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One of the elements of modern time is reliance on scientific thinking. With respect to thought provoking philosophical nature of the present time, Modern psychology has proposed theories in the field of psychological processes based on empirical studies. Hence Journal of Modern Psychology has been launched to provide a space for scholars to publish thoughts and scientific studies in personality, abnormal and social psychology.



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Volume 5, Issue 1, Winter 2025

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Contents

Effects of Cognitive-Behavioral Therapy on Academic Anxiety of Children with Learning Disorders

Pages 1-12

Hassan Shafaei

Prevalence of Internet Addiction among Psychology, Accounting, and Management Students at Islamic Azad University of Bandar Anzali

Pages 13-19

Kimia Peyghan

The Relationship Between Self-Esteem and Academic Achievement with Test Anxiety in Students

Pages 20-26

Elnaz Jafarzadeh Mazraekhalafi; Niloofar Mikaeili

A Comparison of Personality Characteristics, Perceived Social Support and Interpersonal Relationships in Prisoners who Successfully Return to Society and Prisoners who Reoffend

Pages 27- 40

Fatemeh Pooragha Roodbardeh; Seyed Omid Sotoudeh Navroodi

The Effectiveness of Music Therapy on Behavioral Problems in Children with High Functioning Autism Spectrum Disorder

Pages 41-52

Zahra Sayyad Amin; Sanaz Ghannadi

The Effectiveness of Mindful Self-Compassion Program on Distress Tolerance, Emotional Expression, and Psychological Flexibility in Individuals with Social Anxiety Disorder

Pages 53-71

Sara Saeedinia; Masoumeh Azmoudeh



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Research Paper: Effects of Cognitive-Behavioral Therapy on Academic Anxiety of Children with Learning Disorders



Hassan Shafaei*¹

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Abstract

Objective: Reports showed that cognitive-behavioral therapy effectively helps patients overcome a wide variety of maladaptive behaviors, such as anxiety. The present study aimed to further examine this issue by exploring the effects of cognitive-behavioral therapy on the academic anxiety of children with learning disorders.

Methods: The quasi-experimental research design was a pretest-posttest with a control group. The statistical population included 32 children (9-13 years) with academic anxiety (mild, moderate, and severe) who were selected by a convenience sampling method and randomly (using a coin-throwing method) assigned to two experimental and control groups. The standard School Anxiety Scale questionnaire was used to measure academic anxiety. The behavioral-cognitive therapy program was implemented over 12 sessions, consisting of 3 sessions of 45 minutes each per week, for the experimental group. After the intervention, all participants participated in a posttest. Paired sample t-test, independent t-test, and analysis of covariance were used to analyze data.

Results: The average of academic anxiety before the intervention in the experimental and control groups was 23.94 ± 2.18 and 22.87 ± 3.64 , respectively, and the independent t-test did not show a significant difference ($P=0.39$). The average of the groups showed that the academic anxiety scores of the experimental group had decreased compared to the pre-test scores ($t=16.58$, $P<0.001$). Finally, the results of ANCOVA presented that cognitive-behavioral therapy has led to a reduction in academic anxiety ($P<0.001$).

Conclusion: Reconstructing children's thoughts and beliefs helps them to identify their wrong thoughts about the exam and gradually replace them with correct beliefs and thoughts. Therefore, teachers and practitioners can use cognitive-behavioral therapy to help children with learning disorders have less anxiety without feeling hurt from the negative evaluation of others.

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1. Introduction

Anxiety is a pervasive, unpleasant, ambiguous state accompanied by the excitation of the autonomic nervous system, headache, sweating, heart palpitations, cramping of the chest muscles, digestive discomfort and restlessness which is created in response to internal and external stimuli and to cognitive symptoms and leads to emotional, physical and behavioral problems (American Psychological Association, 2014; Davidson, 2003; Jolivet et al., 2010). Anxiety is not a new disorder, and humans have experienced it at all ages and in every culture, but today, one of the worries and concerns of the education system of every country is the issue of anxiety in students, which is difficult to bear for many of them (Masten, 2001; Sadeghipor & Aghdam, 2021).

There are different types of anxiety in children, such as separation anxiety (i.e., when someone fears being apart from or losing a person), phobia, and social anxiety (i.e., an intense, persistent fear of being watched and judged by others). Academic anxiety, which occurs during the school career, is also among the most important types of anxiety in children during school time (Sadeghpour & Sangchini, 2020; Taso et al., 2014). This anxiety threatens the children's mental health and harms the efficiency and flourishing of talents, the formation of their personality and social identity (Abdi et al., 2022; Afsanepurak et al., 2012; Dana & Shams, 2019). Academic anxiety is a general term, which refers to a specific type of anxiety or social fear that makes a person doubt about his abilities and the result is a decrease in the ability to deal

with situations such as exams; situations that expose a person to evaluation (Dana et al., 2021; Ghorbani & Bund, 2014, 2016; 2017; Ghorbani et al., 2020; Khosravi et al. 2023). This kind of anxiety, which is a common form of performance anxiety, affects 10 to 30 percent of school students. In fact, academic anxiety is a type of self-preoccupation that is characterized by self-deprecation and doubts about individual abilities, and often leads to negative cognitive evaluation, lack of concentration, adverse physiological reactions such as increased heart rate, cold fingers, and academic failure (Moradi et al., 2020; Sadeghipor & Aghdam, 2021). This anxiety is related to students' competition with their classmates and their negative evaluation of other classmates, especially those who are more capable, the teacher's way of working, assignments, exams, and inappropriate strictness, academic status, and worry about the future (Sadeghipor et al., 2021; Seyedi Asl et al., 2020; Seyedi Asl et al., 2016; Taghva et al., 2020). Hence, it seems that the fear of getting a low grade and blaming the family, mocking classmates and friends, fear of not being able to continue studying, and especially being accepted in the entrance exam to enter the university, always make students suffer psychologically (Faircloth, 2017). In this regard, previous experiments showed that some interventions, such as school-based prevention (Sadeghipor et al., 2021), cognition restructuring (Sadeghipor et al., 2021), or psychoeducation and systematic desensitization (Dana et al., 2021) methods, can reduce academic anxiety in children.

In the meantime, a method that has contributed the most in research and inventing treatment methods is the cognitive-behavioral perspective. Cognitive behavioral therapy (CBT) is a form of psychotherapy that helps people learn how to identify and change destructive or disruptive thought patterns that negatively affect behavior and emotions (Herrick et al., 2003). Cognitive behavioral therapy focuses on changing automatic negative thoughts that can lead to and worsen emotional problems, depression, and anxiety (Letvak et al., 2012; Mikkelsen et al., 2017; Newhan et al., 2014; Ohler et al., 2010). CBT is the most commonly utilized method to treat mental disorders such as anxiety and depression in children and older adults (Vasconcelos et al., 2013; Sharma, 2014). These negative thoughts by themselves have a destructive effect on their mood. Through CBT, these thoughts are identified, challenged, and replaced with more objective and realistic thoughts (Ramachandra et al., 2013). Modern cognitive-behavioral therapies encompass a range of interventions that combine cognitive, behavioral, and emotion-oriented techniques (Ulger & Yagli, 2010). Since cognitive-behavioral therapy is a short-term treatment, it is usually less expensive than other treatments. The benefits of this treatment have also been shown experimentally, and it has been found that it effectively helps patients overcome a wide variety of maladaptive behaviors such as anxiety (Bandura, 1997; Conner & Davidson, 2003; Hartfiel et al., 2011). However, the effects of cognitive-behavioral therapy on academic anxiety, especially in students with

learning disorders, have been less investigated. A learning disability is an impairment of one or more basic psychological processes involved in understanding or using language, speech, or writing, and may manifest itself in the ability to listen, speak, read, spell, or perform mathematical calculations (Sadeghipor et al., 2021). The children with learning disabilities need special attention and, therefore, may suffer from some mental health issues, such as anxiety. Hence, finding ways to reduce different kinds of anxiety in children with learning disabilities seems to be of great importance. Therefore, the present study aimed to expand previous findings by exploring the effects of cognitive-behavioral therapy on the academic anxiety of children with learning disorders.

2. Methods

2.1. Research Design, Population, and Sampling

The quasi-experimental research design was pretest-posttest with a control group. The population consisted of all students from the third to sixth grade at four centers for learning disorders in Tehran ($n = 149$). The revised Wechsler IQ test for children, fourth edition, and the Colorado Learning Difficulties Questionnaire were administered to diagnose specific learning disorders in the referring students. Of them, 32 children with academic anxiety (mild, moderate, and severe) met the conditions to enter the research were selected by a convenience sampling method and randomly assigned to two experimental and control groups. The sample size was determined using G-Power software ($\alpha=0.01$

and power test=0.95), indicating a total sample size of 32 participants.

2.2 Instrumentation

The data collection method was a self-report questionnaire consisting of two parts. The first part included six questions about demographic characteristics, and the second part included the academic anxiety questionnaire for students.

The Standard School Anxiety Scale Questionnaire: In this study, the standard School Anxiety Scale questionnaire (Letvak et al., 2012) was used. This questionnaire contains 30 questions with yes and no answers, with a maximum score of that is 30, and a minimum score of zero. Its scores are divided into mild (0 to 10), moderate (10 to 20), and severe (21 to 30). The reliability of this questionnaire was 0.92 in this study.

The therapy program was implemented in 12 sessions (3 sessions of 45 minutes per week) for the experimental group. After the intervention, all participants underwent a posttest. The sessions were as follows: 1) Creating a good impression and favorable conditions and interest among the students; 2) the students were asked to write and present their thoughts and feelings about the academic anxiety on a sheet; 3) the assignments were reviewed and they were asked to express their feelings and ideas in the class, and with the cooperation of the students, they were summarized and they were taught to identify their wrong thoughts and inefficient beliefs and come up with effective thoughts. They were taught to know their strengths and weaknesses and to expect them accordingly. It was also taught that

studying is important, but there are other things in life that can be important, and studying is not everything. They were also asked to identify their other ineffective thoughts as a homework exercise and try to replace them with effective thoughts; 4) they were taught to control themselves and keep calm when they feel anxious. They were taught relaxation. As a task, they were asked to practice calming at home in case of anxiety to overcome their anxiety; 5) some learning strategies were taught. As an assignment, they were asked to practice a method of studying that they think is desirable and act in learning based on its principles; 6) with the help of one of the students, he created an exam situation and they were asked to comment on the actions that the student in question does in the exam session and state his mistakes, and finally he asked them they should create such a situation for themselves at home and write their actions on the paper and present them in the next session; 7) explanations were given on how to manage their time and how to answer the questions and try to answer the easy questions first and then go to the more difficult questions. It was explained that providing an incomplete answer is better than no answer, and at the end, the content of a textbook that everyone agreed on was determined, and it was decided that the next session would be an exam on this section. In fact, the goal was to put the students in the exam situation and correct their mistakes; 8) the exam was conducted, and the necessary feedback was given to them regarding how the students behaved in the exam and how to answer the questions. In relation to the guidelines of the study and

how it was done, opinions were also discussed; 9) explanations were given regarding the effects of nutrition and sports activities in reducing exam anxiety. They were also taught about healthy nutrition and some sports movements were taught and they were asked to perform these movements regularly during their daily activities; 10) explanations were given to the parents of the children on how to deal with children and expectations according to children's abilities; 11) explanations were given regarding having enough sleep on the exam days and regular and predetermined planning for the exam day and not accumulating material for the exam night and its effectiveness in sustainable learning; 12) while reviewing the previous materials, the post-test was conducted.

2.3. Statistical Analysis

After declaring the consent of parents and students, the experimental group was subjected to intervention, and during this period, the control group did not receive any intervention. After making the intervention, a post-test was performed for both groups. The inclusion criteria included the presence of the child in the learning disability center, the age

Table 1

Comparing the mean scores of groups in the pre-test and post-test

Group	Experiment phase	Neuroticism
Experimental group	Pre-test	23.94±2.18
	Post-test	17.31±4.77
Control group	Pre-test	22.87±3.64
	Post-test	23.08±2.92

range of 9 to 13 years, parent, child, and teacher consent, not receiving another treatment program at the same time, having academic anxiety, and not having any other disorder besides a special learning disorder. In order to analyze the data, in the descriptive statistics section, the mean and standard deviation were calculated, and in the inferential statistics section, the Kolmogorov-Smirnov test, paired sample t-test, independent t-test, and analysis of covariance were used using SPSS version 26. To check the hypothesis of homogeneity of error variance, Box's test and Levin's test were used. P-value was set at $p < 0.05$.

3. Results

Demographic characteristics of the sample showed that children were in the age range of 9-13 years old, with an average of 11.39 and a standard deviation of 0.71. In addition, the height of the children had an average of 121.73 cm, and the average of the children's weight was 32.57 kg.

Descriptive indices of the academic anxiety and its components across groups and pretest-posttest are presented in [Table 1](#) and [Figure 1](#).

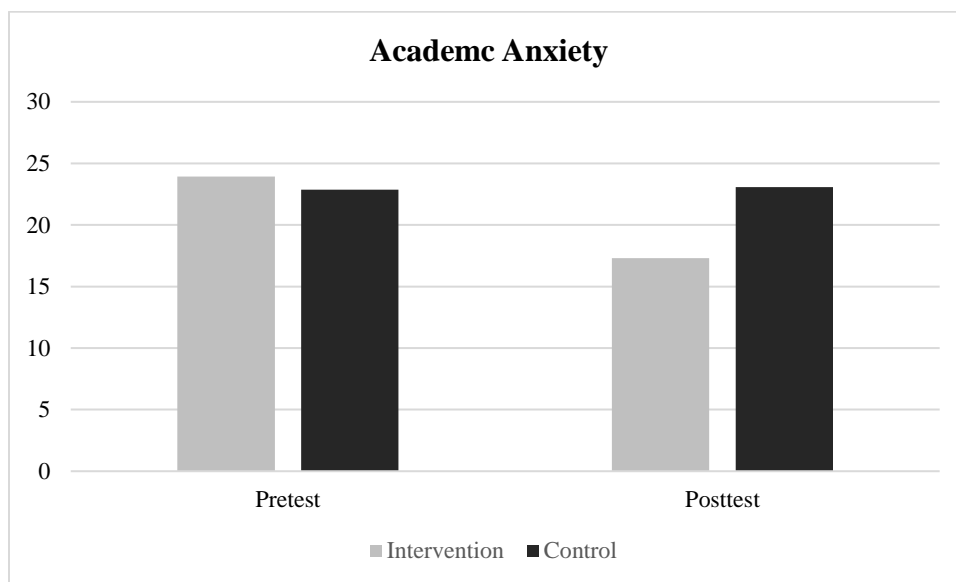


Figure 1
Mean scores of groups in the pre-test and post-test

To check the hypothesis of homogeneity of error variance, Box’s test ($M\text{ BOX}=25.17$, $F=0.86$, $P>0.05$) and Levin’s test ($F=1.21$, $P>0.05$) were used. These tests did not show any violation of this assumption. Accordingly, the average of academic anxiety before the intervention in the experimental and control groups was 23.94 ± 2.18 and 22.87 ± 3.64 , respectively, and the independent t-test did not demonstrate a significant difference ($P=0.39$). The average of the groups shows that the academic anxiety scores of the experimental group have decreased compared to the pre-test scores ($t=16.58$, $P<0.001$). Moreover, multivariate analysis of

covariance was used to analyze the data. For this purpose, the assumptions of the covariance analysis test, i.e., the assumption of normality of the distribution, were checked using the Kolmogorov-Smirnov test ($P>0.05$), and the results of the normality of the distribution were confirmed. The results of the assumption of homogeneity of slopes ($F=158.69$) and the assumption of linearity ($F=104.55$) were also checked and confirmed. To investigate the effects of cognitive-behavioral therapy on reducing academic anxiety, a univariate analysis of covariance test was used, the results of which are shown in [Table 2](#).

