

Examination of the Effect of EMDR Therapy in Adolescents with Specific Phobia and Test Anxiety

Nazmiye Gökçe YILDIRIM^(*), Kader BAHAYI^(**)

Abstract

This research is about the investigation of the Effect of EMDR Therapy on Adolescents between 15-17 years of age with Specific Phobia and Test Anxiety. The first hypothesis of the study is that "Adolescents who are treated with EMDR therapy will significantly decrease their fear scores of the phobia object (delusion, affective and total)." The second hypothesis is that "Sub-score and total test anxiety scores of adolescents who receive EMDR therapy will decrease significantly." The data on this research, collected by using Demographic Information Form, Test anxiety Inventory, DSM-5 Specific Phobia Scale for 11-17 Year-Old Children; through 31 adolescents living in Antalya (Turkey) and visiting the counselling centre for treatment between February 2022 and July 2022. Data were obtained and analysed in SPSS 25.0 package program. In the study, test anxiety sub-scale and total scores of adolescents who is receiving EMDR therapy with test anxiety, also total specific phobia scores of adolescents with specific phobia were compared as pre-test and post-test. As a result of the 5-session EMDR therapy, it was concluded that test anxiety sub-scale scores and total scores as well as specific phobia total scores decreased significantly in post-test measurement. Based on the research findings, it was considered that EMDR therapy gives positive results on adolescents with specific phobia and test anxiety.

Keywords: EMDR, Specific Phobia, Test Anxiety, Adolescence Period.

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^(*) Master's Student, Psychological Counselor, Nişantaşı University, Graduate School of Education, Department of Psychology.

E-mail: gokceesas@hotmail.com

ORCID ID: <https://orcid.org/0000-0003-1685-3510>

^(**) Asst. Prof., Nişantaşı University, Department of Psychology.

E-mail: kader.bahayi@nisantasi.edu.tr

ORCID ID: <https://orcid.org/0000-0001-9173-9780>



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Özgül Fobi ve Sınav Kaygısı Olan Ergenlerde EMDR Terapinin Etkisinin İncelenmesi

Nazmiye Gökçe YILDIRIM^(*), Kader BAHAYI^(**)

Öz

Bu araştırma özgül fobiye ve sınav kaygısına sahip 15-17 yaş arası bireyler üzerinde EMDR terapisinin etkisinin incelenmesi amacıyla gerçekleştirilmiştir. Araştırmanın birinci hipotezi "EMDR terapi uygulanan ergenlerin fobi nesnesine karşı korku puanları (kuruntu, duyuşsal ve toplam) anlamlı ölçüde düşecektir." İkinci hipotez ise "EMDR terapi uygulanan ergenlerin alt puan ve toplam sınav kaygısı puanları anlamlı ölçüde düşecektir." şeklindedir. Araştırmada veriler, "DSM-5 11-17 yaş Çocuk Özgül Fobi Ölçeği", "Demografik Bilgi Formu", "Sınav Kaygısı Ölçeği" kullanılarak Şubat 2022-Temmuz 2022 tarihleri arasında Antalya'da ikamet eden ve bir danışmanlık merkezine tedavi amacıyla gelen 31 ergen üzerinden edinilmiştir. Çalışmanın sonuçları SPSS 25.0 paket programında gerçekleştirilmiştir. Araştırmada, EMDR terapisi alan sınav kaygılı ergenlerin, sınav kaygısı alt boyut ve toplam puanları ve özgül fobisi olan ergenlerin toplam özgül fobi puanları, ön test ve son test olarak karşılaştırılmıştır. 5 oturumluk EMDR terapisinin sonucunda, sınav kaygısı alt boyut puanları ve toplam puanları ile özgül fobi toplam puanlarının, önemli ölçüde azaldığı sonucuna varılmıştır. Sonuç olarak, özgül fobisi ve sınav kaygısı olan ergenler üzerinde, EMDR terapisi olumlu sonuçlar vermektedir.

Anahtar Kelimeler: EMDR, Özgül Fobi, Sınav Kaygısı, Ergenlik Dönemi.

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(^{*}) Yüksek Lisans Öğrencisi, Psikolojik Danışman, Nişantaşı Üniversitesi, Eğitim Enstitüsü, Psikoloji Anabilim Dalı.

E-posta: gokceesas@hotmail.com

ORCID ID: <https://orcid.org/0000-0003-1685-3510>

(^{**}) Dr. Öğr. Üyesi, Nişantaşı Üniversitesi, Psikoloji Anabilim Dalı.

E-posta: kader.bahayi@nisantasi.edu.tr

ORCID ID: <https://orcid.org/0000-0001-9173-9780>



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Introduction

Fear is a reaction to a specific cause, with the thought of being physically or emotionally harmed by an object or creature. Fear has a threat focus. On the other hand, anxiety is defined as emotional reactions at the level of expectation, which is assumed to be dangerous, as it is thought to be real, has not yet occurred and the probability of the presence of this danger is very low.¹

It has been noted that some of the most common psychiatric title among children and adolescents is anxiety disorders.² Specific phobias, also known as simple phobias, are classified under anxiety disorders in the Diagnostic Statistical Manual 5 (DSM-5). A specific phobia is defined as an irrational or excessive fear of certain objects or situations.³ When the person sees these objects, panic symptoms can be experienced, and he/she may prefer to avoid them. Avoidance is the effort to stay away from the object or situation in order not to experience the fear again.

