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Group hypnosis intervention on anxiety among college students

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Abstract: This study intends to explore the application effect of group hypnosis in relieving anxiety of college students. A total of 72 college students were divided into experimental group and control group, and 36 subjects in the experimental group were given 7 group hypnosis interventions, and the SAS scores of the two groups were compared before and after. The results showed that the anxiety of the experimental group was significantly improved, and the improvement effect was affected by the individual's hypnotic sensitivity. The control group showed no significant improvement in mood. Group hypnosis can be used as a means of psychological intervention for college students to promote the application, the specific operation should consider the participants' sensitivity and other psychological characteristics, to develop personalized programs.

1. Introduction

Recent studies have shown that anxiety among college students is worrying. For example, a meta-analysis conducted by Yan Y (2023) in 2023 revealed that during the COVID-19 pandemic, anxiety detection rates among Chinese college students were as high as 25.6%, a figure significantly higher than the national average reported in previous years[1] .A cross-sectional survey conducted by Huang H et al. (2023)in the same year showed that up to 36% of college students experienced anxiety during the outbreak [2] . According to the study by Liu M et al. (2023), 33.2% of Chinese vocational school students had anxiety symptoms[3].In a study of medical students in Bangladesh, Abbasy et al. (2022) reported a prevalence of anxiety of 46.8%.This rise further highlights the urgency of providing mental health support in an educational setting [4].

Existing studies have show that the anxiety of college students is influenced by various factors such as professional and cultural background [5]. For example, international students often face

unique challenges, such as cultural barriers and social isolation, which may exacerbate mental health problems[6]. In addition, studies have shown that medical students have a higher rate of anxiety than those of other majors [7].

Various factors such as academic stress, lifestyle, social expectations, financial pressure and employment stress lead to college students becoming a high anxiety group[8].The COVID-19 pandemic, which began in 2019, has severely exacerbated anxiety among college students worldwide, aggravating existing mental health problems and becoming a new stressor. Zheng S et al. (2022) pointed out that the economic downturn and increased employment competition posed a psychological burden on college students, making them more anxious about their future employment[9]. This concern is confirmed in studies across countries, where fear of unemployment and financial instability is a common source of anxiety among students[6].

In conclusion, the current anxiety situation of college students is relatively serious and affected by many factors, so targeted interventions are needed to support students mental health and well-being. Continuous research is essential to understand the evolving nature of anxiety among college students and to develop effective intervention strategies.

Hypnosis is when a therapist uses special techniques such as relaxation and monotonous stimulation to induce individuals into a special state of consciousness that is different from sleep. The American Psychological Association (APA) defines hypnosis as a particular mental state with a high degree of concentration and acceptability, often accompanied by characteristics such as relaxation and altered consciousness[10,11].This definition emphasizes two core features of hypnosis: concentration of attention and enhanced acceptance of recommendations. Hypnotherapy is widely used in the treatment of various physical and mental disorders, such as pain management, stress-related conditions, behavioral problems, and sleep disorders.

Studies have shown that hypnosis can reduce pain perception and enhance coping strategies. For example, Parmieri et al.(2012) explored the potential benefits of hypnotherapy in patients with amyotrophic lateral sclerosis (ALS) and found an improvement in quality of life and a reduction in psychological distress[12]. This is consistent with the findings of Rosendahl (2024), which provides evidence from a meta-analysis supporting the efficacy of hypnosis in mental and physical health problems (including pain)[13].

Hypnotherapy is also recognized for its ability to manage stress and improve emotional well-being. Studies have pointed out that hypnosis can enhance emotional regulation, making it an effective aid in the treatment of post-traumatic stress disorder (PTSD) and other diseases. Enea & Dafinoiu (2013) reported that cognitive hypnotherapy is effective in relieving PTSD symptoms[14].

In addition, hypnotherapy has been applied in weight management and addiction treatment. A randomized controlled trial conducted by Bo et al. (2018) showed that self-hypnosis has significant effective in helping severely obese patients lose weight[15]. Carmody et al. (2017) found that hypnosis facilitates smoking cessation, strengthens motivational messages, and enhances self-regulation. These applications demonstrate the great potential of hypnosis in promoting behaviour change and supporting individuals to overcome addictive behaviors[16].