Table 2.

The results of the analysis of covariance of the difference between the experimental and control groups in the academic anxiety score

Source	Sum of squares	Df	Mean od squares	F	P
Pretest	340.85	1	340.85	74.19	<0.001
Group	1429.66	1	1429.66	330.47	<0.001
Error	111.09	31	4.49		

The results of [Table 2](#) indicate a significant difference in academic anxiety scores between the experimental and control groups ($P < 0.001$). Considering that the average of the experimental group shows an improvement in the dependent variable compared to the control group, it can be concluded that cognitive-behavioral therapy has led to a reduction in academic anxiety.

4. Discussion

The effects of cognitive-behavioral therapy on academic anxiety, especially in students with learning disorders, have been less investigated. The aim of the present study was, therefore, to expand previous findings by exploring the effects of cognitive-behavioral therapy on the academic anxiety of children with learning disorders. The results of this study showed that a cognitive-behavioral intervention is effective in reducing the academic anxiety of children with learning disorders. In explaining the effectiveness of cognitive-behavioral therapy in this study, it can be stated that reconstructing children's thoughts and beliefs helps them to identify their wrong thoughts about the exam and gradually replace them with correct beliefs and thoughts, and this causes them to have problems see themselves from different aspects and as a result, new opportunities will be created for them and their attitude towards the exam will change and they will choose their goals realistically and take responsibility for their actions and thoughts and their emotional and behavioral responses will also change ([Moradi et al., 2020](#); [Sadeghipor & Aghdam, 2021](#)). Changing beliefs and thoughts not only about the exam,

but also about the academic performance makes them able to change their expectations, have reasonable and appropriate expectations of themselves, perform better and more effectively, and as a result, suffer less anxiety ([Sadeghipor et al., 2021](#)). The results of previous studies have also shown that identifying and accepting disturbing and unreasonable thoughts helps children to easily control them, challenge their basis and logic, guide these thoughts, and replace them with reasonable and desirable thoughts. Additionally, change their actions and make decisions based on objective facts and take new actions for their current conditions ([Sadeghipor et al., 2021](#); [Seyedi Asl et al., 2016](#)). The use of relaxation as a treatment and process diverts children's awareness of worrying and anxious feelings and reduces the physiological aspects of anxiety, and aims to teach clients to recognize the early signs of anxiety and the physiological aspects of anxiety. Paying attention to it and reacting by calming down before this cycle of anxiety has a chance to spread, and with repetition and practice, children's experience of anxiety will gradually change, and the cycle of anxiety will stop ([Seyedi Asl et al., 2016](#); [Taghva et al., 2020](#)).

Teaching and using calming movements, along with rebuilding children's thinking, creates a solution that can reduce their anxiety and physical tension and gradually control it. At the same time, their concentration, accuracy, and learning are promoted, and they can enjoy better physical and mental conditions ([Dana et al., 2021](#)). By controlling and reducing physical and mental

tension through relaxation, children can process their thoughts and feelings, think clearly, and deal with anxious behaviors in the right way. Finally, their performance in the school situation improves, and their willingness for learning and pursuing education increases. In fact, teaching appropriate behaviors helps children to become aware of problems in their behavior, remove them, or change and implement them in a way they like (Ramachandra et al., 2013; Ulger & Yagli, 2010; Vasconcelos et al., 2013). In fact, the goal is to change incompatible behaviors and practices. Moreover, teaching different behavioral techniques affects children's responses and helps them provide a new response for conditioning and dealing with past stimuli. In this study, teaching proper behaviors about healthy eating, physical activities, and study and learning strategies helped children to put aside the wrong ways of the past and learn proper behaviors, preparation, gain pleasant experiences, and reduce their anxiety and worry. In a previous study, it was stated that re-creating an anxiety-provoking situation allows children to reduce their worries and tensions by facing these conditions, and ultimately, their self-confidence increases and their skills expand (Sharma, 2014). In the current intervention, the implementation of a demonstration exam situation led to the fact that they could observe the performance and behavior of their peers in the exam situation and come to the conclusion that there are not many people like them, and try to solve it and remove this anxiety and perform better (Ghorbani & Bund, 2014).

In addition, group training and counseling for parents is extremely important. They become aware of their children's problems in various fields and their signs and symptoms, and challenge and change their wrong thought patterns, and this leads to the fact that the stress and worry of the parents themselves will also decrease (Khosravi et al., 2023). Research has shown that teaching parents makes them have more control over their children and understand their problems. Finally, the functioning of the family will also change, and in the future, their lives will have a better quality, and the children will feel calm and secure, and their anxiety and various worries will decrease (Masten, 2001; Sadeghipor & Aghdam, 2021).

A limitation of the current study was that we used self-report tools for measuring the research variables that usually show people to be better than they are. As well as, we did not use any clinical interview for measuring anxiety. As a strength, it can be said that using a population from special groups, i.e., learning disabilities, was a strength of this study.

5. Conclusion

To conclude, it can be claimed that cognitive-behavioral therapy is an intervention for reducing academic anxiety in children with learning disorders. Therefore, it can be pointed out that cognitive-behavioral therapy helps children with learning disorders to have less anxiety without feeling hurt from the negative evaluation of others. As a result, it can be suggested that teachers in special schools, especially those who work with students with learning disabilities, can use CBT for reducing academic anxiety of

children. Finally, considering the special features of the children with learning disorders, further studies are needed regarding the relationship of some personality traits, the type of parental control with academic anxiety, and the implementation of group intervention strategies.

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Conflicts of Interest

The Author declares that there is no conflict of interest with any organization. Also, this research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

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Research Paper: Prevalence of Internet Addiction among Psychology, Accounting, and Management Students at Islamic Azad University of Bandar Anzali



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Abstract

Objective: Internet dependency has become a global problem due to its high prevalence, rapid growth rate, and serious adverse consequences. Therefore, the present study aimed to investigate the prevalence of internet addiction among students majoring in Psychology, Accounting, and Management at the Islamic Azad University, Bandar Anzali Branch.

Methods: This research was a descriptive study. The population of the study included all students majoring in Psychology, Accounting, and Management at the International Branch of Bandar Anzali Azad University in the academic year (2023-2024). Out of this population, 150 individuals were selected using the convenience sampling method. Then, the Internet Addiction Test (IAT) was administered to them, and the data were analyzed using frequency and percentage distributions. The analysis was performed using SPSS27 software.

Results: The obtained frequency and percentage showed that 64 subjects (43.2%) were normal users without dependence or addiction to the internet. 75 subjects (46.8%) were at risk of internet addiction (had internet dependence), and 11 subjects (6%) had internet addiction.

Conclusion: There was a small amount of internet addiction among students, but a high percentage of students had internet dependence, which justifies the need to pay attention to educating students on the optimal use of cyberspace.

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1. Introduction

Today, the internet has become an essential tool for interaction and communication. People's daily activities, especially students', depend on the existence of the internet, and life without it is almost impossible (Seddighi et al., 2021). About 14% of people over 15 years old worldwide use the internet (Bashirian et al., 2022), and the number of users is growing day by day (Mirzaian et al., 2011); so that the number of internet users at the end of 2015 was 3.3 billion people and the internet penetration rate reached 45% of the population; however, this rate has been reported 57.2% in Iran, and 70% of internet users in Iran are in the age group of 20 to 44 years (Sayyed-Ghaleh et al., 2022). The internet, with all its advantages, has harms and shortcomings, and the many applications of the internet and its attractions have caused a phenomenon called internet addiction to emerge in recent years (Hassanzadeh, 2009).

According to the fifth edition of the *Diagnostic and Statistical Manual of Mental Disorders*, internet addiction is a pattern of excessive internet use that is accompanied by unpleasant internal states such as tolerance, withdrawal symptoms, a persistent desire to control behavior, spending significant time on internet-related matters, anger, aggression, and excitement (American Psychiatric Association, 2022). Internet dependency, regardless of whether it is considered a mental disorder or a social problem, is a chronic and relapsing phenomenon that is associated with serious physical, financial, family, social, and psychological damage, and in this regard, factors such as psychological, cognitive,

family, and social factors are involved (Asghari, 2023).

Research has shown that youth and adolescents have the largest share in internet usage, which has many significant negative effects on them (Akbarzadeh, 2020). The increasing growth and unpleasant complications that internet addiction brings have led it to be referred to as an addiction that is the forefront of all behavioral addictions (Taleghani Nejad, 2019). The study by Hosseini Beheshtian (2012) at Tehran University of Medical Sciences reported the prevalence of internet addiction among female students to be 52.6% and among male students to be 47.6%. Mousavimoghadam et al. (2017) concluded in their study that internet use is expanding among the new generation of society. Correspondingly, in the study by Ansari et al. (2016), the prevalence of internet addiction among students was reported to be 33.8%. The findings of the study by Turi et al. (2015) showed that 20.5% of students have mild internet addiction and 5.8% have severe internet addiction. Moreover, the findings of Mousavi's research (2022) showed that the prevalence of internet addiction in Iranian adolescents and youth is 2.4%. The findings of Ebrahimi et al.'s research (2018) also showed that 43% of Iranian students suffer from mild internet addiction.

Given that findings have shown that citizens living in developed countries are less likely to be exposed to internet addiction (Feist & Feist, 2002), countries like Iran, which are importers of new technologies such as the internet, are at greater risk due to

the lack of education on the correct use of this technology. On the other hand, considering that the excessive use of the internet and the existence of its symptoms is a global problem (Cash et al., 2012), and students are at high risk (Ebrahimi et al., 2020), and neglecting internet addiction will have negative effects in the social, economic, and mental health domains of students (Mousavi, 2022), therefore, considering the issues raised, in this research we seek to answer the question of what is the prevalence of internet addiction among students majoring in Psychology, Accounting, and Management at the International Branch of Islamic Azad University in Bandar Anzali?

2. Methods

2.1. Research Design, Statistical Population, Sample, and Sampling Method

This study was descriptive. The population of the present research included the students of Anzali International Branch of Azad University in the academic year 2023-2024. According to Morgan's table, 150 people were selected using the convenience sampling method.

2.2. Instrument

Internet Addiction Test (IAT): The Internet Addiction Test was developed by Young (2004) and consists of 20 questions. Its purpose is to measure the level of addiction in different individuals and includes 20 items. Scoring is done on a 6-degree scale: Never (0), Rarely (1), Sometimes (2), Usually (3),

Often (4), and Always (5). By summing the scores of each question, the total score of the questionnaire is obtained. The score range is from 0 to 100, where scores of 0 to 39 indicate a normal user, 40 to 69 indicate mild internet addiction, and 70 to 100 indicate severe internet addiction. In the study by Young et al. (2004), the internal validity of the questionnaire using Cronbach's alpha was 92%. In the research by Alavi et al. (2009), the reliability using Cronbach's alpha for the questionnaire was 80%. The correlation coefficient for internal validity by the split-half method was 72%, and for external validity by the test-retest method was 82%.

2.3. Data Collection and Analysis

After obtaining permission and visiting the Bandar Anzali International Branch of Azad University, 150 students from the fields of Psychology, Accounting, and Management were selected using convenience sampling, to whom the Internet Addiction Test was administered (Young, 2004). After collecting the questionnaires, the data were analyzed using SPSS-27 software. All participants completed a consent form and were assured that their information would remain confidential.

3. Results

Based on the results obtained from this study, out of the total 150 participating students, 87 were female (59%), and 63 were male (41%). Of these, 44 (23%) were law students, 61 (46%) were psychology students, and 45 (31%) were management students.

Table 1

The prevalence and proportion of internet addiction

Internet Addiction Classification	Frequency	Percentage
Normal Internet User	64	43.2%
User at Risk of Internet Addiction (Internet Dependent)	75	46.8%
Internet Addicted User	11	6%

Based on the results obtained from Table 1, 64 subjects (43.2%) were normal users without dependence or addiction to the internet. 75 subjects (46.8%) were at risk of internet addiction (had internet dependence), and 11 subjects (6%) had internet addiction.

4. Discussion

The present study aimed to investigate the prevalence of internet addiction among Psychology, Accounting, and Management students at the Bandar Anzali Branch of Azad University. The research findings showed that in this study, 46.8% of the participants had mild addiction, and 6% suffered from internet addiction. The results of this research are consistent with the research of Hassanzadeh (2009), Beheshtian et al. (2012), Mousavimoghadam et al. (2017), Turi (2015), Taleghani Nejad (2019), Asghari (2023), and Seyyed-Ghaleh et al. (2022).

In explaining the obtained results, it can be said that today the undeniable impact of the internet in societies has been proven (Janocha A et al. 2011), and according to research conducted in other countries (Kuss et al., 2013) and in our country, Iran, and the results of this research, internet addiction among the student population is increasing (Beheshtian

2012, Seyyed-Ghaleh et al., 2022; Asghari, 2023). On the other hand, considering that internet addiction creates problems in the areas of individual, social, and family health, and also leads to risks in the economic life of individuals, it is necessary to pay more serious attention to the issue of internet addiction and familiarize students with the harms related to the internet and its negative consequences (Khatib Zanjani and Agah Heris, 2014).