Recently, it has become a necessity for individuals to take exams for academic and career development. Turkish educational system has a wide variety of exams for academic success. These exams start in primary school years. It is likely that the number of people experiencing test anxiety has increased in Turkey and many other countries since exams have become compulsory. Exam anxiety includes the worries and anxieties associated with the exam. Apart from the educational degree or grades in Turkey, it was noted that the prevalence of test anxiety is between 65% and 70%.⁴ Individuals having test anxiety may encounter undesirable results by not being able to reflect their potential during the exam due to high level of anxiety. For example, the performance grades of a student who is constantly anxious during exams are lower, because his individual abilities and academic abilities, even his IQ score may not reflect his potential at school without exams.⁵

Eye Movement Desensitization and Reprocessing (EMDR) is an empirically based, holistic approach to psychotherapy for Post-Traumatic Stress Disorder (PTSD) in the beginning.⁶ EMDR is based on the theory of Adaptive Information Processing (AIP), which argues that the primary cause of psychopathology is information that cannot be adequately processed by the brain.⁷

1 Suadiye, Yağmur, and Arzu Aydın. "Anksiyete Bozukluğu Olan Ergenlerde Bilişsel Hatalar," *Klinik Psikiyatri Dergisi* 12(4), (2009): 173, https://jag.journalagent.com/kpd/pdfs/KPD_12_4_172_179.pdf

2 Emiroğlu, F. N., and Burak Baykara. "Yaygın Anksiyete Bozukluğu, Panik Bozukluğu, Özgül Fobi, Sosyal Fobi," *Çocuk ve Ergen Psikiyatrisi Temel Kitabı*. (Ankara: Hekimler Yayın Birliği, 2008), 323.

3 Amerikan Psikiyatri Birliği, *Ruhsal Bozukluklarının Tanısal ve Sayımsal El Kitabı*, Beşinci Baskı (DSM-5), çev. Ertuğrul Köroğlu. (Ankara: Hekimler Yayın Birliği, 2013), 115.

4 Davranış Bilimleri Enstitüsü, *Mutlu Çocuk Mutlu Öğrenci* (İstanbul: DBE Yayınları, 2015), 58.

5 Hembree Ray. "Correlates, Causes, Effects, and Treatment of Test Anxiety," *Review of Educational Research* 58(1) (1988):77, <https://doi.org/10.3102/00346543058001047>

6 Shapiro Francine EMDR: *Göz Hareketleri ile Duyarsızlaştırma ve Yeniden İşleme. Temel Prensipler, Protokoller ve Prosedürler*. (İstanbul: Okyanus Yayınevi, 2019), 60.

7 Ibid.

Adolescence

The period between childhood and adulthood, where rapid physical growth, psychosocial change and sexual development occur, is called adolescence. The starting and ending ages of adolescence vary according to social roles and statuses in different cultures. The World Health Organization (WHO) accepted adolescence as the age range of 10-19, and defined the age range of 15-24 as youth and the age range of 10-24 as young people. According to the Turkish government, 11 years of age and before are considered childhood, 11-15 years of age as adolescence, 15-18 years of age as adolescents, and above 18 years of age as adulthood. Yavuzer stated the onset of puberty in our country as an average of 10-12 years for girls and 12-14 years for boys.⁸

During adolescence, adolescents may undergo many emotional, physiological and psychological changes. These changes can be distressing for adolescents. In addition to physical changes such as hair growth, muscle development, acne and giving much importance to physical appearance, the need for independence, the desire for economic freedom, the desire for sexual and emotional intimacy, emotional and social maturity, and the increase in interest in social events and politics are observed as the remarkable changes in this period. Moreover, existential questioning is one of the most widely seen behaviors among adolescents. For instance, they may say certain questions such as “*Who am I?*” “*What am I?*” “*What will I be?*” “*What is my place in society?*” to search for their identities. In this process, which is critical, cynical, skeptical and conflicting with parents, the adolescent prefers to spend much of their time with their peers who rebel like himself, and peer acceptance comes to an important experience for the adolescent other than their family relationships.⁹

Test Anxiety

Test anxiety is defined as the emotional, physiological, and behavioral response to an upcoming test resulting from potentially negative results.¹⁰ In test anxiety, there are two dimensions including interfering negative thoughts and natural autonomic arousal. Negative thoughts are delusional thoughts that include the belief that the person will fail, that he will get negative reactions after the result, and that he is incapable.¹¹ “*What if I fail?*”, “*If I fail this exam?*”, “*What if I faint in the exam?*”, “*What if I forget everything I know?*”, “*My voice shakes?*”, “*If no one likes it?*”, “*I fail*”, “*I am not enough*”, “*I am incompetent*” are among the questions and distorted beliefs regarding exam performance of individuals having high level of test anxiety. Constant self-criticism and lack of self-confidence, including “*I won't be able to win*”, can be considered as a psychological symptom for test anxiety.¹² Natural autonomic arousal includes physiological

8 Haluk Yavuzer, *Anne-Baba ve Çocuk* (İstanbul: Remzi Kitabevi, 2010), 245.

9 Atalay Yörükoğlu, *Çocuk Ruh Sağlığı* (İstanbul: Özgür Yayınları, 2008), 377-379.

10 Moshe Zeidner, *Test Anxiety: The State of the Art* (1998), 4.

11 Irwin G. Sarason, and Barbara R. Sarason. “*Test Anxiety*,” *Handbook of Social and Evaluation Anxiety* içinde (Boston: Springer, MA, 1990): 475.

