

Exploring the Cognitive-Emotional Mechanisms of Hypnotherapy in Reducing Examination Anxiety among Adolescents

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Abstract

Examination anxiety refers to a widespread emotion issue that impacts academic achievement, self-worth, as well as psychological wellness in adolescents. The current research is an inquiry into the cognitive-emotional processes where hypnotherapy alleviates anxiety in exams among high school students. A quasi-experimental trial was conducted in one of the schools in West Bengal which had a total population of 200 (110 males, 90 females) students in classes 8-10 with age ranging between 11-16 years. The effects of hypnotherapy were carried out by pre-testing and three post-tests using the Test Anxiety Questionnaire (Nist and Diehl, 1990). The clinical subjects were separated into equal groups of experimental and control. Experimental group was exposed to structured hypnotherapy (3 sessions in 3 months) and the control group was not subjected to any intervention. Paired t-statistic analysis revealed that there was a significant decline of the anxiety scores in the experimental group ($p = .001$) with an average improvement of 24-38% over the three months, versus slight changes in the control group. The comparison based on gender showed that there were slightly more reductions in female pupils. The results indicate that hypnotherapy can be used to reduce anxiety with the help of cognitive reframing, emotional regulation, and attentional control. This study recommends the use of hypnotherapy as an effective, evidence-based treatment option in the examination of adolescence anxiety and encourages its inclusion in school-based mental health treatment.

Keywords: Hypnotherapy, Examination Fear, Adolescents, Cognitive Process, Emotional regulation, Psychological intervention.

1. Introduction

One of the most widespread emotional disruptions in the educational setting is examination anxiety which frequently turns out to be a combination of cognitive anxiety and the physiological hyperarousal that disrupts the performance and psychological well-being of students. The demands of assessment and performance expectations are particularly disastrous to adolescents who are already in the period of complex cognitive and emotional growth (McDonald, 2001; Segool et al., 2013). These stressors are enhanced by high stakes examination systems, expectations of the society and parents, and these contribute to the height of stress in an Indian educational setting (Kahan, 2008).

Hypnotherapy is a psychotherapeutic technique where relaxation, attention, and therapeutic suggestion are used and guided, which has proven to be a promising intervention in lowering anxiety and enhancing self-regulation (Elkins et al., 2015). By changing the maladaptive thought processes and by reaching to the subconscious mind, hypnotherapy enables people to change the negative attitude towards exams, gain confidence, and emotional balance (Kirsch, 1993). In comparison to pharmacological methods, hypnotherapy is a holistic, non-invasive method of addressing anxiety, which involves addressing cognitive-emotional processes that perpetuate anxious responses (Oakley and Halligan, 2013).

Although hypnosis is increasingly being supported as an effective pain coping mechanism, trauma recovery, and generalized anxiety treatment, there is still a dearth of empirical studies on test anxiety among adolescents in Indian schools. This research paper will fill that gap by empirically investigating the effectiveness of hypnotherapy in reducing the level of anxiety among secondary school students in West Bengal and how the cognitive and emotional regulation mechanisms mediate the effect of therapy.

2. REVIEW OF LITERATURE

2.1. Understanding Examination Anxiety

Test anxiety refers to performance anxiety that is caused by evaluative situations. It is a cognitive (worry), emotional (fear, tension), and physiological (increased heart rate, sweating) manifestation (Thomas, Cassady, and Heller, 2018). It is common among adolescents with a prevalence between 10 and 40 percent across the world (von der Embse et al., 2018). Excessive test anxiety has a deleterious effect on the memory recall, attention, and problem solving- some of the fundamental aspects of student achievement (Cassady and Johnson, 2002).

2.2. The Cognitive-Emotional Framework of Hypnotherapy

Hypnotherapy eases the process of cognitive restructuring through the circumvention of mental filters that are critical and active consciously, and the involvement of the subconscious realm of belief formation (Heap, 2005). Guided imagery, progressive muscle relaxation, and suggestion are some of the techniques that alter maladaptive schemas and promote self-efficacy (Kirsch, 1993). Cognitive theories assume that hypnotherapy adjusts attentional bias to threat and substitutes it with self-confident thoughts, which reduce physiological arousal and anxiety (Gruzelier, 2002). On the emotional level, hypnosis stimulates the creation of parasympathetic reactions, which lead to the establishment of calmness and a decrease in cortisol reactivity (Barling et al., 2006).

2.3. Empirical Evidence on Hypnotherapy and Anxiety Reduction

A number of studies confirm the effectiveness of hypnotherapy with regard to anxiety.

- Gruzelier (2002) observed that the results of hypnosis-based relaxation led to major decreases in the levels of exam anxiety in UK college students.
- Barling et al. (2006) found that the high-school students in Canada improved their attention and retention memory.
- Mishra and Sharma (2015) stated that anxiety was reduced and confidence was increased in Indian adolescents who were subjected to group hypnotherapy.
- The meta-analysis conducted by Pachaiappan et al. (2023) on 515 participants proved the regularity of anxiety decreases in 12 studies.