The population, which was limited to Anzali Azad University's International Branch students, is one of the study's shortcomings. It is important to use caution when extrapolating these results to other populations. In addition to the training required to prevent internet addiction, research on treatment approaches and their efficacy in treating internet addiction should be undertaken. It is recommended that the prevalence of internet addiction be examined in other age groups, particularly adolescents.

5. Conclusion

The results show that students studying management, psychology, and accounting at Azad University's Bandar Anzali International Branch have a degree of serious internet addiction. The noteworthy aspect is the large number of students who engage in

moderate internet addiction, even though this level appears to be low numerically.

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Conflict of Interest

The Author declares that there is no conflict of interest with any organization. Also, this research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

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Research Paper: The Relationship Between Self-Esteem and Academic Achievement with Test Anxiety in Students



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Abstract

Objective: The purpose of this study was to investigate how middle school students at Fakhri Zadeh School in Ardabil Province, during the 2023–2024 academic year, related their self-esteem and academic achievement to test anxiety.

Methods: The descriptive-correlational research approach was used for the objective of the study. All middle school students at Fakhrizadeh School were included in the population, and 60 students from the same school were chosen for the study using a convenience sampling method. The Rosenberg Self-Esteem Scale (RSES) and the Test Anxiety Scale (TAS) were the instruments utilized in this study. The SPSS program version 23 was employed for the tests, which included linear regression and the Pearson correlation coefficient.

Results: The current study's findings indicated no significant correlation between academic success and either test anxiety ($p=0.47$) or self-esteem ($p=0.88$). Test anxiety and self-esteem, however, were significantly and negatively correlated ($p<0.001$). Furthermore, test anxiety was significantly predicted by self-esteem ($p<0.001$).

Conclusion: The findings of this study show that self-esteem plays a part in predicting test anxiety, and since students' self-esteem may be raised by offering them courses, it is feasible to establish the conditions necessary to lessen test anxiety.

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1. Introduction

Globally, students are battling several challenges, including anxiety, depression, deteriorating mental health, and other associated disorders (Seyedi Asl et al., 2018; Abaspour et al., 2014). Test anxiety is one of the issues that students face globally, since it impairs their skills and performance. Test anxiety is a broad phrase that describes a form of anxiety with particular social worries that cause people to question their skills, which lowers their ability to handle situations like exams, situations that expose people to evaluation, and call for problem-solving. Therefore, it can be said that people who suffer from test anxiety are aware of the course materials, but they are unable to demonstrate their knowledge during the test due to their extreme worry. High test anxiety causes people to engage in irrelevant activities, which hinders or interferes with their performance (Lashkaripour et al., 2006).

Debilitating anxiety sensations that arise during test preparation or during the actual test are referred to as test anxiety, which is one of the varieties of anxiety (Onyeizugbo, 2010). Test anxiety is described as a collection of behavioral, psychological, and phenomenological reactions linked to the fear of failing a test or other similar assessment scenarios (Chamorro et al., 2008). It is crucial to look into the origins of test anxiety because it can lead to issues with how people perform. Self-esteem is one of the factors that could be connected to test anxiety.

Over the past century, many psychologists have supported the idea that people require

self-esteem, and self-esteem is one of the concepts that has drawn a lot of attention from researchers and psychologists in recent decades. Like a priceless life asset, self-esteem is one of the most crucial elements for the development and blooming of a person's abilities and creativity. Due to unfavorable views from parents, unpleasant peer experiences, and a history of academic setbacks, people with disabilities eventually lose hope and motivation. According to Valizadeh et al. (2008), the series of such setbacks and issues causes individuals to feel unworthy, which in turn damages their self-esteem.

Self-esteem is one of the ideas that has drawn a lot of interest from scholars and has been the focus of in-depth investigation. The assessment of one's own abilities, which is represented in one's attitudes toward oneself, is known as self-esteem. Put another way, it's the level of self-worth, acceptance, affirmation, and approval that an individual feels for themselves. It could be a sensation that is independent of other people or in relation to them. Like the notion itself, self-esteem consists of a stable core that is complemented by a number of auxiliary values to make a whole (Shamloo, 2003).

Anxiety and self-esteem are linked, according to research. These traits, for instance, have been found to make people more acceptable and likely to lead active lives. They also have a sense of autonomy, are less anxious, and are better able to handle stress and internal conflict without separating from their inner experiences. In light of these considerations and the possible correlation between test anxiety and self-esteem, the

current study was carried out to investigate the association between test anxiety and self-esteem in middle school students.

2. Methods

This study is correlational in nature, and in this kind of research, the goal of the study determines how the variables relate to one another.

2.1. Sampling Method, Sample, and Population

All middle school students enrolled in Ardabil Province's Fakhri Zadeh School for the 2023–2024 academic year make up the population of this study, while 60 students were chosen from the school using convenience sampling.

2.2. Instruments

The two questionnaires listed below serve as the measurement instruments for this study:

Rosenberg Self-Esteem Scale (RSES): In 1965, Rosenberg created the Rosenberg self-esteem scale (RSES). Ten elements make up this scale, which gauges a person's positive and negative self-perception. This scale has been very popular, especially among researchers, because its psychometric qualities have been found to be highly appropriate in numerous investigations. Although two factors, positive and negative, have received more attention in recent years, the tool's designer claims that it is a unidimensional scale. For rating this concept, a number of approaches have been put forth; some use a two-point Likert scale (agree and disagree), while others use a four-point scale (from strongly agree to strongly disagree).

The second version of this survey has been created in Iran and is rated as agree or disagree. Surveying the undergraduates, the researcher found a correlation between the Rosenberg scale and the life satisfaction test of 0.54, whereas in a group of adolescents, it was 0.43 (Greenberger et al., 2003). This scale's dependability on a sample of Shiraz University students was reported to be 0.69 using Cronbach's alpha and 0.68 using the split-half approach in a study by Mohammadi (2005). The scale's test-retest coefficients were also reported to be 0.77, 0.73, and 0.78 for one, two, and three weeks, respectively. The Cronbach's alpha coefficient for this questionnaire was 0.71 in a different study by Barkhouri et al. (2009) on 120 students from the city of Jiroft.

Test Anxiety Scale (TAS): In 1957, Sarason created the 37-item Test Anxiety Scale (TA), a short questionnaire with true/false answers for each item, and based on a self-reporting technique. This enables the assessment of an individual's physiological experiences and psychological moods prior to and following the examination (Sarason, 1957, as cited in Vakili et al., 2010). Reports state that the test-retest reliability coefficient for this scale is 0.88 (Lashkaripour et al., 2006).

2.3. Data Analysis

Both descriptive and inferential statistical techniques were applied to the data analysis. The mean, standard deviation, frequency, and percentage were used in the section on descriptive statistics. The Pearson correlation test was initially used in the inferential statistics section to investigate the connection among academic success, test anxiety, and

self-esteem. Additionally, the possibility that test anxiety could be predicted by self-esteem was examined using linear regression.

3. Results

Table 1 provides descriptive statistics for the key variables in the study.

Table 1

The variable mean and standard deviation for the sample group

Variable	N	Minimum	Maximum	Mean	SD
Age	60	13	14	13.50	0.50
Academic Achievement	60	13.71	20	17.99	1.74
Test anxiety	60	6	32	20.51	6.37
Self-esteem	60	-1	1	0.32	0.54

The average age of the study participants was 13.5 years, and their average academic achievement was a GPA of 17.99, according to the data in the above table. The recorded average anxiety level was 20.51, with a minimum of 6 and a maximum of 32. The average self-esteem was also 0.32.

The Pearson correlation approach was used to investigate the association between test anxiety, self-esteem, and academic accomplishment. The findings are shown in [Table 2](#).

Table 2

Correlation Matrix of Research Variables

Variable	1	2	3
1 Academic Achievement	1		
2 Test anxiety	-0.09	1	
3 Self-esteem	-0.02	-0.52***	1

Significant correlations at $p < 0.01$ are marked with ***

Test anxiety and self-esteem are significantly correlated negatively ($p < 0.01$), as shown in the above table. This data suggests that test anxiety has considerably decreased in response to an increase in self-esteem and vice versa.

A linear regression test was employed to investigate whether academic achievement can be significantly predicted by self-esteem. First, an ANOVA test was performed; [Table 3](#) displays the results.

Table 3
ANOVA Test for Regression Model Examination

Model	Sum of Square	Df	Mean Square	F	Sig
Regression	51.66	1	51.66	45.22	p<0.001
Residual	46.17	58	76.29	-	-
Total	98.23	59	-	-	-

Regression analysis can be conducted to determine whether self-esteem significantly predicts academic achievement, given that

the ANOVA test is significant, as shown in the table above. Table 4 presents the findings from the linear regression study.

Table 4
Test anxiety prediction by self-esteem using linear regression analysis

B	SE	Beta	T	Sig
16.16	1.30	-0.52	4.73	p<0.001

The above table shows that the linear regression is significant ($p < 0.001$), indicating that test anxiety is significantly predicted by self-esteem.

4. Discussion

There are two categories of anxiety: debilitating and enabling. While crippling anxiety makes a person avoid the language learning process, facilitating anxiety encourages a learner to work hard at the language. Debilitating anxiety symptoms that arise either during or throughout test preparation are referred to as test anxiety (Onyeizugbo, 2010).

Examining the causes of test anxiety is crucial since it can lead to both psychological and physical issues for students. The purpose of the current study was to look into how students' self-esteem can predict their test anxiety.

The current study's findings demonstrated a strong inverse relationship between test anxiety and self-esteem. This implies that test anxiety falls with rising self-esteem and rises with falling self-esteem. Furthermore, the regression analysis's findings showed that students' test anxiety can be considerably decreased by having a high sense of self-worth.

The findings of this investigation aligned with those of other researchers. For instance, a study found that test anxiety can be accurately predicted by academic self-esteem (Arfaa Baloochi & Gaffari, 2012). Furthermore, the self-esteem measure was revealed to be a significant negative predictor of students' test anxiety in the Foladi et al. (2017) study. One element that might affect a person's perception, interpretation, and emotional responses is their level of self-esteem. People with poor self-esteem are more likely to think negatively, and this will

make them more anxious both before and during the test.

Given that the current study only included middle school kids and had a small sample size, it is expected that future research will encompass a bigger sample size and students from various educational levels. To improve the data's generalizability, a nationwide survey encompassing all parts of the nation is also advised. Lastly, it is recommended that additional research be done on how other factors affect test anxiety.

5. Conclusion

The current study's findings demonstrated that while there was a negative and substantial association between test anxiety and self-esteem, there was no significant relationship between academic achievement and either of these factors. Furthermore, test anxiety was significantly predicted by self-esteem. Test anxiety can therefore be decreased by enhancing students' self-esteem in the classroom through better teaching strategies and disciplinary measures.

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Conflict of interest

The Authors declare that there is no conflict of interest with any organization. Also, this research did not receive any specific grant

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Research Paper: A Comparison of Personality Characteristics, Perceived Social Support and Interpersonal Relationships in Prisoners who Successfully Returned to Society and Prisoners who Reoffended



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Abstract

Objective: The purpose of this study was to compare personality traits, Perceived Social Support, and interpersonal relationships between two groups of prisoners: those who successfully reintegrated into society and those who re-offended.

Methods: This research employed a causal-comparative method. The population consisted of all individuals with a prison record in the central prison of Rasht city within the last 10 years (from 2014 to 2024). The sample size was 159 individuals (88 recidivists and 71 successfully reintegrated individuals), selected through purposive sampling in two groups: recidivists and successfully reintegrated individuals. Participants were assessed using NEO-Five Factor Inventory (NEO-FFI), The Multidimensional Scale of Perceived Social Support (MSPSS), and the Barton Communication Test Revised. The data were analyzed using SPSS-22 statistical software for the analysis of variance and independent t-tests.

Results: The findings revealed that among personality traits, significant differences between the two groups were observed only in the two dimensions of extraversion ($P < 0.001$) and conscientiousness ($P < 0.001$), as well as in the total score of Perceived Social Support ($P < 0.003$) and interpersonal relationships ($P < 0.003$). The comparison of means indicated that the meaning of these dimensions was higher in the successfully reintegrated group.

Conclusion: Based on the findings, it can be concluded that psychological variables such as extraversion and conscientiousness personality traits, as well as Perceived Social Support and appropriate interpersonal relationships, play a crucial role in successful reintegration into society and prevent re-offending.

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1. Introduction

Statistics and data indicate that most individuals with a history of imprisonment face difficulties reintegrating into society, and there is a high probability of them re-engaging in criminal behavior and returning to prison (Yagoubi & Elmi, 2017).

According to available statistics in the country's prisons, approximately 25 to 30 percent of prisoners are repeated offenders with a history of returning to prison (Sanatkah et al., 2021). Research shows that two-thirds of prisoners are likely to re-offend within the first three years of their release from prison (Jolliffe, 2013). Therefore, studying the factors associated with recidivism is crucial for public planning.

In fact, knowledge about the risk factors associated with recidivism can help prevent or intervene with the aim of providing better and more appropriate rehabilitation and correctional programs (Piquervo et al., 2015). Similarly, based on reports published in the last two decades, prisoners experience a higher rate of mental health problems compared to the general population (Jones et al., 2011). Although some research has pointed to the effects of the closed and restricted prison environment and the intense psychological pressure exerted on prisoners in these environments, this issue is not limited to the period of imprisonment.

In fact, the results of some other studies also show that most prisoners, individuals with a history of crime and delinquency, in many cases lose irreplaceable opportunities in terms of work, education, marriage, etc. (McDonald et al., 2020). The existence of

such an unfavorable criminal record has extensive effects on their future lives, and these individuals are usually rejected by society and family, and their return to society as a normal individual faces many problems (Ray et al., 2021).

Results from various studies on prison populations have shown that personality traits, as well as individual psychological factors, influence the likelihood of committing crimes and even their susceptibility to punishment (McDonald et al., 2020). Personality traits are variables whose relationship with mental health has been a focus of researchers. Eysenck (1956) believed that there are three main factors in personality, namely extraversion, neuroticism, and psychoticism, and showed that extroverted individuals require higher levels of environmental stimulation due to the biological structure of their nervous system. Extroverts, due to their intense need for excitement and stimulation, become bored very quickly. Therefore, there is a high probability that they will behave against the law and society. Neuroticism is also considered an important factor in adult crime. In general, Eysenck's theory has emphasized that criminal and antisocial individuals score higher in the extraversion dimension (Babaie et al., 2021). Research on comparing personality traits in prisoners has shown that male prisoners have different scores in conscientiousness compared to non-prisoners (Eriksson et al., 2017).