In addition to the above applications, the treatment of anxiety is the most widespread field of application of hypnosis. Studies have shown that hypnosis can significantly reduce anxiety levels in clinical settings and during specific procedures.

The study by Shanthanna et al. (2013, 2023) showed that hypnosis, as an adjunct to anesthesia, was effective in reducing the preoperative anxiety level of patients[17] [18].

A systematic review by Khalil et al. (2020) found that mind-body therapies including hypnosis were effective in reducing preoperative anxiety and improving postoperative outcomes[19]. This is consistent with Alberto et al. (2021), who found significantly lower subjective and objective anxiety levels in tumor patients undergoing PET / CT after hypnotic induction[20]. The study of Vuillaume

et al. (2022) demonstrated that hypnosis significantly reduces anxiety during coronary angiography [21]. Lang E et al. (2006) found that the assisted self-hypnotic relaxation technique was effective in reducing anxiety in women undergoing breast biopsy surgery [22].

Furthermore, the application of hypnosis in specific populations has also shown positive effects. For example, studies in pregnant women have found that self-hypnosis is effective in reducing anxiety levels in pregnant women and improving maternal and infant health [23]. Hypnosis has also been shown to improve anxiety among children and adolescents in dental treatment [24] [25]. The study by Kosto (2023) showed that hypnosis can relieve anxiety and reduce dependence on pharmacological interventions in older people [26]. These studies have shown that hypnosis can be used as an adjunct therapy in a medical setting to improve the psychological state of patients.

Hynosis has also been shown to reduce physiological measures such as heart rate and blood pressure, and alter gastric myographic activity and affect gastrointestinal motility [27, 28]. In the context of anxiety management, these findings are particularly important because physiological responses are often accompanied by psychological distress.

Neuroimaging studies have provided new evidence for the effectiveness of hypnosis in anxiety treatment. Matos (2023) and his research team noted that hypnosis can lead to changes in brain networks related to sensory processing and pain regulation, and affect brain regions related to attention, perception, and emotion regulation[29]. Del Casale (2022) proposed that hypnosis can affect the activity of the anterior cingulate cortex. This brain region is involved in autonomic regulation, which can reduce the sympathetic excitability, thus reducing heart rate and blood pressure, and helping to control stress and anxiety [30]. Changes in this region may underlie the physiological changes observed during hypnosis.

Based on the above analysis, there is a lot of evidence to support the effectiveness of hypnotherapy in a variety of medical conditions, and its application in clinical practice and psychological research continues to expand, showing its great potential in psychological and physiological intervention. As a non-pharmacological treatment, hypnotherapy offers a promising alternative to anxiety relief, especially in highly stressful medical settings and in different patient populations.

However, to date, the research on hypnosis has mainly focused on the clinical field, focusing on the surgical process and the management of anxiety related to diseases, and there are relatively few studies using hypnosis as an intervention for psychological interventions of college students.

The purpose of this study was to explore the potential utility of hypnosis technology in alleviating psychological anxiety among college students, in order to better understand the application potential of the technology in a non-clinical environment. This could then provide mental health professionals with more abundant tools and strategies to support the maintenance of college students' mental health and academic success.

2. Research methods

2.1 Study subjects

In this study, 1,200 SAS questionnaires were randomly distributed to undergraduate students, and 950 valid questionnaires were collected. In the valid questionnaire, a total of 135 people had SAS scores of more than 50 points, and finally 72 people volunteered to participate in the experiment to form a sample group, among which 33 boys (45.8%) and 39 girls (54.2%), who were randomly divided into control group and experimental group. Both subjects had no psychiatric or neurological history, were physically healthy and signed informed consent prior to the experiment. The study was approved by the Ethics Committee of Huaibei Normal University (ethical approval number: HBSD2023-012). Sample details are shown in Table 1.

Table 1. Basic Information of the Samples.

