

Open Access

ORIGINAL ARTICLE

Comparison of the effectiveness of problem-solving therapy and hypnotherapy in executive functions among gifted students with anxiety in senior high school

Narjes Yosefvand ^{*1}, Mohammad Ali Sepahvandi ², Fatemeh Rezaei ³

1. Corresponding Author: Master's Student in Psychology, Department of Psychology, Faculty of Literature and Humanities, Lorestan University, Khorramabad, Iran E.Mail: narjesyosefvand@yahoo.com
2. Associate Professor, Department of Psychology, Faculty of Literature and Humanities, Lorestan University, Khorramabad, Iran
3. Associate Professor, Department of Psychology, Faculty of Literature and Humanities, Lorestan University, Khorramabad, Iran

Received: 2024-05-26

Accepted: 2024-06-08

Abstract

Aim: This study compared cognitive behavioral therapy focused on problem-solving and hypnotherapy on the executive functions of gifted high school students with anxiety in Khorramabad, Iran. This quasi-experimental research was conducted on 45 students with anxiety, divided into three groups: Two experimental (problem-solving therapy and hypnotherapy) and one control group. Problem-solving therapy consisted of ten sessions of 30-60 minutes each, while hypnotherapy had ten sessions of 45 minutes each. The control group received no intervention. Assessments were made using the Wechsler Intelligence Test, Beck Anxiety Inventory, and Stroop Scale. Data analysis with SPSS 22 showed significant improvements in executive function and anxiety reduction in both experimental groups compared to the control group ($P < 0.05$). Nevertheless, there was no significant difference between the two interventions. Therefore, both interventions are effective in reducing anxiety and improving executive function, depending on the therapist's diagnosis.

Keywords: Anxiety, Executive Functions, Gifted, Hypnotherapy, Problem Solving Therapy

Introduction

Gifted students are considered an asset for their nation. Being in the sensitive developmental stage of adolescence means that paying attention to their problems is absolutely crucial (Abbasi et al., 2022). Perfectionism is a characteristic that seems to be a part of gifted students' social and emotional lives (Ghazagh et al., 2023). According to research findings, perfectionism plays a significant role in increasing the test anxiety of students, and anxiety in turn leads to a decrease in executive functions and performance. The higher the students' scores, the less anxiety they will experience, leading to better executive functions. Moreover, strengthening executive functions contributes to the academic progress of students (Pascual et al., 2024). Therefore, to prevent the waste of financial and psychological costs in a society, the problems faced by adolescents in their process of development should be carefully examined. Efforts should be directed toward providing effective therapeutic solutions for improving anxiety and executive function and consequently the academic progress of gifted students, as the failure to address these issues will have a negative impact on the society and the individual. The present study was therefore conducted to compare the effectiveness of hypnotherapy and problem-solving therapy on the executive functions of gifted students with anxiety in senior high school in Khorramabad, Iran.

Methodology

This study is quasi-experimental applied research with a pretest-posttest design and two experimental groups and one control group. The pretest was administered in all three groups, including the problem-solving intervention group, the hypnosis intervention group, and the control group. Then, the therapeutic interventions were performed in both experimental groups, and finally, the posttest was administered in all three groups. The statistical population of this research included all gifted students with anxiety in senior high school in Khorramabad, Iran, in 2022. Convenience sampling was performed in this study, and out of 237 students, 60 students who scored higher than 7 on the Beck Anxiety Inventory were selected as the samples and then randomly assigned to the three groups.

For data collection, the following tools were used: 1. Wechsler Intelligence Test, to determine the level of intelligence; 2. Beck Anxiety Inventory, to determine the level of anxiety; 3. Stroop test, to measure executive functions.

Results

After the final selection of the samples and their assignment into the research groups, the participants in all three groups were asked to attend an initial orientation session. In the initial session, being briefed on the research objectives and the ethical considerations, the participants were assured that the content of the intervention sessions and the findings of the research would be confidential, and efforts were made to motivate them for participating in the research. At the end of the orientation session, the Stroop test was administered as a pretest in all three groups. The intervention package provided was based on cognitive-behavioral problem-solving therapy (PSCT) and group hypnotherapy. The PSCT presented to the experimental group was designed by Wu et al. (2023) in ten group sessions of 30 to 60 minutes, one session per week for ten weeks.

For the participants of the second experimental group, an intervention package was presented based on hypnotherapy, designed and applied in the research by Truzoli et al. (2021). As shown in Table 2, the intervention included eight weekly group sessions of 45 minutes. The ninth session was held in group, and a final individual session was also held. The total duration of the interventions was 1.5 months.

The control group did not receive any intervention during this period. At the end of the interventions, i.e., after 1.5 months, the participants of all three groups completed the Stroop test as a posttest, and the research data were analyzed in SPSS-22 software. In compliance with the ethical principles of research, after the completion of the psychotherapy sessions and filling out the questionnaires in the posttest stage in all three groups, the psychological interventions were also performed for the control group.