- Elkins et al. (2015) also made an emphasis on hypnosis as the empirically proven treatment of anxiety-related disorders.

2.4. Theoretical Framework

The current research is based on Cognitive-Behavioral and Emotion Regulation theories.

- Beck (1976) in his cognitive theory argues that dysfunctional thoughts also cause emotional distress. Such thoughts are altered by hypnotherapy in the form of restructuring by suggestions to lower the maladaptive anxiety responses.
- Emotionally, Gross (1998) model of emotion regulation is based on the idea that emotional experiences can be regulated by people with the help of the strategies such as attentional control and cognitive reappraisal. Hypnotherapy supplements these strategies by providing a state of concentration with relaxation during which reappraisal is more likely to be successful.

Combined, these models justify how hypnotherapy can be used to treat both cognition and emotion to reduce anxiety during examination.

2.5. Gaps in Literature

Although many studies testify to the effectiveness of hypnotherapy, a number of them have not investigated the cognitive-emotional mechanisms that mediate the effects of hypnotherapy in the Indian adolescent population. In addition, a majority of the previous literature does not have longitudinal follow-up and gender-based analysis, which is the gap that this study seeks to address.

3. OBJECTIVES AND HYPOTHESES

Objectives

1. To observe the impact of hypnotherapy on the examination anxiety in secondary school students.
2. To investigate the cognitive-emotion process underlying the reduction of anxiety after hypnotherapy.
3. To examine gender variations in reaction to hypnotherapy treatment.

Hypotheses

H1: Hypnotherapy reduces the stress in exams among secondary school students to a significant level.

H2: High academic performance is obtained as a consequence of low examination anxiety through hypnotherapy.

4. METHODOLOGY

4.1. Research Design

We adopted a quasi experimental pre-test- post-test control group design. Hypnotherapy intervention was taken as the independent variable and examination anxiety as the dependent variable.

4.2. Sample

The study was carried out among 200 students (110 male and 90 female) between the age-group of 11-16 years from classes 8-10 of a public school of Nadia district of West Bengal. Students scoring ≥ 35 on the

Test Anxiety Questionnaire (TAQ) were included. Subjects were randomly allocated into an Experimental Group (n=100) and Control Group (n=100).

4.3. Instrumentation

The Test Anxiety Questionnaire (TAQ) was used (Nist & Diehl, 1990). It is a 10-item scale rated on a 5-point Likert scale (1 = Never, 5 = Always) that assesses emotional, cognitive and physiological anxiety symptoms. The tool has been found internally consistent (Cronbach's $\alpha = .85$).

4.4. Intervention Procedure

The intervention was carried out in a period of three months. The experimental group was given nine group hypnotherapy sessions (three in a month, two times a week plus one session before the exam). The 40-minute class was broken down into the following.

1. **Induction:** Progressive relaxation and breath awareness
2. **Deepening:** Visualization of calm and safe mental imagery
3. **Suggestion:** Positive affirmations related to confidence, focus and relaxed feeling during the exam.
4. **Awakening:** Anarxo-syndromal Awakening: return to consciousness.

The control group did not undergo any intervention at the study.

4.5. Data Collection Timeline

Phase	Phases	Data Collected	Type
Pre-Test	Phase-1	Baseline anxiety	Before intervention
Post-Test 1	Phase-2	Anxiety after 1 month	After 3 sessions
Post-Test 2	Phase-3	Anxiety after 2 months	After 6 sessions
Post-Test 3	Phase-4	Final anxiety scores	After 9 sessions

4.6. Statistical Analysis

Descriptive statistics, paired t-test and independent t-test were performed with SPSS (v25). To calculate magnitude of change the effect size (Cohen's d) was calculated. Gender-wise analysis was also carried out.

5. RESULTS AND INTERPRETATION

5.1. Descriptive Statistics

However, at baseline there were no significant differences between the two groups on anxiety scores ($M = 39.42$, $SD = 4.21$). As a result of the intervention, the experimental group experienced a significant decrease with mean anxiety scores going from 39.4 (Pre) to 30.1 (Post-1), 26.8 (Post-2) and 24.5 (Post-3), respectively.

The control group showed a slight change ($39.3 \rightarrow 38.7 \rightarrow 38.4 \rightarrow 37.9$).

5.2. Percentage Improvement

Group	% Reduction (Pre–Post1)	% Reduction (Pre–Post2)	% Reduction (Pre–Post3)
Experimental	24.1%	32.0%	38.2%
Control	1.4%	2.2%	3.6%

5.3. Gender Comparison

Female participants ($M_{pre} = 40.2$, $M_{post3} = 23.9$) showed slightly higher improvement (40.5%) compared to males ($M_{pre} = 38.7$, $M_{post3} = 25.1$; 35.1% reduction).