Group	Sex		Specialty		Perceptibility	
	Male	Female	Literature and History	Science and Engineering	High Sensibility	Low Sensibility
Experimental group (n=36)	16	20	17	19	22	14
Control group (n=36)	17	19	18	18	20	16

2.2 Research tools

2.2.1 Anxiety Self-rating Scale (SAS)

The Self-Rating Anxiety Scale (SAS) was developed by Professor W.K. Zung in 1971 to assess the subjective feelings of anxiety. There are a total of 20 items in the scale, and each item is scored at 4 levels, of which 15 items are scored positively and 5 items are scored backwards, and the scores of each item are accumulated to form a total coarse score, and the coarse score × 1.25 to obtain a standard score. The cut-off value of the SAS standard score is 50 points, and there are three levels of more than 50 points: mild anxiety (50-59 points), moderate anxiety (60-69 points), and severe anxiety (70 points or more).

The SAS is used to measure anxiety in different populations and settings, becoming an effective tool for researchers and clinicians to understand and address anxiety-related problems in a variety of situations.

2.2.2 Stanford Group Hypnosis Perceptibility Scale (SHSS)

The Stanford group hypnotic susceptibility scale (SGHSS) was developed Kekecs by American psychologist Professor Ernest Hilgard in 1965 to identify the level of hypnotic susceptibility of subjects, and is recognized as the most effective susceptibility measurement scale. The scale has a total of 12 items, each item performs an activity, and the subject follows the hypnotist's cue guidance to complete the action, and 1 point is awarded through one item, and a score higher than 6 points is high susceptibility.

2.3 Intervention protocol

The 36 subjects in the experimental group were subjected to group hypnosis once a week by a professional hypnotist, each time lasting about 60 minutes, a total of 7 interventions, and the whole intervention process lasted for 7 weeks. At the end of the 7th intervention, the SAS scale was retested in both groups. Hypnosis interventions are carried out in a special psychological intervention room, which is soundproofed and equipped with comfortable reclining chairs and music playback equipment.

Each intervention includes sharing, hypnosis, and Q&A. In the sharing session, the participants briefly reviewed their emotional changes and anxiety experiences during the week, and enhanced their trust and support through open discussions. In the hypnosis session, the hypnotist guides the participants into a relaxed state, and helps the participants relieve their anxiety through suggestion and visualization techniques. In the Q&A session, the hypnotist raised questions, and the hypnotist provided professional answers to ensure that the participants had full understanding and confidence in the hypnosis process, and it was also convenient for the hypnotist to grasp the situation and adjust

the intervention strategy in time.

2.4 Data analysis

Paired-sample T- test was performed using SPSS 23.0.

3. Results and analysis

3.1 Analysis of pre and posterior results between experimental and control groups

The pre-test scores of the experimental group and the control group were tested, and the results showed no significant difference ($p > 0.05$), which can be regarded as a homogeneous sample.

After 7 hypnotic intervention sessions, the difference decreased significantly ($p < 0.01$) than the anxiety level ($p > 0.05$).

Comparing the post-test scores of the experimental group and the control group found that the SAS score of the experimental group decreased significantly after the intervention, and the difference was extremely significant ($p < 0.01$) (Table 2).

Table 2: Difference Test between Experimental and Control groups

Pair	Divide into groups	(M±SD)	95% CI		*t*	p
			lower limit	superior limit		
Experimental group pre-test---Control group pre-test	Experimental group pre-test	55.81±3.21	-1.37	2.15	0.45	0.657
	Control group pre-test	55.42±3.40				
Experimental group Pre-test ---Experimental group post-test	Experimental group pre-test	55.81±3.21	10.63	12.09	31.46	0.000**
	Experimental group post-test	44.44±3.27				
Control pre-test---Control post-test	Control group pre-test	55.42±3.40	-0.84	0.39	-0.73	0.469
	Control group post-test	55.64±3.83				
Experimental group post-test---Control group post-test	Experimental group post-test	44.44±3.27	-12.92	-9.47	-13.19	0.000**
	Control group post-test	55.64±3.83				

Note: * $p < 0.05$; * * $p < 0.01$

3.2 Differential outcome analysis of sensory-based grouping

The results of the group comparison based on sensibility showed that the SAS score decreased more significantly than the low-receptive group, and the difference was extremely significant ($p<0.01$) (Table 3).