Research conducted by Heaven and Virgen (2001) and Jolliffe (2013) has shown that low scores in agreeableness and conscientiousness play a role in the

occurrence of delinquency, and extraversion, openness, and neuroticism are not associated with delinquency. Jones et al. (2011) concluded that some personality traits can distinguish delinquent individuals from non-delinquent peers.

Another variable that can influence the successful reintegration of prisoners into society is the level of perceived social support. The concept of social support is very broad and can have many applications in various physical, psychological, and social dimensions, leading to the growth of an individual's physical, psychological, and social well-being (Anbäcken et al., 2021). Social support is a crucial factor that plays a decisive role in promoting social and psychological health. Social support has been described as networks of relationships that provide companionship, cooperation, and emotional reinforcement, and facilitate health-promoting behaviors. Social support moderates psychological pressures on individuals and improves mental health (Poordad et al., 2019). People who have a lot of social support experience a greater sense of belonging and self-esteem. Brunton-Smith and McCarthy (2017), in a study on the effects of imprisonment on families concluded that family relationships play a significant role in returning to prison, and in this regard, family rejection can be an influential factor in returning to prison. Wills (1985) states that low social support can be considered as one of the predictors of committing a crime. In general, it can be said that the lack of positive social relationships can lead to negative psychological states such as anxiety or depression. Correspondingly,

family social support predicts individuals' mental health and has direct effects on the success and health of an individual's life, acting as a protective shield (Damerchi Lou et al., 2023).

Furthermore, Bahadori khosroshahi & Khanjani (2018) also demonstrated in their study that in addition to personality traits, mood disorders, and negative effect, another factor such as impaired social functioning and lack of appropriate communication skills is associated with the rate of delinquency and problems of young offenders. On the other hand, regarding the relationship between emotion regulation and personality traits in offenders, the results showed that agreeableness and positive emotions help extroverted individuals, compared to introverts, to have a wider network of interpersonal relationships and thus be able to skillfully provide a network of social support for themselves. Alongside their dominance, they can align and harmonize others with themselves, a phenomenon observed in the ringleaders of delinquent groups among adolescents. In this regard, the results of Bahrami's research (1999) showed that the scores of criminals in the dimensions of morbid fears, anxiety, physical complaints, psychosis, depression, paranoid thoughts, aggression, interpersonal sensitivity, and obsessive-compulsive disorder are significantly higher than those of normal individuals.

Given the existing evidence regarding the likelihood of prisoners re-engaging in criminal acts (Brunton-Smith & McCarthy, 2017; Jones et al., 2011; MacDonald et al.,

2020) and the crucial concern of officials and stakeholders in every society to guide and control this group of individuals to prevent recidivism and steer them towards a healthy and purposeful life, by identifying psychological factors affecting the likelihood of re-offending, the negative material and immaterial aspects can be reduced, and the associated costs can be allocated to the education and training of these vulnerable populations. Consequently, the lack of appropriate criteria and indicators for evaluating prisoners and planning for their readiness to return to normal society, as well as identifying protective factors in follow-up programs to establish a desirable life without recidivism, is a concern for officials and stakeholders in this field. Therefore, the purpose of this study was to examine personality traits, perceived social support, and communication skills in prisoners who successfully reintegrate into society and those who re-offend.

2. Methods

2.1. Research Design, Population, Sample, and Sampling Method

This research employed causal-comparative research method. The statistical population of this study consisted of all individuals who had been imprisoned in the central prison of Rasht city in the last 10 years (from 2014 to 2024) and had a history of committing crimes. The sample size was 159 individuals (71 successfully reintegrated into society and 88 recidivists), who were selected through purposive sampling based on their history of re-offending or successful reintegration into society.

The inclusion criteria for selecting the sample with a history of re-offending were individuals who had a history of being imprisoned more than once in the past year and were still in prison. For the group with successful reintegration into society, individuals were considered who had only one history of imprisonment in the last 10 years and were able to return to their normal work and life processes with the support of the prison's welfare center after their release, and who are still in contact with the prison's welfare clinics. The exclusion criteria included unwillingness to participate in the research, having mental health problems, and addiction.

2.2. Instruments

NEO-Five Factor Inventory (NEO-FFI): McCrae & Costa (1985). developed the 60-item short version of the NEO-Five Factor Inventory, which is scored on a five-point Likert scale ranging from “strongly agree” (5) to “strongly disagree” (1). The short version is designed to assess the five basic factors of normal personality and was developed as a brief instrument for measuring these factors, primarily for use in exploratory research (Costa & McCrae, 2004). The indicators examined are the five factors, each measured by 12 items using this questionnaire. According to the research results of Costa and McCrae (2004), in each of the five factors examined, the higher the respondent's score, the greater the intensity of the respective factor (minimum scores 12, maximum 60). Therefore, higher scores indicate greater neuroticism, extraversion, openness, agreeableness, and conscientiousness. Regarding the validity of

this questionnaire, Costa and McCrae (1992) state that the short form of this questionnaire corresponds to the full version, such that the short form scales have correlations higher than 0.68 with the full questionnaire scales. In Iran, the validity and reliability of this scale have been confirmed by Haghshenas (2007), and the Cronbach's alpha coefficients for neuroticism, extraversion, openness, agreeableness, and conscientiousness were 0.77, 0.68, 0.67, 0.81, and 0.73, respectively.

The Multidimensional Scale of Perceived Social Support (MSPSS): This 12-item instrument, developed by Zimet et al. (1988), assesses perceived social support from three sources: family, friends, and significant others. The MSPSS measures the level of perceived social support by the respondent in each of the three aforementioned domains. In this test, a score of 1 is assigned to *strongly disagree* and a score of 7 is assigned to *strongly agree*. Therefore, the minimum score is 12 and the maximum score is 84. The MSPSS has good internal consistency. Cronbach's alpha coefficient for the entire test is 0.91, and the alpha coefficients for its subscales range from 0.90 to 0.95 (Zimet et al., 1990). In the research by Avarideh et al. (2020), the reliability of this test using Cronbach's alpha coefficient for the entire scale was 0.89, indicating the appropriate reliability of this test.

Communication Skills Test-Revised: This test, developed by Burton (1990), consists of 18 items rated on a 5-point Likert scale, ranging from "Agree" (5) to "Disagree" (1), to assess communication abilities. The minimum score of the questionnaire is 18 and

the maximum is 90. The higher the person's score, the better their communication skills. The score obtained from communication skills is divided into three ranks: low (less than 42), medium (42-66), high (more than 66) (Heydarinejad & Saberi (2011). In Barton's studies (1990), the validity of this questionnaire has been confirmed in terms of content. Its reliability was also obtained using Cronbach's alpha method for the total score of 0.96, which indicates the appropriate reliability of this test. In the study of Safavi et al. (2016), the reliability of this questionnaire was obtained using Cronbach's alpha method for the total score of communication skills as 0.81.

2.3. Data Collection and Analysis

To conduct this research, a list of prisoners with a history of recidivism and prisoners who had successfully reintegrated into society with the assistance of the welfare center of the Guilan Province Prisons Organization was first identified. After obtaining the necessary permits and coordination, the personality traits, perceived social support, and interpersonal relationships questionnaires were administered to the prisoners inside the prison in paper-pencil format through a social worker and collected.

At the welfare center, after conducting an orientation session for the social worker and explaining the conditions for responding, clients who had successfully reintegrated into society were called and asked to answer the questions in the questionnaires. The data collection period for the questionnaires was from January 2014 to the end of June 2024.

For data analysis, SPSS_VER22 statistical software was used, and statistical methods of analysis of variance and independent t-tests were employed.

3. Results

In this study, 159 individuals (88 recidivist prisoners and 71 prisoners with successful reintegration into society) were examined in terms of demographic information and psychological dimensions (personality traits, perceived social support, and interpersonal relationships). Demographic analysis showed that the mean and standard deviation of age for the recidivist group were 40.04 and 7.38 years, respectively, and for the successful reintegration group, 42.78 and 8.77 years.

The marital status and educational level of the subjects were then examined. The results showed that 22.7% of the recidivist subjects and 12.67% of the successful reintegration subjects were single, 73.9% of the recidivist subjects and 76.05% of the successful reintegration subjects were married, 3.4% of the recidivist subjects were divorced, and 11.26% of the successful reintegration subjects were divorced.

Table 1 presents the mean, standard deviation, and other descriptive statistics of the research variables (personality traits, perceived social support, and interpersonal relationships) by group.

Table 1

Mean, Standard Deviation, Minimum and Maximum Values, Skewness, and Kurtosis of Research Variables, Separated by Two Groups

Component	Group	N	Mean	Standard Deviation	Minimum	Maximum	Skewness	Kurtosis
Neuroticism	Recidivism	88	36.39	6.13	24	50	0.201	-0.544
	Successful Reintegration	71	34.73	6.02	23	49	0.622	0.055
Extraversion	Recidivism	88	41.09	5.93	28	55	-0.328	0.287
	Successful Reintegration	71	44.04	4.64	37	51	0.158	-1.323
Openness	Recidivism	88	38.91	3.88	27	47	0.217	1.165
	Successful Reintegration	71	38.8	4.08	30	50	0.129	0.535
Agreeableness	Recidivism	88	38.85	5.25	23	46	-1.348	1.096
	Successful Reintegration	71	40.29	4.4	30	47	-0.402	-0.496
Conscientiousness	Recidivism	88	40.31	3.91	27	50	-0.822	1.219
	Successful Reintegration	71	43.16	3.76	35	52	0.427	0.176
Perceived Social Support	Recidivism	88	50.6	15.02	13	74	-0.479	-0.105
	Successful Reintegration	71	57.74	14.62	25	84	-0.144	-0.602
Interpersonal Communication Skills	Recidivism	88	55.3	8.92	22	74	-1.313	1.358
	Successful Reintegration	71	59.73	9.29	23	78	-1.493	1.137

Before analyzing the data, the assumption of normality was first examined using the Kolmogorov-Smirnov test. The results showed that the data of this study are normally distributed in both groups ($P > 0.05$). Therefore, there is no limitation in using parametric statistical methods. Subsequently, to examine and compare the five dimensions of personality between the two groups of prisoners successfully reintegrating into society and recidivist prisoners, a one-way analysis of variance

(ANOVA) was used. Therefore, the assumption of homogeneity of error variances was first examined. The results of Levene's test, considering the Levene statistic and the significance level ($P > 0.05$), showed that the assumption of homogeneity of error variances is equal in the personality traits of the two groups. Therefore, there is no limitation in using one-way ANOVA. Table 2 presents the results of the analysis of variance for comparing personality traits in the two groups.

Table 2

Analysis of Variance for Comparing Personality Traits in Two Study Groups

Component	Sum of Squares	Df	Mean Square	F	Sig	η^2	Power
Neuroticism	Between Groups	108.07	1	108.07	2.921	0.089	0.018
	Within Groups	5807.742	157	36.992			
	Total	5915.812	158				
Extraversion	Between Groups	341.71	1	341.71	11.71	0.001	0.069
	Within Groups	4581.194	157	29.18			
	Total	4922.903	158				
Openness	Between Groups	0.461	1	0.461	0.029	0.865	0.01
	Within Groups	2479.65	157	15.794			
	Total	2480.11	158				
Agreeableness	Between Groups	81.571	1	81.571	3.406	0.067	0.021
	Within Groups	3760.462	157	23.952			
	Total	3842.033	158				
Conscientiousness	Between Groups	319.217	1	319.217	21.524	0.001	0.121
	Within Groups	2328.422	157	14.831			
	Total	2647.639	158				

The results of the analysis of variance showed that among the personality traits, only the mean of two dimensions, extroversion ($P < 0.001$) and conscientiousness ($P < 0.001$), had a significant difference between the two groups studied. The difference between the other

groups was not significant ($P > 0.05$). The comparison of means also showed that the mean of extroversion and conscientiousness in the group of individuals with successful reintegration into society was higher than the group of prisoners with recidivism. However,

the difference in other personality traits was not significant.

Subsequently, an independent t-test was used to compare the total score of perceived

social support and communication skills between the two groups of prisoners successful in reintegrating into society and prisoners with recidivism. The results of this analysis are presented in [Table 3](#).

Table 3

Results of independent t-test to compare perceived social support and interpersonal relationships in two groups

Component	Assumption of Variance Equality	F	P	T	Df	P
Perceived Social Support	Assuming Equal Variances	0.061	0.805	-3.016	157	0.003
	Assuming Unequal Variances			-3.025		
Interpersonal Relationships	Assuming Equal Variances	0.007	0.932	-3.057	157	0.003
	Assuming Unequal Variances			-3.044		

The results of an independent t-test showed that there is a significant difference in the dimensions of perceived social support and interpersonal relationships between the two groups of prisoners with successful reintegration into society and prisoners who re-offended ($P < 0.05$). Comparison of the means indicated that the average level of perceived social support and interpersonal relationships was higher in the group with successful reintegration into society compared to prisoners who re-offended.

4. Discussion

The purpose of this study was to compare personality traits, perceived social support, and interpersonal relationships between two groups of prisoners: those who successfully reintegrated into society and those who re-offended. The results regarding personality traits showed that among the personality traits, only the average of two dimensions, extraversion and conscientiousness, had a

significant difference between the two groups studied, and the difference between the other personality dimensions was not significant. The comparison of means also showed that the average of extraversion and conscientiousness was higher in the group of individuals who successfully reintegrated into society than in the group of recidivist prisoners. However, the difference in other personality traits was not significant. These results were consistent with the findings of studies ([McDonald et al., 2020](#); [Eriksson et al., 2017](#); and [Babaie et al., 2021](#)).

In explaining these results, it can be stated that personality traits are variables whose relationship with mental health has always been a focus of researchers in studies. Research on the comparison of personality traits in prisoners has shown that male prisoners have different scores in conscientiousness compared to non-prisoners ([Eriksson et al., 2017](#)). In general, to explain

the results obtained regarding the higher level of extraversion and conscientiousness in the group of individuals who successfully reintegrated into society, it can be stated that it seems that individuals' difficulty in communicating and expressing their needs in a healthy way is related to low scores in extraversion and plays a role in explaining theft. In fact, extraversion has a direct relationship with emotional health. Individuals who are high in extraversion and low in neuroticism are genetically predisposed to emotional stability (Babaie et al., 2021).