Table 1. Tests of between-subjects effects for comparing the mean posttest scores of executive functions in the three groups

Source of Changes	Dependent Variable	Sum of Squares	Df	Mean Squares	F	Significance	Effect Size	P
Group	Posttest Total Error	40.004	2	20.002	6.498	0.004	0.245	0.884
	Posttest Reaction Time	234558.130	2	117279.065	14.864	0.001	0.426	0.998

According to Table 1, the F-statistic for the source of intragroup variation was 6.498 for total error and 14.864 for mean reaction time, indicating a significant difference between the posttest scores in the three groups at the significance level of $P < 0.05$. The LSD post-hoc test was used to examine the pairwise significance of the difference in all three groups.

Table 2. The LSD post-hoc test to examine the significance of the difference in executive functions in the three groups

Variable	Group	Control		Problem Solving	
		Difference	Significance	Difference	Significance
Total Error	Problem-Solving	2.285*	(0.001)		
	Hypnotherapy	1.520*	(0.026)	-0.765	(0.249)
	Problem-Solving	151.894*	(0.001)		

Average Reaction Time	Hypnotherapy	158.551*	(0.001)	6.657	(0.842)
-----------------------	--------------	----------	---------	-------	---------

*P>0.05

According to Table 2, there was no significant difference in the posttest scores of total error and mean reaction time between the problem-solving and hypnotherapy groups. Therefore, the null hypothesis is accepted, and the research hypothesis regarding the existence of a significant difference in the effectiveness of cognitive-behavioral problem-solving therapy versus hypnotherapy on the executive functions of gifted students with anxiety in senior high school in Khorramabad is rejected. In other words, there is no statistically significant difference between the effectiveness of these two methods on the executive functions of students.

Discussion and conclusion

The results of this research revealed no difference between the effectiveness of cognitive-behavioral problem-solving therapy and hypnotherapy on the executive functions of gifted students with anxiety in senior high school in Khorramabad, Iran. In general, hypnosis can be performed alone or in the presence of others, but only in individuals who have the necessary capacity for certain types of concentration and focus. It is possible that individuals who do not experience the trance state after several sessions, such as individuals with mental disorders like severe anxiety or obsession, do not allow mental companionship with the therapist. Problem-solving therapy requires that the client have adequate motivation for affecting change in themselves; otherwise, the first session should be devoted to motivational interviewing to ensure the client's adequate cooperation with the therapist, which can prolong the sessions.

Reference

- Abbasi, M., & Ghadampour, E. (2022). The effect of perfectionism-focused cognitive, emotional and behavioral education on the quality of interpersonal communication, self-esteem and psychological well-being of gifted school students. *Rooyesh-e-Ravanshenasi Journal (RRJ)*, 10(12), 283-294. (Text in Persian). <https://doi.org/10.29252/rooyesh>
- Acknowledgment: We would like to express our gratitude to the supervisor and advisor of this research, the hypnotherapy therapist and the students who participated in this research.
- Cortés Pascual, A., Moyano Muñoz, N., & Quílez Robres, A. (2019). The relationship between executive functions and academic performance in primary education: Review and meta-analysis. *Frontiers in psychology*, 10, 449759. <https://doi.org/10.3389/fpsyg.2019.01582>
- Ghazagh, M., LOTFI, K. F., Vaziri, S., & Zareh, H. (2023). Comparison of the Effectiveness of Acceptance and Commitment Therapy and Intensive Short-Term Dynamic Psychotherapy on Attention and Executive Function of Patients with Lupus Erythematosus: A quasi-Experimental Single-Subject Study. <http://dx.doi.org/10.22034/IJPN.10.1.106> (Text in Persian).
- Truzoli, R., Renzi, B., Romanò, M., Gremizzi, I., Pirola, V., & Reed, P. (2020). Effect of hypnotic group treatment on distress psychopathology in mixed-group outpatients with depression and anxiety. *The Open Psychology Journal*, 13(1). <http://dx.doi.org/10.2174/1874350102013010264>
- Wu, X., Li, J., Zhang, C., Zhou, X., Dong, X., Cao, H., ... & Xie, J. (2023). The Effects of modified problem-solving therapy on depression, coping and self-efficacy in nursing homes elderly. *Frontiers in Psychology*, 13, 8404. 8. <https://doi.org/10.3389/fpsyg.2022.1030104>



This article is an open-access article distributed under the terms and conditions of the Creative Commons Attribution-NonCommercial 4.0 International (CC BY-NC-ND 4.0) (<https://creativecommons.org/licenses/by-nc-nd/4.0/>).

How to cite: Yosefvand, N., Sepahvandi, M. A., Rezaei, F. (2025). Comparison of the effectiveness of problem-solving therapy and hypnotherapy in executive functions among gifted students with anxiety in senior high school. *The Journal of New Thoughts on Education*, 20(4), 195-208. doi: 10.22051/JONTOE.2024.47239.3930