Table 3: Difference Test of Sensibility

Divide into groups	Perceptibility	Number of subjects	(M±SD)	95% CI		*t*	p
				lower limit	superior limit		
Experimental group pre-test	high	17	55.65±3.24	-2.50	1.90	-0.28	0.783
	low	19	55.95±3.26				
Experimenta group post-test	high	17	42.76±2.41	-5.11	-1.25	-3.35	0.002**
	low	19	45.95±3.26				
Control group pre-test	high	17	55.74±3.51	-1.65	3.00	0.59	0.557
	low	19	55.06±3.34				
Control group post-test	high	17	56.05±4.24	-1.71	3.46	0.69	0.495
	low	19	55.18±3.38				

Note: * $p < 0.05$; * * $p < 0.01$

4. Discussion

4.1 Hypnosis intervention can better relieve the anxiety of college students

As the main content of college students' negative emotions, anxiety is the focus of college students' mental health education. In this study, through the comparison between the experimental group and the control group, it was found that hypnosis intervention could effectively and quickly help college students get rid of negative emotions and adapt to college life more effectively. The SAS post-test scores of 36 subjects in the experimental group were significantly lower than those in the pre-test scores, and 32 of them had SAS scores reduced to within the normal range (15 males and 17 females).

In addition, the effectiveness of hypnosis intervention was further verified through interviews and feedback analysis of the experimental group participants. Most of the participants reported that they felt relaxed, their anxiety was significantly reduced, and their learning efficiency and social skills were also improved. These qualitative data corroborate with quantitative results, suggesting that hypnosis intervention can not only alleviate anxiety in the short term, but also may have a positive impact on the long-term mental health of college students. Therefore, it is suggested that hypnosis intervention should be introduced into mental health education in colleges and universities as an auxiliary means to help college students cope with anxiety.

4.2 The hypnotic perception of the subjects will affect the intervention results

Hypnotic susceptibility, also known as suggestibility, refers to an individual's ability to accept suggestion. People with higher suggestiveness are more likely to be hypnotized and can enter a deeper state of sleep. In this study, it was found that the intervention effect of highly susceptible subjects was more obvious. This may be because highly suggestive individuals are more likely to enter a state of deep hypnosis and are more susceptible to active hypnosis by hypnotists, and therefore have better results than low-receptive individuals. This fully demonstrates the effect of susceptibility on the depth of hypnosis and its role in the negative emotional effect of hypnosis.

Although low-susceptibility participants can also benefit from hypnosis to some extent, the effect is relatively limited compared to high-susceptibility subjects. This may be due to the difficulty of hyposusceptibility subjects to achieve a deep state of relaxation during hypnosis, which affects the effect of the intervention. In addition, the study also found that susceptibility not only affects the depth of hypnosis intervention, but may also affect the persistence of participants' response to the intervention. Participants with high susceptibility were able to maintain a positive state of mind for

a long time after the intervention, while participants with low sensitivity were likely to return to their pre-intervention state more quickly.

In order to improve the effect of the intervention, it is recommended to evaluate the sensitivity of the participants before the implementation of hypnosis intervention, and formulate a personalized intervention plan based on the assessment results. For example, for highly susceptible subjects, the depth and frequency of hypnosis can be appropriately increased; For hyposusceptible subjects, other psychological interventions, such as cognitive behavioral therapy, can be considered to make up for the shortcomings of a single hypnotic intervention. In addition, future research can further explore the interaction between susceptibility and other psychological traits (such as emotional stability, self-efficacy, etc.), in order to understand the effect mechanism of hypnosis intervention more comprehensively and provide more scientific guidance for mental health education in colleges and universities.

5. Conclusions

Hypnotherapy has been shown to be effective in reducing anxiety among college students, so group hypnotherapy has the potential to become one of the psychological interventions to be promoted. It is important to note that the effect of hypnosis is affected by individual susceptibility, and the effect of hypnosis intervention is usually more pronounced for participants with higher sensibility. In view of this, the psychological profile of each participant should be carefully assessed when implementing hypnosis interventions in order to develop a more individualized treatment plan.

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