Conscientiousness indicates duty-oriented and goal-oriented behavior, and these individuals socially take control. They are organized, reliable, hardworking, self-regulating, punctual, and accurate. Individuals with low scores have the opposite of these characteristics. Prisoners' behaviors are more related to low conscientiousness. It seems that thieves have high impulsivity. These individuals use a disorganized and pleasure-seeking approach to control stressful situations through theft behaviors. Accordingly, personality traits such as conscientiousness refer to factors such as prior readiness to face life's challenges and the ability to prioritize important tasks, which increases their sense of responsibility and provides a context for making up for past mistakes and focusing on a new path in life (McDonald et al., 2020).

Also, in this study, it was found that there is a significant difference in Perceived Social Support between the two groups of prisoners who successfully reintegrated into society

and recidivist prisoners. The comparison of means indicated that the average level of Perceived Social Support was higher in the group who successfully reintegrated into society than in recidivist prisoners. These results were consistent with the findings of previous studies, including (Poordad et al., 2019; Brunton-Smith & McCarthy, 2017; Damerchi Lou et al., 2023).

In explaining the obtained results, it can be said that social support is defined as an individual's perceptions of general support or specific supportive behaviors (available or enacted) from individuals in their social network, which enhances individual functioning or acts as a protective factor against adverse outcomes. Specifically, it should be noted that perceived social support from parents, friends, and the community is associated with criminal behaviors (Ruiz et al., 2019). Therefore, when faced with problematic life factors, having social support can be considered a protective factor that increases the likelihood of an individual's success in overcoming these stressors (Iordachescu et al., 2021). In this regard, the findings of numerous studies indicate the role of perceived social support in increasing the level of effective coping strategies, enhancing individual and social functioning, quality of life, and longer lifespan in individuals (Poordad et al., 2019; Brunton-Smith & McCarthy, 2017; Damerchi Lou et al., 2023). Social support networks act as a shield against psychological pressure. The offender's confidence that they can rely on external resources leads them to perceive the external environment as less threatening and achieve greater adaptation (Kiesswetter et al.,

2020). Offenders with low perceived social support may misinterpret others' intentions and view them with pessimism. In fact, these individuals have less interpersonal trust and openness in their relationships, factors that are associated with recidivism (Shin et al., 2021).

Another finding of this research was that there was a significant difference in interpersonal relationships between the two groups of prisoners: those who successfully reintegrated into society and those who re-offended. The comparison of means indicated that interpersonal relationships were higher in individuals who successfully reintegrated into society compared to prisoners who re-offended. Therefore, the research hypothesis regarding the existence of a significant difference in the dimension of interpersonal relationships between the two groups is confirmed. These results are consistent with the findings of studies by Berondom & Moyer (2012) and Bahrami (1999).

To explain the result, it can be stated that with the increase in migration and urbanization, the occurrence of new crimes has also increased. Consequently, a fear of victimization has emerged in social relationships. Two consequences of this feeling are a decrease in social trust and a reduction in the scope of social communication and bonds. The existence of social relationships that take on a systematic form through norms and rules indicates the presence of sociality and social organization in a human habitat (Southwick et al., 2016). The quality of interpersonal relationships with others is one of the most engaging

experiences of life. Having good friends, a good relationship with parents, important people in the environment, and spouses are very important for everyone (Uchino et al., 2018). Correspondingly, there is significant evidence that such intimate and supportive relationships can have positive consequences. According to research evidence, poor quality interpersonal relationships are one of the most stressful life experiences (Daneshvarinasab, 2021). People who are deprived of even the slightest pleasant verbal communication with their parents and are constantly treated with neglect and indifference by their parents or those around them are more susceptible to various psychological, intellectual, social, and political harms than their peers. Individuals skilled in interpersonal relationships demonstrate more competent behaviors, which leads to higher vitality, adaptability, self-confidence, and self-esteem. This causes them to accept their life's problems and limitations and seek better and more appropriate coping strategies. Therefore, having stronger interpersonal relationships will help individuals either not to commit a crime or, if they do commit a crime, seek help from those around them more easily and to resolve their issues and avoid repeating mistakes (Seligman & Diener, 2002).

5. Conclusion

In conclusion, it can be stated that an individual who commits a crime for any reason during their life, if they have high levels of extraversion and conscientiousness, can more easily accept responsibility for their mistakes and take steps to change the existing

conditions. On the other hand, criminals who have low perceived social support may misinterpret the intentions of others and view them with pessimism. In fact, these individuals have less interpersonal trust and openness in their relationships, factors that are related to recidivism. Additionally, individuals with skills in interpersonal relationships exhibit more competent behaviors, which leads to higher vitality, adaptability, self-confidence, and self-esteem. This, in turn, enables them to accept the problems and limitations of their lives and seek better and more appropriate coping strategies. Therefore, having stronger interpersonal relationships will help individuals either not to commit crimes or, if they do, seek help from those around them more easily and resolve their issues, preventing repeated mistakes.

Limitations of this study include the purposive selection of subjects, their limitation to male samples, and the focus on crimes such as financial convictions, theft, and drug-related offenses, which should be considered when generalizing the results. Furthermore, based on the research findings, it is suggested that to enhance life skills and deeper social growth and socialization of inmates after release, they participate in psychological and social enrichment classes. This will teach them how to control their emotions, plan for the future, design their goals, make decisions, and return to society as a member by expanding their interpersonal relationships and receiving more social support. Similarly, considering the important role of perceived social support, it is recommended that informational sessions be

held for the families and spouses of prisoners to explain the importance of their role in successful reintegration and provide a suitable environment.

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Conflicts of Interest

The Authors declare that there is no conflict of interest with any organization. Also, this research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

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Research Paper: The Effectiveness of Music Therapy on Behavioral Problems in Children with High-Functioning Autism Spectrum Disorder



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Abstract

Objective: The present study aimed to investigate the effectiveness of music therapy on behavioral problems in children with high-functioning autism spectrum disorder.

Methods: The research method employed in this study was a quasi-experimental design using a pre-test-post-test approach with a control group. The statistical population of the study consisted of high-functioning children with autism spectrum disorder attending special schools and counseling centers in Bandar Anzali city during the academic year 2023-2024. A total of 30 individuals were selected using purposive sampling and randomly assigned to two groups: an experimental group (15 individuals) and a control group (15 individuals). The Achenbach Child Behavior Checklist (CBCL) was used for both groups. The experimental group received ten 45-minute sessions of music therapy intervention, while the control group received no intervention. After the completion of the therapy sessions, the questionnaire was administered again to both groups. Data were analyzed using analysis of covariance (ANCOVA) statistical method with SPSS-27 software at a significance level of $p < 0.05$.

Results: The results showed that music therapy is effective in improving behavioral problems of high-functioning children with autism spectrum disorder ($p < 0.05$).

Conclusion: Therefore, it can be concluded that music therapy can be used to improve behavioral problems of high-functioning children with autism spectrum disorder in schools or rehabilitation centers.

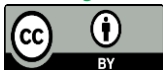
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1. Introduction

Autism spectrum disorders are a range of neurodevelopmental disorders characterized by persistent deficits in social communication and interaction across multiple contexts, as well as restricted, repetitive patterns of behavior, interests, or activities. This phenotype encompasses a wide range of symptoms in various domains, including cognitive, behavioral, emotional, and sensory symptoms (American Psychiatric Association, 2022). Furthermore, sleep and eating problems, synesthesia, as well as emotional disorders and difficulties in initiation, planning, and organization are often present in autism spectrum disorder (Wiggins et al., 2015). The prevalence of this disorder among 4-year-old children is estimated to be approximately 13.4 per 1000 (Christensen et al., 2019). Additionally, children with autism spectrum disorder have a significant weakness in predicting the behavior of others. Therefore, it is predictable that these children will exhibit impairments in social skills (Barendse et al., 2018).

The occurrence of stereotyped behaviors is one of the main diagnostic criteria in individuals with autism spectrum disorder. These behaviors often refer to repetitive interests and motor or verbal sequences (Babadi et al., 2016). In terms of repetitive and maladaptive behaviors, children with autism spectrum disorder exhibit behaviors such as repetitive spinning of toys, stereotyped behaviors including repetitive body movements like hand flapping and finger flicking, as well as negative behaviors such as self-injurious, aggressive, and

defensive behaviors, which appear to be performed in response to sensory stimulation (Sharma, 2018).

In recent decades, the behavioral issues and problems of children have been a significant topic in the literature of psychology, psychiatry, and education. These problems are reported to be considerably more prevalent in children with autism than in typically developing children. The rate of undesirable emotional reactions and behavioral problems in individuals with intellectual disabilities is four to five times higher than in typically developing individuals (Hulsmans et al., 2021; Harris et al., 2018). Therefore, the socio-emotional problems of children and adolescents with autism are of great importance (Geiger et al., 2020). Behavioral problems refer to patterns of behavior that impair the healthy relationship between the child, the environment, and learning opportunities. Some researchers consider behavioral problems to include internalizing problems such as withdrawal, depression, and anxiety, and externalizing problems such as aggression, hyperactivity, and defiance (Aghayinejad et al., 2021). Behavioral problems in the early years place a child's life on an unfavorable developmental path and, in addition to disrupting the child's abilities, make them susceptible to other problems in the future, including delinquency in adolescence and criminal and aggressive behavior in adulthood (Kakabraee & Emami Ale Agha, 2018). For this reason, timely intervention for behavioral problems in children is of particular importance (Kiani & Aleyasin, 2025).

Principles of managing child behavior with developmental concerns include early intervention and response to treatment, modification, and, if necessary, specific behavioral and pharmacological interventions. To this end, numerous non-pharmacological interventional therapies exist based on engaging children and parents in reducing behavioral problems in children with autism spectrum disorders (Pournesai et al., 2025); one such interventional method is Music therapy based on rhythmic activities. Music therapy, with elements such as melody, harmony, and rhythm, provides multidimensional stimuli that can lead to cognitive function (Barbaroux et al., 2019). Researchers believe that many problems in autistic children stem from a dysfunction of mirror neurons, and music therapy can reduce problems in autistic children by activating the brain's mirror neurons (Catherine et al., 2010). The American Music Therapy Association (2019) also defines music as a treatment for mental, emotional, cognitive, and spiritual needs. Music activities can serve as reinforcers in creating reciprocal and conscious responses in children with autism spectrum disorder, such as increased speech, improved social and communication skills, the generation of verbal responses, and increased eye contact. In this form of movement, sensorimotor abilities, such as balance, coordination, understanding spatial and temporal relationships, and the orientation of the whole or different parts of the body, are actively involved. Furthermore, in rhythmic movements accompanied by music and the presentation of stimuli and responses, there is a kind of order and

sequence that requires the child to provide timely, quick, and relevant responses to stimuli, which can be effective in improving many deficits resulting from motor learning difficulties (Arjmandnia et al., 2021). On the other hand, music is recognized as an important factor in improving behavioral problems and mental disorders (Hoseini, 2021).

Several studies have investigated the impact of music-related activities on the psychological and behavioral functioning of children with developmental coordination disorders. Hamidifard et al. (2023) demonstrated in their research that the use of music therapy alongside other treatment methods can be effective in improving the psychological characteristics of children with autism spectrum disorder. Researchers believe that many of the problems of autistic children stem from impaired mirror neuron function, and music therapy can reduce these problems by activating the brain's mirror neurons (Catherine et al., 2010). Ruutel et al. (2014) found in a study that music therapy is effective in reducing anxiety in individuals with autism spectrum disorder.

Autism spectrum disorder, with a relatively high prevalence, is among the developmental disorders associated with impairments in social functioning, and its symptoms are detectable before the age of three (Hamidifard et al., 2023). On the other hand, through learning and implementing simple, effective, and affordable interventions, especially in the early years of childhood when the impact of interventions is greater, it is possible to reduce behavioral

problems and improve the quality of life for children with autism and their families. However, considering the available research, fewer studies have examined the effectiveness of music on stereotyped behaviors in children with autism. Therefore, it seems that more research is needed in this area. In this regard, the aim of the present study is to investigate the effectiveness of music therapy on the behavioral problems of high-functioning children with autism.

2. Methods

2.1. Research Design and Participants

The research method of this study was quasi-experimental using a pre-test-post-test control group design. The statistical population of the study included high-functioning children with autism spectrum disorder in special education schools and counseling centers of Bandar Anzali city during the academic year 2023-2024. Since a minimum of fifteen individuals per group is recommended in experimental methods (Delavar, 2022), a total of 30 individuals were selected using purposive sampling and randomly assigned to two groups: an experimental group (15 individuals) and a control group (15 individuals). The inclusion criteria for the study were: receiving a diagnosis of high-functioning autism spectrum disorder from a psychiatrist and specialist, agreement and signing of a written consent form by the parents of the child with autism spectrum disorder to participate in the study, children aged between 7 and 14 years, and no comorbidity with other neurodevelopmental disorders such as intellectual disability, hyperactivity, or learning disorders. The exclusion criteria

from the study were: having prior experience participating in music therapy sessions before entering the study; having a very severe form of autism spectrum disorder to the extent that they are unable to perform the minimum exercises of the music therapy sessions; lack of cooperation or absence in 3 consecutive sessions; the child's age being less than 7 years or older than 14 years; and comorbidity with other neurodevelopmental disorders such as intellectual disability, hyperactivity, or learning disorders.

2.2. Instrument

Child Behavior Checklist (CBCL): This checklist was introduced by Achenbach et al. (2001) within the Achenbach System of Empirically Based Assessment to evaluate competence, adaptive functioning, and emotional-behavioral problems of children aged 6-18 years. It includes approximately 118 questions related to behavioral problems that are completed by parents or a person who is responsible for the child's care and upbringing, or anyone who lives with the child in a family-like environment and knows them well. The assessment is based on the child's behavior over the past 6 months and comprises subscales for internalizing behavioral problems, externalizing problems, and total problems. Responses to the Achenbach Child Behavior Checklist questions are on a 3-point Likert scale ranging from 0 to 2. Specifically, a score of '0' is assigned to behaviors that never occur in the child; a score of '1' is given to states and behaviors that are sometimes observed in the child; and a score of '2' is assigned to behaviors that occur most of the time or always in the child's behavior. Internalizing

behavioral problems include the subscales of withdrawn/depressed, somatic complaints, and anxious/depressed. Externalizing behavioral problems include the subscales of rule-breaking behavior and aggressive behavior. In the research by [Achenbach et al. \(2001\)](#), test-retest reliability and internal consistency for emotional-behavioral problems were reported as 0.97 and 0.94, respectively; for externalizing behavioral problems as 0.94 and 0.92; and for internalizing behavioral problems as 0.90 and 0.91. Furthermore, in the standardization of this checklist in the Iranian population by [Minaee \(2006\)](#), the test-retest reliability and internal consistency coefficient for the overall competence scales were 0.79 and 0.58, for emotional-behavioral problems 0.97

and 0.88, for externalizing problems 0.48 and 0.86, and for internalizing problems 0.58 and 0.83. The test-retest reliability coefficient with a time interval of 5 to 8 weeks was obtained in a range of 0.32 to 0.67.