12 Davranış Bilimleri Enstitüsü, *Mutlu Çocuk Mutlu Öğrenci* (İstanbul: DBE Yayınları, 2015)

reactions including sweating, contraction, increased breathing rate, heart palpitations, tremors, stomach and intestinal problems, headache, feeling tired or weak, sleep-related problems, tics, and impulse control problems.¹³

Naveh-Benjamin et al. divided students experiencing test anxiety into two groups in their research.¹⁴ They defined the characteristics of the first group as students who lacked knowledge about their study skills and therefore had negative academic results, and therefore experienced test anxiety. The second group is the students who have sufficient knowledge about study behaviors but lacking skills and having test anxiety.¹⁵ The anxiety of the students in the second group that they will not be successful in the exam, prevent them from using their existing knowledge properly. Compared to the students in the first group, the students in the second group can transfer their knowledge better in environments where they do not feel pressure for the exam.¹⁶ Another study by Veenman, Kerseboom, and Imthorn, concluded that the metacognitive skills of in the first group including students lacking skills were low.¹⁷ Metacognitive skills are concepts which include cognitive processes regarding thinking about thinking, knowing about knowing, including metacognitive processes including comprehension, understanding and remembering¹⁸ In the previous literature, there have been studies which include many different results related to the causes of test anxiety. For instance, in a study in Australia, King talked about family dynamics from a psychodynamic perspective and argued that children who give importance to approval from other family members about the test results experienced higher levels of test anxiety.¹⁹ Today, test anxiety has been treated through behavioral and cognitive interventions. For example, in their study, Zeidner and Mathews concluded that people with lower negative self-perception, socio-emotional characteristics and lower self-efficacy perceptions, and people with ineffective study routines tend to experience higher test anxiety.²⁰ However, considering the DSM-4 criteria, McDonald noted that excessive test anxiety can be evaluated in the context of social phobia.²¹ Social phobia

13 Sarason and Sarason. "Test Anxiety," 486.

14 Naveh-Benjamin et al. "Two Types of Test-Anxious Students: Support for an Information Processing Model," *Journal of Educational Psychology* 79.2 (1987): 134, <https://doi.org/10.1037/0022-0663.79.2.131>

15 Veenman et al. "Test Anxiety and Metacognitive Skillfulness: Availability versus Production Deficiencies," *Anxiety, Stress and Coping* 13.4 (2000): 404, <https://doi.org/10.1080/10615800008248343>

16 Martin V. Covington and Carol L. Omelich, "I Knew it Cold Before the Exam": A Test of the Anxiety-Blockage Hypothesis," *Journal of Educational Psychology* 79.4 (1987): 396, <https://doi.org/10.1037/0022-0663.79.4.393>

17 Veenman et al. "Test Anxiety and Metacognitive Skillfulness," 401.

18 Faruk Manav, "Metabiliş Kavramı," *Bingöl Üniversitesi Sosyal Bilimler Enstitüsü Dergisi* 1.2 (2011): 105.

19 King et al, "Fears of Children and Adolescents: A Cross-sectional Australian Study Using the Revised - fear survey Schedule for Children," *Journal of Child Psychology and Psychiatry* 30. 5 (1989): 26, <https://doi.org/10.1111/j.1469-7610.1989.tb00789.x>

20 Moshe Zeidner and Gerald Mathews. "Evaluation Anxiety," *Handbook of Competence and Motivation* 141 (2005): 160.

21 Angus S McDonald, "The Prevalence and Effects of Test Anxiety in School Children," *Educational Psychology* 21.1 (2001): 90. <https://doi.org/10.1080/01443410020019867>

is characterized by a marked and persistent fear of social or performance-requiring situations, accompanied by shame.²² In their study, King, Ollendick and Gullone argued that test anxiety met the diagnostic criteria of social phobia and simple phobia, and childhood anxiety disorders including separation anxiety, generalized anxiety and avoidant personality disorder.²³ In the study conducted by Beidel and Turner with 25 students with high test anxiety, they stated that 60% of the children met anxiety disorder diagnoses in DSM III.²⁴ Among them, 4 children met the criteria for social phobia, 1 child for specific phobia, 2 children for separation anxiety disorder, and 6 children for anxiety disorder.

