mood, and has a good maintenance effect. It is generally believed that the realization principle of this role is to improve the ability of emotion management by increasing the experience of current emotions, maintaining a neutral and objective attitude, and learning the skills of breaking away from negative thinking and feeling, so as to improve acceptance and reduce empirical avoidance behavior. In the process of exploring the impact on physiological indicators, the study found that mindfulness cognitive behavior therapy can reduce muscle tension, improve the efficacy of physiological indicators such as EMG, skin electricity, heart rate and respiration, thereby activating and amplifying positive emotional experience and relieving negative emotions such as tension and depression through the regulation of consciousness. Life in a more peaceful and relaxed state. Affected by this state, individuals' assessment of external stimuli may be less negative and more positive. Therefore, negative emotions are reduced and positive emotions are increased. They no longer regard anxiety and depression as their enemies. They can coexist with them, instead of living in fear of their recurrence.

4. Conclusion

It can be used as an effective therapy to regulate the anxiety of college students with anxiety disorder. It can improve the negative emotional experience of individuals such as anxiety and depression, reduce the muscle tension of individuals, reduce their skin electricity, heart rate and respiratory rate, increase their brain wave level, and help relieve tension. In a word, mindfulness cognitive behavior therapy has an obvious role in the treatment of anxiety neurosis and depression, and can be popularized in the public.

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