2.3. Music Therapy Program

The music therapy program is derived from a training program presented by [Khanjani and Khaknezhad \(2016\)](#). Music therapy sessions were conducted individually and actively for each child in the experimental group by a coach or child psychologist specializing in music therapy, under the supervision of the relevant supervisor. This program was implemented over 10 sessions, each lasting 45 minutes, for the children.

Table 1

Music Therapy Protocol (Khanjani & Khaknezhad, 2016)

Sessions	Task Description
Session One	Introduction of therapist and subjects, encouraging cooperation, introduction to the two main elements of movement, including space and weight, and awareness of the two elements of time and flow.
Session Two	Auditory discrimination training, recognizing and differentiating sounds from each other, and teaching rhythm through the body.
Session Three	Auditory discrimination training, recognizing and differentiating sounds from each other, and teaching rhythm through the body.
Session Four	Auditory discrimination training, auditory comprehension, strengthening auditory memory, and teaching rhythm through body movements.
Session Five	Strengthening auditory association, improving auditory memory, and teaching rhythm and rhythmic perception.
Session Six	Teaching visual perception, strengthening auditory memory and visual accuracy, improving gross motor skills, teaching rhythm, strengthening imitation skills, and practicing body coordination and rhythmic perception.
Session Seven	Supplementary training of gross motor skills and practicing body coordination and rhythmic perception.
Session Eight	Teaching visual perception, practicing eye-hand coordination, especially with the dominant hand, and rhythmic perception.
Session Nine	Strengthening and improving visual perception, supplementary practice of eye-hand coordination, especially with the dominant hand, and rhythmic perception.
Session Ten	Teaching fine motor skills of hands and feet, strengthening visual perception, strengthening eye movement, eye-hand coordination, and rhythmic perception.

2.4. Implementation Method

After obtaining the necessary permits, the researcher visited centers for the care of children with autism in Bandar Anzali city and selected 30 children who met the study's inclusion criteria using purposive sampling. It is worth mentioning that before selecting the sample, the Achenbach Child Behavior Checklist was completed by the children's parents, and the sample was chosen from those who scored higher on this test. Subsequently, two groups (an experimental group and a control group) were formed for the purpose of conducting the research. It is worth noting that both the experimental and control groups were matched in terms of age and gender. The experimental group was exposed to music therapy, while the control group did not receive any intervention. After the therapy sessions were completed, the parents of the children in both groups again completed the Achenbach Child Behavior Checklist. To maintain ethical considerations, informed consent forms were obtained from the children's parents, and they were assured that their information would remain confidential and that the results would be used without mentioning their child's

Table 2

Descriptive Analysis of Behavioral Problems in the Experimental (Music Therapy) and Control Groups

Variable	Phase	Control Group (n=15)	Music Therapy Group (n=15)
Behavioral Problems (Total)	Pre-test	4.80 ± 188.40	5.37 ± 159.27
	Post-test	6.64 ± 152.80	4.51 ± 132.07
Externalizing Behavioral Problems	Pre-test	3.40 ± 52.33	5.38 ± 53.20
	Post-test	6.56 ± 52.73	7.94 ± 42.00
Internalizing Behavioral Problems	Pre-test	2.65 ± 41.86	2.75 ± 41.27
	Post-test	4.55 ± 40.80	5.71 ± 32.27

name. Descriptive and inferential statistical indices were used in this research. In the descriptive statistics section, the mean and standard deviation were initially used to identify relationships between variables. Then, in the inferential statistics section, multivariate analysis of covariance was used to examine the difference in post-test scores. The data were analyzed using SPSS software version 27 at a significance level of 0.05.

3. Results

The research sample consisted of 30 high-functioning children with autism spectrum disorder. The experimental group (music therapy) consisted of 7 boys and 8 girls, and the control group consisted of 8 boys and 7 girls, indicating a relatively homogeneous distribution of gender between the experimental and control groups. The mean age of the experimental group (music therapy) was 10.9 ± 0.78 years, and the mean age of the control group was 10.3 ± 0.71 years, which indicates the homogeneity of the two groups in terms of age. Descriptive statistical indices of the variable under investigation are shown in [Table 2](#).

As [Table 2](#) shows, in the music therapy experimental group, the behavioral problems variable had a mean of 159.27 and a standard deviation of 5.37 in the pre-test phase, and a mean of 132.07 and a standard deviation of 24.51 in the post-test phase. In the music therapy experimental group, the externalizing behavioral problems variable had a mean of 53.20 and a standard deviation of 5.38 in the pre-test phase, and a mean of 42.00 and a standard deviation of 7.94 in the post-test phase. In the music therapy experimental group, the internalizing behavioral problems variable had a mean of 41.27 and a standard deviation of 2.75 in the pre-test phase, and a mean of 32.27 and a standard deviation of 5.71 in the post-test phase.

Subsequently, analysis of covariance (ANCOVA) was used to examine the effectiveness of music therapy on behavioral problems of children with high-functioning autism spectrum disorder. For this purpose, the normality assumption of the distribution of scores for the communication problems variable was examined using the Kolmogorov-Smirnov test, and the Z statistic was not significant at the 0.05 level. This means that the distribution of variables in the sample was normal. Also, Levene's test was used to examine the homogeneity of variances. It was observed that the p-value for the dependent variables in the different measurement phases was greater than 0.05 and not significant. Therefore, the assumption of homogeneity of variances was not violated.

Table 3

Results of the Homogeneity of Variance Test for the Components of the Behavioral Problems Variable

Variable	Levene's Statistic	DF 1	DF 2	Sig
Behavioral Problems	1.59	1	28	0.197
Externalizing Behavioral Problems	2.249	1	28	0.115
Internalizing Behavioral Problems	1.367	1	28	0.266

As the results of [Table 3](#) show, the significance level of the scores for the behavioral problems variable (total) ($F = 1.590$, $P \geq 0.05$) and the components of externalizing behavioral problems ($F = 2.249$, $P \geq 0.05$) and internalizing behavioral problems ($F = 1.367$, $P \geq 0.05$) is greater than the error level of 0.05. Based on this, it can be argued that the assumption of equal variance of the variables in the pre-test and post-test groups is confirmed.

Table 4

Results of the Test for Homogeneity of Regression Slopes of the Research Groups in the Pre-test

Variable	DF	F	Sig
Behavioral Problems	1	1.145	0.326
Externalizing Behavioral Problems	1	1.018	0.355
Internalizing Behavioral Problems	1	1.103	0.311

According to the results of [Table 4](#), the interaction of the pre-test effects with the groups is not significant, indicating that the slope coefficients are homogeneous. This assumption also holds for the post-test phase (behavioral problems: $F = 1.145$, $P \geq 0.05$;

externalizing behavioral problems components: $F = 1.018$, $P \geq 0.05$; and internalizing behavioral problems components: $F = 1.103$, $P \geq 0.05$). Based on this, it can be argued that the assumption of homogeneity of regression slopes is also met.

Table 5

Analysis of Covariance for the Scores of the Behavioral Problems Variable in the Music Therapy Experimental and Control Groups

Stages of the Test	Indicators	Sum of Squares	Degrees of Freedom	Mean Square	F	Sig
Post-Test	Group	1356.133	1	848.017	9.948	0.000
	Error	3892.667	28	82.119		
	Total	5548.8	29			

Based on the results of [Table 5](#) for the behavioral problems variable in the post-test phase ($F = 9.948$, $P \leq 0.05$), it can be argued that the difference in the mean scores of this variable between the music therapy experimental and control groups is significant. Accordingly, the hypothesis of a significant difference in the mean of this variable between the music therapy experimental and control groups is confirmed; consequently, music therapy is effective in improving behavioral problems of children with high-functioning autism spectrum disorder ($p \leq 0.05$).

4. Discussion

The aim of the present study was to investigate the effectiveness of music therapy on behavioral problems of high-functioning children with autism spectrum disorder. The results obtained showed that music therapy is effective in reducing behavioral problems in high-functioning children with autism spectrum disorder. The findings of this research are consistent with the studies of [Hamidifard et al. \(2023\)](#), [Arjmandnia et al. \(2021\)](#), [Hoseini \(2021\)](#), [Geiger et al. \(2020\)](#), [Sharma \(2018\)](#), [Ruutel et al. \(2014\)](#), and [Catherine et al. \(2010\)](#).

In explaining the obtained results, it can be stated that considering that most autistic children have internalizing problems, some researchers have reported that music therapy can regulate the function of the autonomic nervous system (blood pressure, heart rate, and respiration). It seems that better functioning of the autonomic nervous system can reduce an individual's anxiety level and decrease the intensity and frequency of stereotyped behaviors (Lundqvist et al., 2009). This is because researchers have shown that muscle contraction in participants decreases as a result of music therapy. It appears that the reduction in stereotyped behaviors could be due to the decrease in muscle contraction of autistic children during the music therapy process, which, through music therapy, can be effective in reducing the intensity and frequency of these children's stereotyped behaviors (Aghili et al., 2022). Furthermore, dopamine deficiency in the brain, especially in the striatum, leads to cognitive deficits and psychomotor slowness. Therefore, music therapy, by increasing dopamine in the brain, leads to an increase in the hormone oxytocin and prevents the occurrence of aggressive behaviors (Hoseini, 2019). Music with a gentle rhythm and calming tempo creates a state of relaxation in these children, leading to a reduction in their physical aggression. Considering the negative effects of chemical drugs used in the treatment of this disorder, music can be used as a therapeutic method to improve the behavioral abnormalities of these children. Mental health is a state of successful performance of mental function, the result of which is productive activities, satisfying

relationships with others, the ability to adapt to changes, and coping with adversities. Therefore, it can be said that engaging in music therapy, and consequently the reduction of behavioral problems in autistic children in various dimensions, can reduce the worry, depression, and pressures experienced by parents, and improve their mental health (Aghili et al., 2022).

In another explanation, it can be said that appropriate music and rhythm control and reduce the excessive activity of the sympathetic nervous system and severe anxiety in these children. By decreasing the activity of the sympathetic nervous system and the level of anxiety, the level of arousal and self-stimulation in these children decreases, and consequently, their behavioral problems are controlled and reduced. Furthermore, the timing structure of music and rhythm in a stable pattern, due to neuromuscular coordination and synchronization of body movements, reduces the intensity and frequency of behavioral problems (Hodgetts et al., 2011). It seems that motor activities create a kind of alternative mechanism for behavioral problems and stereotyped behaviors by providing sensory feedback, and through a type of motor simulation, lead to the control and reduction of these problems in autistic children (Healy et al., 2017). Additionally, musical-motor activities stimulate the limbic system more quickly, and this stimulation leads to the projection of inner states, causing social and communicative interactions to occur. It appears that music makes children with autism spectrum disorder more flexible from their inner world to their surrounding

environment (Mateos-Moreno & Atencia-Doña, 2013).

The study population was limited to children with autism spectrum disorder in Bandar Anzali city. It is suggested that similar research be conducted on affected children in other cities in the future. The lack of a follow-up test was another limitation of the present study; it is recommended that a follow-up test also be conducted in future research.

5. Conclusion

The results of this study showed that music therapy is effective in improving behavioral problems of high-functioning children with autism spectrum disorder and can therefore be useful and used as one of the therapeutic and interventional methods for this disorder by therapists and psychologists in the field of autism spectrum disorders.

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Conflicts of Interest

The Authors declare that there is no conflict of interest with any organization. Also, this research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors

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Research Paper: The Effectiveness of Mindful Self-Compassion Program on Distress Tolerance, Emotional Expression, and Psychological Flexibility in Individuals with Social Anxiety Disorder



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Abstract

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Objective: The present study aimed to investigate the effectiveness of the mindfulness-based self-compassion program on distress tolerance, emotional expression, and psychological resilience in individuals with social anxiety disorder.

Methods: This study was a quasi-experimental study with a pre-test and a post-test design. Thirty individuals with social anxiety disorder were selected through purposive sampling in counseling centers and cyberspace, and randomly assigned to two experimental and control groups. At the beginning and end of the study, the two groups answered the questionnaires, including Social Phobia Inventory (SPI), Distress Tolerance Scale (DTS), Emotional Expressiveness Scale (EES), and Cognitive Flexibility Inventory (CFI). The experimental group underwent a mindful self-compassion intervention for eight weekly sessions, 150 minutes per session, while the control group did not receive any treatment. Univariate analyses of covariance were employed to analyze the data using SPSS software version 27.

Results: The results of ANCOVA analyses showed that there was a significant difference between the experimental and control groups in the post-test of distress tolerance, emotional expression, and psychological flexibility ($p < 0.05$). The results of the Bonferroni test showed that the experimental group had higher scores in the post-test of distress tolerance, emotional expression, and psychological flexibility than the control group ($p < 0.05$).

Conclusion: Findings indicate that the mindful self-compassion program is effective in enhancing distress tolerance, emotional expression, and psychological flexibility for individuals with social anxiety disorder.

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1. Introduction

Social anxiety disorder (SAD) has attracted much attention as a concern among public health professionals in recent decades (Ollendick et al., 2019). SAD is one of the most common psychiatric disorders (Amir et al., 2019). According to the DSM-5-TR, SAD is a marked fear or anxiety about one or more social situations in which the individual is exposed to possible scrutiny by others. These situations can include social interactions (e.g., having a conversation, meeting unfamiliar people), being observed (e.g., eating or drinking), and performing in front of others (e.g., giving a speech). In these situations, which almost always provoke fear or anxiety, the individual fears that he or she will act in a way or show anxiety symptoms that will be negatively evaluated (i.e., will be humiliating or embarrassing; will lead to rejection or offend others). Therefore, she or he avoids these situations or endures them with intense fear or anxiety that is out of proportion to the actual threat posed by the social situation and to the sociocultural context and is not attributable to the physiological effects of a substance (e.g., a drug of abuse, a medication) or another medical condition (American Psychiatric Association [APA], 2022). In this disorder, fear, anxiety, or avoidance causes clinically significant distress or impairment in social, occupational, or other important areas of life, such that the level of academic achievement, job performance, and the quality of social relationships are significantly reduced (Beidel et al., 2021). Individuals with SAD are socially isolated and have difficulty forming friendships and close, intimate

relationships (Nauphal et al., 2021; Voncken et al., 2021). In these individuals, increased attention to negative and threatening information and a greater focus on the oneself cause physiological arousal that leads to avoidance of social situations (Gregory & Peters, 2017; Tolbert & Pinquart, 2015).