Specific Phobias

Specific phobia, also known as simple phobia, is a type of anxiety disorder characterized by fear of a specific object or situation, leading to avoidance. Excessive and irrational fear manifests itself in behavioral, cognitive and physiological symptoms which negatively affect the daily functioning of the person.²⁵ Lang in 1968 explained the nature of the fear response inherent in specific phobias with three systems model.²⁶ According to this model, fear is reflected by autonomic symptoms including breathing and increased heart rate, by subjective feelings of anxiety including loss, harm, injury, and by avoidance or escape behavior such as avoiding the phobic stimulus. Besides, children, may display a number of other behaviors such as crying, anger, tantrums, freezing, in addition to avoidance, which is the typical fear response.²⁷

For the diagnosis of specific phobia, the symptoms are expected to be present for at least 6 months and the DSM-5 diagnostic criteria are as follows:

1. Significant level of fear or anxiety about a specific object or situation (e.g., getting somewhere with a vehicle, insects, injections, blood).
2. Fear or anxiety in children can be manifested by crying, yelling, freezing, or clinging to someone.
3. The object or situation which is the source of the phobia directly causes fear or anxiety.
4. The person avoids the phobic object or situation or encounter it with intense fear or anxiety.

22 Amerikan Psikiyatri Birliđi, *Ruhsal Bozukluklarının Tanısal ve Sayımsal El Kitabı*, Beşinci Baskı (DSM-5), çev. Ertuğrul Körođlu. (Ankara: Hekimler Yayın Birliđi, 2013), 116.

23 King et al. "Test Anxiety in Children and Adolescents." *Australian Psychologist* 26.1 (1991): 27, <https://doi.org/10.1080/00050069108258829>

24 Deborah C. Beidel and Samuel M. Turner. "Comorbidity of Test Anxiety and Other Anxiety Disorders in Children," *Journal of Abnormal Child Psychology* 16.3 (1988): 284, <https://doi.org/10.1007/BF00913800>

25 Mücahit Öztürk, *Anne, Baba ve Eđitimciler İçin Çocuk Psikiyatrisi* (İstanbul: Uçurtma Yayınları, 2007), 219.

26 Peter J. Lang, "Fear Reduction and Fear Behavior: Problems in Treating a Construct." *Research in Psychotherapy Conference, 3rd, May-Jun, 1966, Chicago, IL, US*. American Psychological Association, 1968: 90-102, <https://doi.org/10.1037/10546-004>

27 Ollendick et al., "Phobias in Children and Adolescents: A Review." *Phobias* (2004): 247, <https://doi.org/10.1002/0470014113.ch5>

5. Fear or anxiety is disproportionate to the actual danger posed by the specific object or situation and to the socio-cultural contexts.

6. Fear, anxiety, or avoidance is persistent.

7. The fear, anxiety, or avoidance causes a clinically significant problem or impairment in social, work, school, or other important areas of functioning.

8. It cannot be explained by another psychiatric condition.

According to the DSM-5, there are five subcategories of specific phobia including as following:

1- Animal type including snake, spider, dog, cat, insect.

2- Nature-related and environmental type including height or lightning.

3- Situational type including elevator, flight, enclosed spaces.

4- Type of injury including blood, injection; seeing blood, seeing wounds, injection etc.

5- Other type including choking, vomiting, clown, loud noise

The causes of specific phobias have been studied for a long time by mental health professionals. The general common view is that phobias cannot be explained by a single reason but can be caused by many factors. For instance, the study by Merckelbach et al. stated that phobic objects cause some disruptions in the information processing process. Therefore, in pathological anxiety such as specific phobia, it is not possible to focus only on cognitive causes, as in other types of anxiety-evoking factors. They added that attention and inference functions of individuals are affected in anxiety disorders, and they also have attentional bias and judgmental bias related to the stimulus.²⁸

The origins of phobia were first explained by psychoanalytic theorists. According to psychoanalysts, phobias stem from problems which are much deeper than they appear. For instance, in the case of little Hans, Freud claimed that the reason for Hans' fear of horses was that he wanted to have sexual intercourse with his mother but was afraid of his father's punishment and was not accepted by his ego, and that his fear of the father shifted to another object and recurred as the fear of horses.²⁹

Evidence from behavioral genetic studies also shows that genetic disposition plays an important role in the etiology of specific phobias. Fyer, in his study, concluded that people with a specific phobia in their first-degree relatives also have phobias, so the phobia may be genetically inherited from the family.³⁰ As a result of another research conducted by Distel in 2008, it was stated that the variance of the genetic factor in specific phobia is found as one-third.³¹

28 Merckelbach et al., "The Etiology of Specific Phobias: A Review." *Clinical Psychology Review* 16.4 (1996): 352, [https://doi.org/10.1016/0272-7358\(96\)00014-1](https://doi.org/10.1016/0272-7358(96)00014-1)

29 Sigmund Freud, "Analysis of a Phobia in a Five-year-old Boy," *Standard Edition* 10.3 (1909), <https://tinyurl.com/55n66n2x>

30 Fyer et al., "Familial Transmission of Simple Phobias and Fears: A Preliminary Report," *Archives of General Psychiatry* 47.3 (1990): 255, <https://doi.org/10.1001/archpsyc.1990.01810150052009>