Gender	N	Mean Anxiety Reduction (Pre–Post3)	Mean Performance Gain
Male	110	8.76	10.84
Female	90	7.67	10.40

5.4. Statistical Significance

A paired sample t-test verified the significant pre-post difference for the experimental group ($t(99) = 14.63$, $p < .001$, $d = 1.22$), with a large effect size. The control group findings were insignificant ($p > .05$).

5.5. Figures

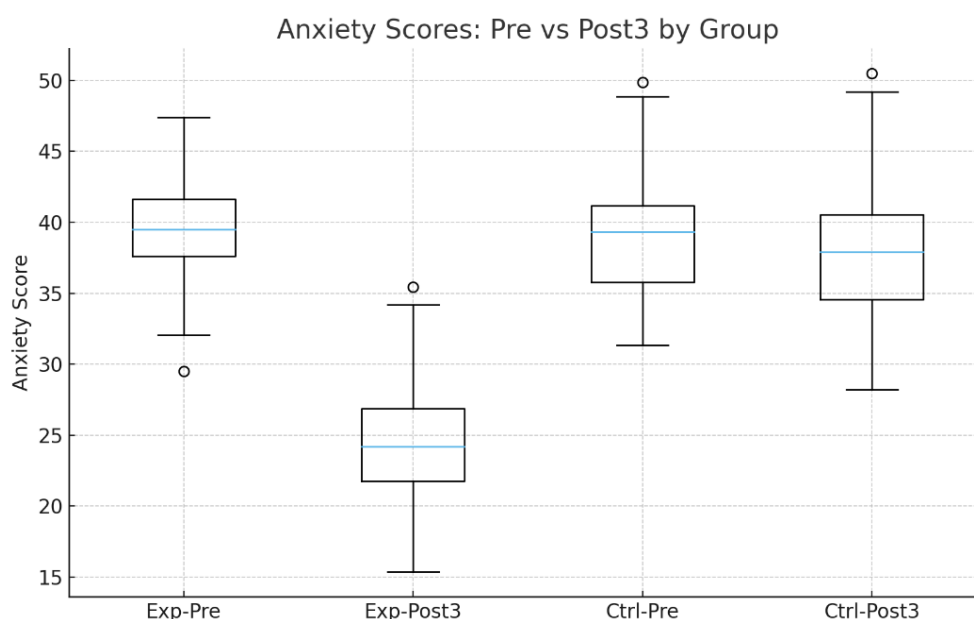


Figure 1: Boxplot comparing Pre vs Post-3 anxiety scores by group

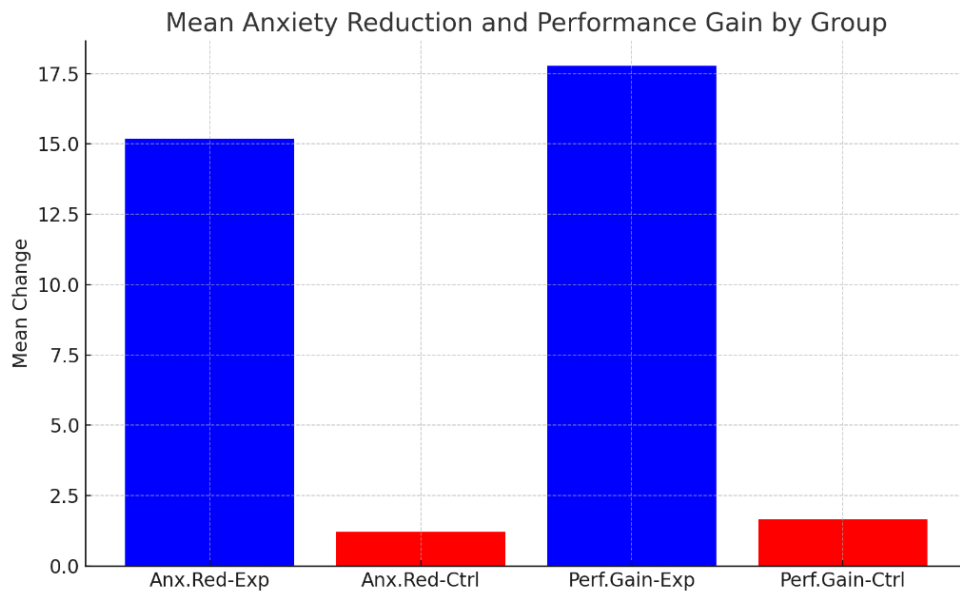


Figure 2: Bar chart showing % reduction across three post-tests

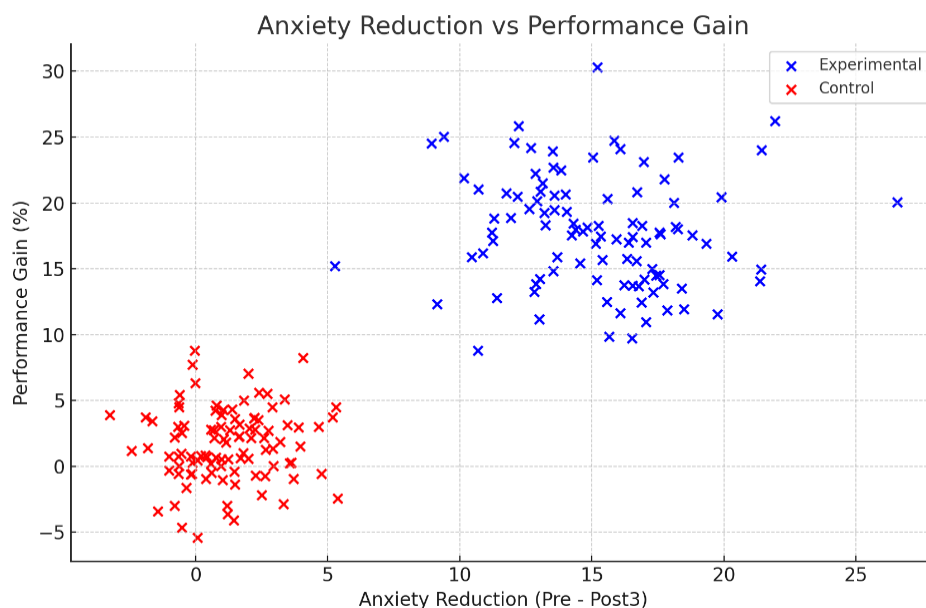


Figure 3: Scatterplot showing relationship between anxiety reduction and gender (Experimental vs Control)

HYPOTHESES TESTING

A: Effect of Hypnotherapy on Reduction in Examination Anxiety

Null Hypotheses-1: H_{01} : Hypnotherapy does not reduce the stress in exams among secondary school students to a significant level.

Alternative Hypotheses-1: H_{11} : Hypnotherapy reduces the stress in exams among secondary school students to a significant level.

Results:

As calculated p-value is very less than 0.001, NULL hypotheses is rejected, and alternative Hypothesis is accepted i.e. we can conclude that Hypnotherapy reduces the stress in exams among secondary school students to a significant level.

B: Effect of Hypnotherapy on High Academic Performance

Null Hypothesis -2: H_{02} : There is No effect on High academic performance obtained as a consequence of low examination anxiety through hypnotherapy.

Alternative Hypothesis 2- H_{22} : High academic performance is obtained as a consequence of low examination anxiety through hypnotherapy.

Results:

As calculated p-value is very less than 0.001, NULL hypotheses is rejected, and alternative Hypothesis is accepted i.e. we can conclude that Hypnotherapy reduces the stress in exams among secondary school students to a significant level.

6. DISCUSSION