The onset of SAD can be in early childhood or after a stressful or embarrassing experience (such as being bullied or vomiting during a public speech). SAD is one of the most common mental disorders, with a median age of onset of 13 years, and about 75% of individuals with it have an onset between the ages of 8 and 15. The 12-month prevalence of SAD has been reported to be about 7% (APA, 2022). The lifetime prevalence is also 13% (Nauphal et al., 2021; Hoffart & Johnson, 2020). This disorder is characterized by shyness and behavioral inhibition in childhood, and it usually has a chronic, unremitting course leading to severe impairment in social functioning in later adolescence and adulthood (Stein & Kean, 2001). Overall, SAD is a common disorder that can lead to significant functional impairment and is considered a risk factor for many additional anxiety and mood disorders, which are associated with reduced quality of life (Strulov & Aderka, 2024).

Several theoretical models have been developed to explain the psychological factors that contribute to the maintenance of Social Anxiety Disorder (SAD) in adults (Rapee et al., 2024). These models indicate that factors such as distress tolerance (Katz et al., 2017; Lapsa et al., 2015), emotional expression (Rozen & Aderka, 2023), and psychological flexibility (Figueiredo et al.,

2024) play significant roles in sustaining and exacerbating SAD symptoms in individuals with this disorder.

Distress tolerance is often defined as an individual's ability to experience and tolerate negative emotional states (Li et al., 2024) and the behavioral ability to maintain goal-directed behavior when experiencing emotional distress (Forouzanfar, 2017). People with low distress tolerance typically have a negative appraisal of an emotional situation and feel unable to tolerate discomfort or distress. They make great efforts to avoid negative emotional experiences and use quick-fix strategies to reduce such experiences (Dempsey, 2019). This state can be seen in people with SAD. They experience high physiological arousal when negatively evaluating a social situation, which they ultimately avoid (Katz et al., 2017; Gregory & Peters, 2017; Tolbert & Pinquart, 2015; Laposa et al., 2015).

In addition to low distress tolerance, individuals with SAD also have problematic patterns of emotional reactivity and emotion regulation (Jazaieri et al., 2015). Based on research evidence, deficits in the processing of emotional expression recognition have been hypothesized as a maintenance factor of SAD that can also affect emotional expression (Lacombe et al., 2023). Emotional expression refers to the outward display of emotion regardless of its value (positive or negative) or its method (facial, verbal, and body posture; Konishi et al., 2017). Based on a review study of emotional structures in SAD, it was found that people with this disorder have a reduced ability to perceive,

label, express, and understand their emotions (Rozen & Aderka, 2023). Therefore, emotional expression problems could act as one of the psychological factors maintaining SAD symptoms.

In addition, people with SAD have problems with cognitive flexibility (Erkul, 2023). Cognitive flexibility is a multifaceted cognitive ability essential for successfully adapting to needs and changes in dynamic environments. It includes a range of skills, including shifting attention, processing situations, responding to situations, exploring, and switching between different tasks or actions (Lee et al., 2024; VandenBos, 2015). Extensive research evidence has shown that individuals with SAD have information processing biases in evaluating social situations, particularly in relation to probabilities and cost estimates for social situations, attention to specific stimuli, and ambiguous and negative interpretations of information and social images, which can increase or maintain social anxiety (Nikolić, 2020). Overall, it is important and necessary to pay attention to the psychological factors underlying the maintenance of SAD in the treatment process to reduce its symptoms and signs and prevent its recurrence.

SAD is a common psychiatric condition that persists if untreated (Yim et al., 2024). Given the relatively high prevalence of SAD, several effective pharmacological and psychotherapeutic interventions have been proposed for its treatment (Bandelow & Michaelis, 2015; Bandelow et al., 2015). However, research has shown that only 35% of individuals with social anxiety disorder

receive treatment, and many individuals remain untreated or delay seeking treatment (Goodarzi et al., 2021). Therefore, considering the psychological factors underlying the maintenance of SAD, it may be helpful to consider appropriate and novel intervention approaches. One such new intervention is the Mindful Self-Compassion (MSC) program, which helps increase resilience and reduce negative experiences such as pain, stress, depression, and anxiety (Chen et al., 2024). This program was designed in 2013 by Germer and Neff to foster self-care strategies and enhance mindfulness as a foundation for self-compassion (Germer & Neff, 2013). MSC combines compassion and mindfulness training (Neff & Germer, 2018). Research evidence suggests that mindfulness and self-compassion are prominent positive psychological factors that play an important role in maintaining emotional stability and creating well-being when people face stress. When combined, they can have synergistic effects (Zhou et al., 2024). Research evidence suggests that both self-compassion interventions (Sapach, 2019; Sapach et al., 2023) and mindfulness interventions (Liu et al., 2021; Carlton et al., 2020) can be clinically helpful in managing SAD symptoms. However, given their synergistic effects, incorporating these two programs together in one intervention may provide significant therapeutic benefits for patients with SAD.

Overall, SAD is a debilitating and often chronic psychiatric disorder with little self-healing effect that, if left untreated, can affect multiple domains of functioning, including

education, employment, personal development, and social relationships (Liu et al., 2021; Carlton et al., 2020). Review studies have shown that traditional interventions may not fully target the precipitating or maintaining factors of SAD, as a significant proportion of individuals with SAD still report significant clinical symptoms after treatment. Therefore, it has been suggested that new treatment methods, such as mindfulness-based interventions and self-compassion training, should be used (Sapach, 2019; Carlton et al., 2020). Given that the combination of these two programs has synergistic therapeutic effects and the lack of studies in this field, the MSC program was used in the present study for patients with SAD. Therefore, the purpose of the present study was to investigate the effectiveness of the MSC program on distress tolerance, emotional expression, and psychological flexibility in individuals with SAD.

2. Methods

2.1. Participants

The current research was conducted as a quasi-experimental study using a pretest-posttest design with a control group. The population for this study consisted of individuals suffering from social anxiety disorder in the city of Tabriz in 2024. A purposive sampling method was utilized, and 30 individuals diagnosed with SAD were selected via a public call on the Internet. These individuals were then randomly assigned to one of two groups: the experimental group and the control group. The selection criteria for participants included being a native and resident of Tabriz, meeting the DSM-5 diagnostic

criteria for social anxiety disorder, having no severe suicidal thoughts or attempts, having no prior history of psychotherapy or psychiatric medication, having no specific physical illnesses, and being adults aged 20 to 45 years (these items were checked during the initial clinical interview). Ultimately, the pre-and post-test data of 30 individuals were analyzed and compared across the two groups.

2.2. Instruments

Social Phobia Inventory (SPI) : This self-rated scale is designed to screen and assess social anxiety disorder, also known as social phobia. It was developed by Connor et al. (2003). It comprises 17 items, divided into three components: fear (6 items), avoidance (7 items), and physiological discomfort (4 items). Each item is rated on a five-point Likert scale, where 0 means "not at all" and 4 means "extremely." The range of scores is between 0-68. Higher scores indicate a greater presence of symptoms associated with the disorder. A cutoff point of 40, with a diagnostic accuracy of 80%, and a cutoff point of 50, with a diagnostic accuracy of 89%, effectively differentiate individuals with social phobia from those who are not affected. In this study, a cutoff point of 50 was chosen to enhance confidence in the results. The reliability of this scale, assessed using the test-retest method, ranges from 0.78 to 0.89, while its internal consistency was reported at 0.94. The convergent validity with other similar scales fell between 0.57 and 0.80 (Connor et al., 2003). In Iran, Abdi (2004) found the internal consistency of the scale, measured using Cronbach's alpha, to be 0.86, and the test-retest reliability to be 0.83.

In the present study, the Cronbach's alpha for this questionnaire was 0.85.

Distress Tolerance Scale (DTS): This self-report measure, developed by Simons and Gaher (2005), consists of 15 items designed to assess an individual's ability to tolerate emotional distress. It evaluates aspects such as emotional distress tolerance, preoccupation with negative emotions, subjective appraisal of distress, and the effectiveness of efforts to alleviate distress. Each item is rated on a 5-point Likert scale, where 1 means "strongly agree" and 5 means "strongly disagree". The range of scores is between 15-75. Higher scores indicate greater distress tolerance. Simons and Gaher (2005) reported a Cronbach's alpha coefficient of 0.82 for this scale, along with strong criterion validity and initial convergent validity. In Iran, Tofangchi et al. (2022) reported a Cronbach's alpha of 0.96 for the Persian version of this scale, indicating high reliability with a score of 0.90. They also found a convergent validity of 0.59 for the scale, and the results from their confirmatory factor analysis supported its unifactorial structure. In the present study, the Cronbach's alpha for this scale was 0.92.

Ambivalent Emotional Questionnaire (AEQ): The AEQ, created by King and Emmons (1990), is a self-report tool consisting of 16 items designed to measure three aspects of emotional expression: positive emotions, intimacy, and negative emotions. Each item is rated on a five-point Likert scale, where 0 means "strongly disagree" and 4 means "strongly agree". The range of scores is between 0-64. Higher

scores show a greater level of appropriate or ambivalent emotional expression. King and Emmons (1990) reported a Cronbach's alpha coefficient exceeding 0.63 for the subscales, showing good correlation with similar instruments. In Iran, Rafieinia (2002) reported the validity of this scale using the internal consistency method of Cronbach's alpha, which was over 0.59 for the subscales. In the present study, the Cronbach's alpha of this questionnaire was calculated to be 0.88.

Cognitive Flexibility Inventory (CFI): The CFI, introduced by Dennis and VanderWal (1990), is a self-report questionnaire consisting of 29 items that assess three main areas of cognitive flexibility: the tendency to view challenging situations as controllable, the ability to recognize multiple alternative explanations for life events and human behavior, and the capacity to generate various solutions to difficult situations. Each item is rated on a 7-point Likert scale, where 1 indicates “strongly disagree” and 7 indicates “strongly agree”. The range of scores is between 29 and 203. Higher scores reflect greater cognitive flexibility. In the study conducted by Dennis and VanderWal (2010), the concurrent and convergent validity of the instrument were assessed alongside other related scales, and the findings demonstrated that the instrument was appropriate for use. They reported an internal consistency coefficient of 0.84 and a test-retest reliability

of 0.75 for this inventory. In Iran, Kohandani and Abolmaali Alhosseini (2017) investigated the psychometric properties of the Persian version of this inventory. They found a strong correlation between this questionnaire and other similar instruments, reporting a Cronbach's alpha of 0.89. In the present study, the Cronbach's alpha for this inventory was 0.83.

Treatment: The Mindful Self-Compassion (MSC) program is a third-generation treatment developed by Neff and Germer (2013). Its overall structure is based on Neff's conceptualization of the self-compassion construct and its components, including self-kindness versus self-blame, consideration of human commonalities (shared human experience) versus isolation, and mindful attention versus overidentification. In developing the training protocol, we utilized the structure and content of a program created by Neff and Germer (2013), which includes both formal and informal meditations and exercises related to the educational content of each session, as outlined in Table 1. This program was implemented for a total of 150 minutes per week for the experimental group over the course of an eight-session intervention. During each session, participants received guidance on how to apply the skills in their daily lives, and this was reviewed at the beginning of the following session (Habibi et al., 2022).

Table 1
Summary of the structure and content of MSCP

Sessions	Steps	Contents of sessions
1	Introduction to MSCP	<p>Establishing initial contact and providing an introduction to Mindful Self-Compassion (MSC), including:</p> <ul style="list-style-type: none"> - How to cultivate mindful self-compassion - To understand self-compassion and its various forms - To know the importance of self-kindness and the shared benefits of mindfulness - To present the effects of self-compassion on brain function - To present the physiological aspects of self-criticism versus self-compassion - To present the benefits of practicing self-compassion - To present the differences between self-compassion and self-esteem - To know the Common misconceptions about self-compassion <p>This outline aims to clarify these concepts and enhance understanding of self-compassion.</p>
2	Mindful attention	Conceptualizing, training, and practicing mindfulness
3	Cultivating loving kindness	Starting meditation: Practicing mindful breathing, meditation, and practicing self-love and kindness, visualizing a compassionate self, repeating loving phrases, and the importance of cultivating a compassionate mind.
4	Finding your compassionate voice	Starting meditation: Loving-kindness to yourself, finding your inner compassionate voice, stages of progress in compassion (struggle, frustration, fundamental acceptance), motivation based on self-compassion, examining self-criticism and hearing your inner critic, and writing a compassionate letter to yourself.
5	Living deeply	Starting meditation: Giving and receiving compassion, discovering and examining one's core values that give meaning to life, recognizing the hidden values in moments of suffering, and living by a covenant, listening with compassion, clarifying valuable goals, and choosing a path to health care.
6	Dealing with difficult emotions	Starting meditation: Showing self-love and kindness, managing difficult feelings and emotions, following the strategies for dealing with difficult emotions, labeling emotions, being aware of emotions in the body, relaxing and accepting, conceptualizing feelings of shame, and negative core beliefs.
7	Exploring challenging relationships	Starting meditation: Having compassionate friend, challenging relationships, recognizing and exploring two types of pain in relationships, confronting unmet needs, and self-compassion as an antidote to caregiving burnout, reducing caregiver stress.
8	Embracing life	Starting meditation: Having compassion for self and others, having mindfulness of positive experiences, recognizing, acknowledging, and appreciating the good aspects of life, cultivating happiness and self-appreciation, being committed to practices, and tips for maintaining them in daily life.