31 Distel Marijn et al., "Heritability of Self-reported Phobic Fear," *Behavior Genetics* 38.1 (2008): 30, <https://doi.org/10.1007/s10519-007-9182-z>

Studies on the experience of learned fear are conducted as classical conditioning experiments which were firstly conducted by Watson and Rayner. In this experiment, an 11-month-old baby named Albert was given a white mouse and he played with it fearlessly. Then the same mouse was given with a loud and disturbing noise that caused the baby to be afraid, and this was repeated 5 times. Later, even when Albert saw the white mouse without any noise, he gave reactions showing that he was worried.³² In another study, Mowrer explained the phobias with a 2-stage model. According to this model, the avoidance behavior, which occurs as a result of the conditioning processes in the formation of fear, causes the maintenance of the fear. As long as the person continues not to touch and stay away from the phobic object, they will not discover that this object is harmless and the phobia will continue. In this case, the avoidance behavior acts as a reinforcer.³³

Problem

Is EMDR therapy effective on adolescents for specific phobia and test anxiety?

Sub Problems

1. Is there a significant difference between pre-test post-test sub-scores and total test anxiety scores (opinion of others, own opinion, worries about the future, worries about preparation, mental and physical reactions, and total) of adolescents who received EMDR therapy?
2. Is there a significant difference between the pre-test and post-test specific phobia scale scores (anxiety and fear in the face of an object or a situation, avoiding an object or situation and total) of the adolescents who received EMDR therapy?

Research Hypotheses

H1: The fear scores of the phobia object (delusional, affective and total) of the adolescents who received EMDR therapy will decrease significantly.

H2: The sub-score and total test anxiety scores of the adolescents who received EMDR therapy will decrease significantly.

Limitations of the Research

The sample of the study is limited to 31 adolescents who applied to a psychological counseling center in Antalya with high specific phobia and test anxiety scale scores.

The qualifications to be measured in the research are limited to the qualifications measured by the Demographic Information Form, Exam Anxiety Scale, DSM 5- 11-17 Years Child Specific Phobia Severity Scale.

32 John B. Watson and Rosalie Rayner, "Conditioned Emotional Reactions," *Journal of Experimental Psychology* 3.1 (1920): 3, <https://doi.org/10.1037/h0069608>

33 O. Hobert Mowrer, "On the Dual Nature of Learning—A Re-interpretation of "Conditioning" and "Problem-solving,"" *Harvard Educational Review* (1947): 130, <https://psycnet.apa.org/record/1950-03076-001>

METHOD

Research Model

This research was conducted by using a single-group pretest-posttest experimental quantitative design.

Participants

Students who applied to a psychological counseling center in Antalya with the complaint of test anxiety and phobia. It includes male and female adolescents receiving high scores on the DSM-5 Specific Phobia Scale for 11-17-Year-Old Children and Test Anxiety Scales. The research was conducted with 31 participants.

Measurement Instruments

In this study, measurement instruments including “DSM-5 Specific Phobia Scale for 11–17-Year-Old Children”, “Demographic Information Form”, “Test Anxiety Inventory” were used for collecting data from participants.

DSM-5 Specific Phobia Scale for 11–17-Year-Old Children

“DSM-5 Specific Phobia Scale for 11–17-Year-Old Children”, which was adapted into Turkish by Şermin and colleagues in 2018. This scale measures the severity of specific phobia in children. It is a scale including 10 items that allows the evaluation and diagnosis specific phobia among children. It is designed to be completed by the child before clinical follow-up interviews, if the child has clinically significant specific phobia symptoms or has been diagnosed with a specific phobia, as well as afterwards. The first five items measure the child’s anxiety and fear in the face of the encountered object or situation, and the second five items measure the child’s avoidance of the object or situation.³⁴

Test Anxiety Inventory

The test anxiety scale was developed by Dilber POLAT and consists of 34 items related to one’s feelings and thoughts in test situations. The scale is filled by the child. While the lowest 34 points can be obtained from the scale, the highest 170 points can be obtained. The scale is in 5-point Likert type. Item ratings are (1) Never (2) Rarely (3) Sometimes (4) Often (5) Always. There is no reverse coded item in the scale. The sub-scales of the scale are “opinion of others”, “one’s own opinion”, “concerns about the future”, “concerns about preparation” and “general test anxiety”, “mental reactions and physical reactions”. The scale items are read by the person filling the scale and the total score is reached by summing up all the items’ scores.

34 Şermin Yalın Sapmaz et al., “The Validity and Reliability of the Turkish Version of the Specific Phobia-Child Form Severity Measure According to DSM-5,” *Thinking Man Journal of Psychiatry and Neurological Sciences* 31.4 (2018): 340, <https://doi.org/10.5350DAJPN2018310402>

Scoring of the scale is as follows:

0-78 point: Low Anxiety

79-125 point: Moderate Anxiety

126-170 point: It is scored as High Anxiety

Demographic Information Form

The demographic information form prepared by the researcher was created in order to obtain the personal information of the participants. The questions consist of information including the child's age, gender, high school level of education, number of siblings, personal achievement level, parents' age and education levels, average monthly income level of the family, parental marital status, family psychiatric diagnosis, medical disorder diagnosis, and regularly used drug history.