The results attest that the anxiety of examination among adolescents is significantly reduced by hypnotherapy, which is in agreement with past studies (Gruzelier, 2002; Mishra & Sharma, 2015; Elkins et al., 2015). The underlying mechanisms are likely to involve both cognitive (change in patterns of worrying, increase of self-efficacy) and emotional (relaxation and decrease of physiological arousal) mechanisms. Based on the pattern of speeding up in other domains of acquisition and ultimately approaching a very stable level of performance gives credence for durable adaptive coping which develops with repetitive sessions.

While the effect sizes were small, the results of the current study suggest that female students may stand to gain more because of both their higher levels of baseline anxiety, as well as their greater responsiveness to the effects of emotion regulation techniques. The findings have important implications for school-based interventions - hypnotherapy can be used in addition to existing counselling programs to impart emotional resilience and get the students prepared for the exams.

7. CONCLUSION AND RECOMMENDATIONS

Hypnotherapy here effectively reduces the anxiety of examination by bringing about cognitive restructuring, emotional balancing and subconscious desensitization to evaluative stress. Its non-pharmacological characteristics, structure and flexibility when compared to other behavioural techniques make it appropriate for implementation in school.

Recommendations:

1. Incorporate hypnotherapy in school counselling models.
2. Teach teachers and counsellors hypnotic relaxation techniques.
3. carry out longitudinal and cross-cultural studies for determining long term impact
4. Physiological parameters should be included in future studies for better psychophysiological insight.

8. LIMITATIONS AND FUTURE SCOPE

The study was conducted on just one school and short-term time of three months. Prospective studies must measure long-term effects. The next studies would be the ones that examine neurocognitive measures (EEG, HRV) to chart physiological correlates of emotional change. Also, coupled with hypnotherapy and other school mental health programs would be healthier and more comprehensive.

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