2.3. Procedure

To carry out this research, the researchers took into account ethical considerations, clearly outlined in the research objectives, obtained permission from the Islamic Azad University, Tabriz Branch, and received a letter of introduction from the university. The authors then visited two treatment clinics in Tabriz, where the researchers provided mental health services, as well as the university's counseling center. With the assistance of the management from these centers, an online version of the social anxiety disorder screening questionnaire (Social Phobia Inventory; SPI) was created. The link to the questionnaire was shared in virtual groups believed to belong to the city of Tabriz, and participants were encouraged to forward it to others. Additionally, the three centers shared the link through their social media accounts so that their followers could complete the questionnaire. The online questionnaire, accompanied by detailed instructions for how to fill it out, and the results were made available on the main website immediately after submission. After reviewing the initial results of the questionnaires, consisting of the received responses from over 2,500 people within three months, the individuals living in Tabriz with a cutoff score for social anxiety disorder were identified (more than 200 people). To ensure the accuracy and reliability of the diagnosis, a structured clinical interview was conducted in accordance with DSM-5 criteria by a clinical psychologist. Out of those identified, 123 individuals agreed to participate in a face-to-face interview. From the diagnosed group of 37 individuals, 30

were randomly selected to participate in the study. After obtaining their consent, these participants were randomly assigned to either an experimental group or a control group, with 15 individuals in each group.

After explaining the instructions and ensuring confidentiality and privacy, pre-test data were collected from both groups. The counseling room at the university counseling center was chosen as the location for the in-person intervention. Ethical principles and confidentiality were emphasized, and participants in the experimental group were informed of their right to withdraw from the experiment at any time. The intervention was conducted with the experimental group over a period of eight weeks. The experimental group received a weekly 150-minute session, while the control group did not receive any interventions. Prior notification, payment of travel expenses, and provision of material and moral incentives were considered to prevent subjects from dropping out. Due to the researchers' continuous follow-up and immediate holding of a make-up session for those absent, there was no subject dropout. Finally, post-test data were collected one week after the interventions. After gathering the post-test data, an educational intervention was conducted for all members of the control group to ensure they also benefited from the educational services.

SPSS software version 27 was run for the statistical analysis. Mean, and standard deviation was used to report descriptive data indices. Univariate analyses of covariance were used to examine the treatment effect. The accepted significance level was considered equal to ($P \leq 0.05$).

3. Results

The participants had a mean age of 27 years, with a standard deviation of 3.68, and their ages ranged from 20 to 45 years. All participants were natives of Tabriz City and residing there. In the experimental group, nine individuals were females, while the remainder were males. Similarly, the control group contained ten females, and the rest were males. Most participants had a high school education level (58%). Most (males) were employed as freelancers (64%) and (females) homemakers. [Table 2](#) presents the mean and standard deviation of the dependent variables in the pre-test and post-

Table 2

Descriptive Indices (n = 30)

Variables	Situation	EG	CG	S-W test	p-value
		M (S)	M (S)		
Distress	Pre-test	30.86 (6.03)	29.40 (3.68)	0.954	0.078
Tolerance	Post-test	49.06 (7.54)	30.93 (4.23)	0.935	0.147
Emotional	Pre-test	27.83 (6.98)	24.53 (5.42)	0.947	0.098
Expression	Post-test	46.00 (8.94)	24.46 (5.78)	0.963	0.123
Psychological	Pre-test	39.26 (11.11)	43.13 (12.14)	0.991	0.095
Flexibility	Post-test	62.73 (16.48)	42.26 (12.17)	0.908	0.145

Note. EG = Experimental Group; CG = Control Group.

A line graph was used to examine the linearity of the relationship between the pre-test and post-test scores for the three variables. The results indicated that the relationship was linear for all three variables. Additionally, the F test was conducted to assess the homogeneity of the regression slopes for the pre-test and post-test between the experimental and control groups. The results showed that the pre-test and post-test regression slopes were equal across both groups. For distress tolerance, the sum of

test for both groups. To examine the effectiveness of MSCP on distress tolerance, emotional expression, and psychological flexibility in individuals with SAD, univariate analysis of covariance was run to examine overall scores (with pre-test scores as covariates).

Prior to conducting the analysis, several preliminary assessments to ensure the validity of the data were conducted. The Shapiro-Wilk test was used to examine the variables' normality. The results, shown in [Table 2](#), indicate that all variables had a normal distribution.

squares (SS) was 14.685, with a mean square (MS) of 14.685, resulting in an F value of 0.502 and a p-value of 0.485, indicating no significant difference. For emotional expression, SS was 6.338, MS was 6.338, with an F value of 0.216 and a p-value of 0.646, also showing no significant difference. In the case of psychological flexibility, the SS was 84.970, MS was 84.970, the F value was 2.155, and the p-value was 0.154, suggesting no significant difference in the regression slopes.

To examine the homogeneity of variance between the two groups, Levene’s test was performed. The results indicated that the variances for the variables were equal across the groups in the post-test. For distress tolerance, the F value was 1.818 with $p = 0.188$. For emotional expression, the F value was 1.787 with $p = 0.192$. For psychological flexibility, the F value was 0.796 with $p = 0.180$. All p-values were greater than 0.05, suggesting that the assumption of equal variances was met.

Table 3 reports the results of ANCOVAs, which examine the differences between the experimental and control groups in the post-test of distress tolerance, emotional expression, and psychological flexibility.

According to this table, the results show that between the two groups in the distress tolerance ($F= 75.677$; $p\leq 0.05$; $\eta_p^2= .537$), emotional expression ($F= 86.581$ $p\leq 0.05$; $\eta_p^2= .562$) and psychological flexibility ($F= 108.993$; $p\leq 0.05$; $\eta_p^2= .601$) There was a significant difference. Eta-squared shows that the difference between the two groups in these variables was significant in total, and this difference is 0.537, 0.562, and 0.601, respectively. Each variable explains 53.7%, 56.2%, and 60.1% of the variance related to the difference between the two groups, respectively. This means that experimental conditions affected these variables (increasing distress tolerance, emotional expression, and psychological flexibility) and had significant therapeutic effects.

Table 3
ANCOVAs Results

Variables	SS	Df	MS	F	p-value	η_p^2	OP
Distress Tolerance	2173.264	1	2173.264	75.677	0.001	0.537	1
Emotional Expression	2468.367	1	2468.367	86.581	0.001	0.562	1
Psychological Flexibility	4480.731	1	4480.731	108.993	0.001	0.601	1

Note. SS = Sum of Squares; MS = Mean Square. η_p^2 = Partial Eta Squared; OP = Observed power.

In order to investigate which groups' means is higher in the post-test after

modifying by the Bonferroni test, adjusted means are reported in Tables 4.

Table 4
Adjusted Means Difference Results

Variables	Group (I)	Group (J)	MD (I-J)	Std. Error	p-value
Distress Tolerance	EG	CG	18.13	1.163	0.001
Emotional Expression	EG	CG	21.54	0.765	0.001
Psychological Flexibility	EG	CG	20.47	0.946	0.001

Note. EG = Experimental Group; CG = Control Group; MD = Mean Difference.

According to [Table 4](#), there was a significant mean difference between the two groups in terms of distress tolerance, emotional expression, and psychological flexibility. Thus, the mean scores of the experimental group in the post-test for these variables were higher than those of the control group. This indicates that the MSC program effectively improved people with SAD.

4. Discussion

The current study aimed to evaluate the effectiveness of the Mindful Self-Compassion (MSC) program on distress tolerance, emotional expression, and psychological flexibility in individuals with social anxiety disorder (SAD). The results indicated that the MSC program significantly increased distress tolerance, emotional expression, and psychological flexibility among participants with SAD. Notably, a significant difference was found between the experimental and control groups in the post-test measurements of these variables, with a large effect size observed. Therefore, it appears that the MSC program is effective in enhancing distress tolerance, emotional expression, and psychological flexibility in patients with this disorder.

According to the present study's results, individuals with SAD in the MSC intervention group showed a significant increase in scores on the posttest of distress tolerance compared to individuals in the control group. This study has been the first to use MSC intervention to improve the factors that maintain SAD, including low distress tolerance. Therefore, no similar study has

been conducted on individuals with SAD to compare the results. However, research evidence in other fields has shown that mindfulness training and self-compassion can effectively increase individuals' distress tolerance. For example, [Taghipuor et al. \(2023\)](#) conducted a pilot study showing that compassion-based mindfulness training improved distress tolerance scores in students with generalized anxiety disorder. Likewise, [Homayounfar et al. \(2023\)](#) showed that mindfulness training based on compassion improved worry and distress tolerance scores in mothers of children with intellectual disabilities. Overall, [Pérez-Aranda et al. \(2021\)](#) showed that mindfulness and self-compassion have a direct impact on symptoms of anxiety and depression, demonstrating this effect through increased resilience or distress tolerance.

One way to explain these findings is that individuals with low distress tolerance evaluate the emotional situation negatively and feel that they are unable to tolerate discomfort or distress. Thus, they make a great effort to avoid negative emotional experiences and use quick solutions to reduce such experiences ([Dempsey, 2019](#)). Distress tolerance is also related to emotion regulation ([Laposa et al., 2015](#)). Accordingly, since the MSC intervention focuses on training in emotional acceptance, awareness, and efficient processing without distortion, along with a foundation in self-compassion, it can help improve emotion regulation. In fact, increasing self-compassion is essential for effective emotion regulation. By activating the safety and relief systems, self-compassion helps individuals confront their

difficult emotions with greater acceptance and understanding, enabling them to manage these feelings more effectively. Also, Self-compassion requires mindfulness and conscious awareness of one's emotions, both of which are integral to the MSC intervention (Neff and Germer, 2013). Thus, by increasing self-compassion and mindfulness, individuals do not avoid their distressing and painful emotions but approach them with kindness, acceptance, and a sense of shared humanity (Neff, 2003). This may have therapeutic benefits for individuals with SAD, as it has been shown that these individuals have negative appraisals of social situations, which result in heightened emotional and physiological arousal that they ultimately avoid rather than confront (Katz et al., 2017; Gregory & Peters, 2017; Tolbert & Pinquart, 2015; Laposa et al., 2015). This non-acceptance and avoidance may contribute to the maintenance of SAD symptoms. Therefore, MSC intervention can make individuals more aware of their condition by increasing tolerance and non-avoidance.

According to the present study's results, individuals with SAD in the MSC intervention group showed a significant increase in scores on the posttest of emotional expression compared to individuals in the control group. This study is the first to use MSC intervention to improve the factors that maintain SAD, including low emotional expression. Therefore, no similar study has been conducted on individuals with SAD to compare the results. However, research evidence in other fields has shown that mindfulness training and self-compassion

can effectively increase individuals' emotional expression. For example, Taghipuor et al. (1402) showed that mindfulness training based on compassion, in addition to improving distress tolerance scores, can effectively reduce emotional inhibition and improve its expression in students with generalized anxiety disorder. Habibi et al. (1401) also showed that the mindfulness-based compassion training program can impact the rejection of negative emotions and difficulty performing goal-directed behavior in mothers of children with phenylketonuria. Thus, mindfulness-based compassion as an emotion regulation strategy can have a shock-absorbing and protective role in stressful situations and provide more available emotional resources for coping with and accepting difficult situations.

To clarify these findings, it can be stated that the MSC program supports patients in strengthening their calming systems, which they can then use to regulate their motivational states and emotions, such as fear, anger, or disgust. Additionally, through various techniques, patients are guided to develop a compassionate motivational system. This process enhances their ability to feel compassion for others, receive compassion from others, and foster self-transformation (Leaviss & Uttley, 2015). This training fosters intelligent emotional growth, helping individuals learn to manage unpleasant emotions and engage with negative feelings in a healthy way. It focuses on regulating emotions by moderating negative feelings and enhancing positive ones. By promoting awareness of emotions and encouraging a personal understanding of

them, this approach increases self-awareness and mindfulness. As a result, individuals develop better self-control and express their emotions more appropriately. Therefore, teaching self-compassion during treatment can enhance emotional integration, encourage adaptive behaviors, and improve the understanding of both positive and negative emotions (Woolf-King et al., 2019).

According to the present study's results, individuals with SAD in the MSC intervention group showed a significant increase in scores on the posttest of psychological flexibility compared to individuals in the control group. This study has been the first to use MSC intervention to improve the factors that maintain SAD, including low psychological flexibility. Therefore, no similar study has been conducted on individuals with SAD to compare the results. However, research evidence in other fields has shown that mindfulness training and self-compassion can effectively increase individuals' psychological flexibility. For example, in a study, Poursaleh and Sarparast (2023) showed that the MSC program can effectively improve psychological flexibility and reduce anxiety during the Coronavirus outbreak. Similarly, Cheng et al. (2021) concluded in research that psychological inflexibility, along with closely related concepts such as mindfulness and self-compassion, affects people with PTSD.

To explain these findings, individuals who participate in the MSC intervention learn to view their experiences from a broader perspective. This approach allows them to

perceive their situations more objectively and with greater depth, rather than fixating on painful issues and ruminating on them continuously (Brown & Ryan, 2003). In contrast, by enhancing their awareness and engagement with events, they move away from cognitive fusion (rumination) and experiential avoidance. Instead, they come to see situations as manageable, consider alternative justifications, and are able to generate multiple solutions to the problems they face (Hayes et al., 2011). Ultimately, they develop a more flexible approach to dealing with complex emotions and events, leading to more adaptive responses to failure (Waring & Kelly, 2019).

The present study had several limitations, including a lack of long-term follow-up and limited generalizability to other populations due to differences in age, education, and geography. Another limitation was that the data were collected using self-report instruments, which can be subject to bias. Despite being a pioneering study, it would be beneficial to replicate it with larger and more controlled samples to allow for a thorough re-evaluation of the results. Correspondingly, in order to investigate the therapeutic effect in the long term, it is better to carry out a follow-up. Additionally, it is recommended that individuals receive appropriate and continuous training to enhance mindfulness, increase self-compassion, reduce rumination, and diminish experiential avoidance. This training may help individuals confront their weaknesses and work towards improvement.

5. Conclusion

In summary, the present study aimed to investigate the effectiveness of the MSC program on distress tolerance, emotional expression, and psychological flexibility in individuals with SAD, which was to expand and complement previous work and increase the richness of the literature on therapeutic and educational interventions in social anxiety disorder. The results showed that the MSC program effectively increased distress tolerance, emotional expression, and psychological flexibility. These results could be due to the aforementioned reasons, including exercising mindfulness, cultivating loving-kindness, finding one's compassionate voice, living intensely, facing difficult emotions, exploring challenging relationships, and embracing life. Therefore, it seems that the mindfulness self-compassion program has positive benefits for patients with social anxiety disorder.

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Conflict of Interest

The Authors declare that there is no conflict of interest with any organization. Also, this research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

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