EMDR Therapy

EMDR Therapy consists of a sequential and comprehensive 8-step protocol. The first sessions of EMDR involve taking the client's history and providing information about EMDR. In the preparation phase, negative cognitions of the memory and corresponding images, emotions and sensations are taken from the client. Taking date and time record in all information is important to know the basic memory. After the first, worst, and last memories are retrieved, similar memories and triggers are learned. After the evaluation sessions are completed, the "depersonalization" phase is started. The goal is to reduce the discomfort level of that designated moment.

Data Collection and Analysis

Scales and forms suitable for the purpose of the research were selected for data collection. All of the data were collected from people who came to a counseling center in Antalya for treatment purposes. All data were collected between February and July 2022. Since the participants were younger than 18 years of age, consent was obtained from their parents with a consent form explaining the content and purpose of the study. In the study, the answers given to the scales were prepared for data analysis by entering the SPSS 25.0 software in order to examine the changes in the test anxiety and specific phobia levels of the participants before and after 5 sessions of EMDR intervention.³⁵ In order to determine which tests used in the measurements, normality tests were performed and it was examined whether the data showed a normal distribution. Values examined are Kolmogorov-Smirnov and Shapiro-Wilk values. After the normal distribution was determined, the "paired samples t-test" was applied to examine the pre-intervention and post-intervention score differences of test anxiety and specific phobia scores. Frequency distributions are given as descriptive statistics for the demographic variables of the participants.

35 IBM Corp. Released *IBM SPSS Statistics for Windows*, Version 25.0. Armonk, (NY: IBM Corp., 2017).

RESULTS

In this section, the statistical analyzes were applied based on the purpose of the research and the order of the research problems.

Descriptive Statistics

Table 1. Sociodemographic Characteristics of the Study Group Receiving Specific Phobia EMDR Intervention

Demographic Variables	Groups	F	%
<i>Grade</i>	9th grade	2	12.5
	10th grade	7	43.8
	11th grade	7	43.8
<i>Gender</i>	Girl	12	75.0
	Boy	4	25.0
<i>Age</i>	14	3	18.8
	15	3	18.8
	16	4	25.0
	17	6	37.5
<i>Number of Siblings</i>	1	3	18.8
	2	7	43.8
	3	5	31.3
	4	1	6.3
<i>Success Level</i>	Very good	3	18.8
	Good	8	50.0
	Middle	5	31.3
<i>Mother Education Level</i>	Primary school	8	50.0
	High school	3	18.8
	University	4	25.0
	Master	1	6.3
<i>Mother Age (Ort±Ss)</i>	45.9±5.95		
<i>Father Education Level</i>	Primary school	4	25.0
	High school	7	43.8
	University	3	18.8
	Master	1	6.3
	No Answer	1	6.3
<i>Father Age (Ort±Ss)</i>	51.10±6.57		
<i>Monthly Income</i>	5000 – 10000 TL	12	75.0
	+ 10000 TL	4	25.0
<i>Parent Marital Status</i>	The married	12	75.0
	Divorced	3	18.8
	Living Separately	1	6.3

Table 2. Sociodemographic Characteristics of the Study Group Receiving Exam Anxiety EMDR Intervention

Demografik Değişkenler	Gruplar	F	%
Grade	9th grade 10th grade 11th grade	15	100.0
Gender	Girl Boy	10 5	66.7 33.3
Age	14 15 16 17	9 6 6 6	60.0 40.0
Number of Siblings	0 1 2 3 4	4 3 7 5 1	46.7 6.7 26.7 13.3 6.7
Success Level	Good Middle	4 11	26.7 76.4
Mother Education Level	Primary school High school University Master	4 3 7 1	26.7 20.0 46.7 6.7
Mother Age (Ort±Ss)	44.9±3.95		
Father Education Level	Primary school High school University Master No Answer	2 5 6 2 2	13.3 33.3 40.0 13.3
Father Age (Ort±Ss)	50.71±2.69		
Monthly Income	0-2000 TL 2000-5000 TL 5000 – 10000 TL + 10000 TL Üzeri Yanıt Verilmemiş	1 2 7 3 2	6.7 13.3 46.7 20.0 13.3
Parent Marital Status	The married Divorced Living Separately No Answers	11 2 1 1	73.3 13.3 6.7 6.7

Table 3. Paired Samples T-Test Findings of Pre- and Post-Test Scores of Specific Phobia Levels of Adolescents Who Receiving EMDR for Specific Phobia

		\bar{x}	ss	\bar{x}_{sh}	t	p
Pair 1	Specific Phobia Test Raw score posttest	6.68	4.467	1.116	-12.21	<.001***
	Specific Phobia Test Raw score-pretest	29.31	5.827	1.456		
Pair 2	Specific Phobia Test Mean score posttest	.668	.446	.111	-12.21	<.001***
	Specific Phobia Test Mean score pretest	2.93	.582	.145		

*** $p < .001$

Paired groups t-test was performed to examine the pre- and post-test scores of specific phobia raw and mean scores in Table 3. Based on the research findings, the difference between adolescents' specific phobia post-test and pre-test scores was statistically significant ($t(14) = -12.21$; $p < .001$). In addition, the difference between the mean scores of specific phobia, pre-test and post-test scores were statistically significant ($t(14) = -12.21$; $p < .001$). According to the results, the scores obtained from the specific phobia scores before the EMDR intervention are significantly higher than the scores obtained after the intervention. After the intervention, it was determined that there was a significant decrease in the specific phobia scores of the adolescents after EMDR intervention.

Table 4. Paired Samples T-Test Findings of Pre- and Post-Test Scores of Test Anxiety Sub-Dimension and Total Scores of Adolescents Receiving EMDR Application for Test Anxiety

		N	\bar{x}	SS	\bar{x}_{sh}	t	p
Pair 1	Test Anxiety Total pre-test	15	67.07	12,050	3.111	-16,862	<.001***
	Test Anxiety Total post-test	15	125.00	14.101	3,641		
Pair 2	Opinion of others pre-test	15	22.60	6.412	1.656	-12,705	<.001***
	Opinion of others post-test	15	51.93	7,685	1984		
Pair 3	One's own opinion pre-test	15	11.93	3.283	.848	-7,745	<.001***
	One's own opinion post-test	15	26.80	7.153	1,847		
Pair 4	Anxiety about the future pre-test	15	15.40	4,579	1,182	-4,079	<.001***
	Anxiety about the future post-test	15	22.87	4,984	1,287		
Pair 5	Anxiety about preparation pre-test	15	7.87	2.264	.584	-5.884	<.001***
	Anxiety about preparation post-test	15	11.40	1,549	.400		
Pair 6	Mental and physical reactions pre-test	15	8.40	3,521	.909	-2,477	.027*
	Mental and physical reactions post-test	15	11.20	2,541	.656		

*** $p < .001$ * $p < .05$

Paired groups t-test was performed to examine the pre- and post-test score differences of test anxiety sub-dimension and total scores in Table 4. According to the findings, the difference in test anxiety total posttest and pretest scores of adolescents was statistically significant ($t(13) = -16.86$; $p < .001$). In addition, the differences in the pre- and post-test scores of the opinion of others sub-scale were found to be statistically significant ($t(13) = -12.70$; $p < .001$).

The differences in self-view sub-scale pre- and post-test scores were found to be statistically significant ($t(13) = -7.74$; $p < .001$). The differences in the pre- and post-measurement scores of the concerns about the future sub-scales were found to be statistically significant ($t(13) = -4.07$; $p < .001$). The differences in pre- and post-test scores of concerns about preparation subscale were found as statistically significant ($t(13) = -5.88$; $p < .001$). The differences in pre- and post-measurement scores of the mental and physical reactions sub-scale were statistically significant ($t(13) = -2.47$; $p < .05$). Based on the findings, the scores obtained from the test anxiety sub-scales and total scores before the EMDR intervention are significantly higher than the scores obtained after the application. After the intervention, it was determined that there was a significant decrease in the test anxiety sub-scales and total scores of test anxiety.

Discussion

In EMDR therapy, unlike other behavioral therapies, the primary goal is to process traumatic memories and intrusive thoughts from previous negative learning experiences. In addition,

while some specific types of phobias such as fear of insects, fear of heights, fear of snakes, and fear of storms may be suitable for in vivo exposure sessions, EMDR therapy is more suitable for phobia types such as drowning or accidents. Baeyens also stated that some people may be more traumatized by exposure treatment.³⁶ In addition, exposure treatments can be medically risky for some patients. For example, the consequences of exposing an animal to a client with a phobia of poisonous animals may be unpredictable. Another disadvantage of exposure treatment is that the client may not want to continue with the treatment. De Jongh, Broeke and Renssen concluded that EMDR therapy would be more appropriate in the treatment of spider phobia if there is a time or intervention-related limitation.³⁷ Although adolescents with specific phobia and test anxiety reported an increase in their anxiety levels during the desensitization phase of their worst memories with EMDR therapy, it was noted that their anxiety levels decreased with repeated exposure. For all these reasons, EMDR therapy is an effective psychotherapy method for phobias and anxiety.

Test anxiety is a common type of anxiety in Turkey and all over the world. Feeling academically successful and competent has an important place for an individuals' future. For this reason, there is a plenty of research on test anxiety in the literature. Studies with EMDR indicate that there are significant improvements in terms of decreasing test anxiety with a limited number of sessions. According to the results of the research, the scores obtained from the test anxiety sub-scale and total scores before EMDR therapy are significantly higher than the scores obtained after the intervention. Maxfield and Melnyk applied a single session of EMDR therapy to 17 students with test anxiety and noted that the test anxiety level of the students decreased from 90% to 50% with EMDR intervention.³⁸ In studies comparing EMDR with different psychotherapy methods, it has been concluded that EMDR therapy provides a lower test anxiety test score than other therapeutic approaches. Stevens and Florell applied a single session of rational emotional therapy (RET) and EMDR therapy to a total of 62 undergraduate students and concluded that EMDR therapy was more effective on test anxiety score than RET.³⁹ Cook-Vienot and Taylor applied EMDR therapy and biofeedback/stress training program to 30 undergraduate students with high test anxiety and concluded that EMDR therapy was more effective than Biofeedback/Stress Training Program.⁴⁰

36 Frank Baeyens et al., "The Content of Learning in Human Evaluative Conditioning: Acquired Valence Is Sensitive to US-Revaluation." *Learning and Motivation* 23.2 (1992): 209, [https://doi.org/10.1016/0023-9690\(92\)90018-H](https://doi.org/10.1016/0023-9690(92)90018-H)

37 A. De Jongh, E. Ten Broeke, and M.R. Renssen, "Treatment of Specific Phobias with Eye Movement Desensitization and Reprocessing (EMDR): Protocol, Empirical Status, and Conceptual Issues," *Journal of Anxiety Disorders* 13.1-2 (1999): 69-85, [https://doi.org/10.1016/S0887-6185\(98\)00040-1](https://doi.org/10.1016/S0887-6185(98)00040-1)

38 Louise Maxfield and W.T. Melnyk. "Single session treatment of test anxiety with eye movement desensitization and reprocessing (EMDR)." *International Journal of Stress Management* 7.2 (2000): 97, <https://doi.org/10.1023/A:1009580101287>

39 Michael J. Stevens and Dan W. Florell. "EMDR as a Treatment for Test Anxiety," *Imagination, Cognition and Personality* 18.4 (1999): 293, <https://doi.org/10.2190/FJWQ-HKQQ-UEJW-6VLH>

40 Rosemary Cook-Vienot and Raymond J. Taylor. "Comparison of Eye Movement Desensitization and Reprocessing and Biofeedback/stress Inoculation Training in Treating Test Anxiety," *Journal of EMDR*

Based on the results of the Specific phobia scale applied in the study, the scores obtained from the specific phobia scores before the EMDR therapy were significantly higher than the scores obtained after the therapy. A study examining the effectiveness of EMDR therapy found that EMDR was more effective than computerized exposure therapy in the treatment of spider phobia.⁴¹ De Jongh and Ten Broeke described the lasting effect of 2 sessions of EMDR therapy in choking phobia, which is characterized by swallowing food and liquids.⁴²

Conclusions

This research was conducted to measure the effect of EMDR therapy on adolescents with specific phobia and test anxiety. The hypotheses of the research are “Adolescents who are treated with EMDR therapy will significantly decrease their fear and anxiety of the phobia object.” and “Test anxiety scores of adolescents who receive EMDR therapy will decrease significantly.” As a result of 5 sessions of EMDR therapy applied to a total of 31 adolescent clients with specific phobia and test anxiety, the hypotheses were supported by concluding that test anxiety sub-scales and total scores and specific phobia total scores decreased significantly after EMDR intervention. The findings of the research are listed as following:

1. After the application of EMDR Therapy, the opinions of others subscale of test anxiety decreased significantly.
2. After the application of EMDR Therapy, the opinions of oneself subscale of test anxiety decreased significantly.
3. After the application of EMDR Therapy, concerns about future subscale of test anxiety decreased significantly.
4. After the application of EMDR Therapy, concerns about preparations subscale of test anxiety decreased significantly.
5. After the application of EMDR Therapy, mental and physical reactions subscale of test anxiety decreased significantly.
6. After the application of EMDR Therapy, test anxiety total score decreased significantly.
7. A significant decrease was found in the total scores specific phobia after EMDR intervention.

Recommendations

Based on the findings of the research, recommendations for future research and applications may include as following:

Practice and Research 6.2 (2012): 68, <https://doi.org/10.1891/1933-3196.6.2.62>

41 Peter Muris et al., “Treating Phobic Children: Effects of EMDR Versus Exposure,” *Journal of Consulting and Clinical Psychology* 66.1 (1998): 196, <https://doi.org/10.1037/0022-006X.66.1.193>

42 De Jongh and Erik Ten Broeke. “Treatment of Choking Phobia by Targeting Traumatic Memories with EMDR: A Case Study,” *Clinical Psychology & Psychotherapy: An International Journal of Theory and Practice* 5.4 (1998): 264-2 69, [https://doi.org/10.1002/\(SICI\)1099-0879\(199812\)5:4<264::AID-CPP176>3.0.CO;2-M](https://doi.org/10.1002/(SICI)1099-0879(199812)5:4<264::AID-CPP176>3.0.CO;2-M)

1. The effect of EMDR therapy on test anxiety with primary and secondary school groups will contribute to the field.
2. Comparative studies of EMDR therapy with other psychotherapy schools will benefit the field.
3. Researching the effect of EMDR therapy applied as a group will contribute to the field.
4. It is beneficial for school counselors to use EMDR therapy on their students with test anxiety.
5. Examining the differences in the academic success rates of people with test anxiety and those who receive EMDR therapy will make a useful contribution to the field.
6. Conducting a follow-up study with individuals with specific phobia and test anxiety will also help to measure the long-term effects of EMDR therapy.
7. Since most of the participants are female adolescents, it would be beneficial to conduct a research study consisting of a more heterogeneous group including equal numbers of male and female students.

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