

**Research Article****The effect of eye movement and desensitization by reprocessing on depression in adolescents with Thalassemia****Shahnavazi<sup>1</sup> A, Rigi<sup>2\*</sup> Kh, Allahyari<sup>3</sup> E and Parv<sup>4</sup> D, Rahdar<sup>5</sup> Z**<sup>1</sup>MSc in Nursing , department of Nursing,School of Nursing & Midwifery,  
University of Medical Sciences Iranshahr, Iranshahr, Iran<sup>2</sup>BSc in Midwifery, department Of Midwifery,School of Nursing & Midwifery,  
University of Medical Sciences Iranshahr, Iranshahr, Iran<sup>3</sup>MSc in Nursing, Iran Hospital, University of Medical Sciences Iranshahr, Iranshahr, Iran.<sup>4</sup>PhD of Psychology, School of Nursing & Midwifery,  
University of Medical Sciences Iranshahr, Iranshahr, Iran<sup>5</sup>BSc in Nursing School of Nursing & Midwifery,  
University of Medical Sciences Iranshahr, Iranshahr, Iran

\*Corresponding author Email: Ashahnavazial@gmail.com

**ABSTRACT**

**Introduction:** Thalassemia is the most common genetic diseases in the world and especially in our country. For many reasons, including chronic disease, health care costs, fear of early death, disease statues led to Depression, psychological and social problems in thalassemia patients. This study aimed to determine the efficacy of eye movement desensitization and processing efficiency of this method and to decreasing the Depression of children with thalassemia.

**Method:** This study was a clinical trial. 60 thalassemic patients aged 20-12 years were randomly assigned to two groups. Demographic questionnaire and Beck Depression Inventory were used to collection of data. The trial of eye movement desensitization and reprocessing in 3 sessions on alternate days for 45 to 30 minutes after. Depression before and after the intervention were measured velocity. An analysis by descriptive statistics, t-test and paired t-test, Mann-Whitney and Wilcoxon tests Non parameter equal to the Kolmogorov-Smirnov test was performed.

**Results:** This study shows that the mean or average level of Depression children with thalassemia before implementing EMDR therapy group  $27/73 \pm 3/52$  was After doing EMDR therapy to  $17/80 \pm 2/36$  was Which is greatly reduced compared to pre-intervention and the results were statistically significant ( $P < 0.001$ ). The result showed that EMDR has main full effect on decreasing the symptoms of Depression.

**Conclusion:** The result showed that EMDR can useful through having the influence on integration information processing an effective method to treat or reduce Depression children with thalassemia.

**Keywords:** Eye movement desensitization and reprocessing, Depression and thalassemia

**INTRODUCTION**

Thalassemia is a common genetic disease in the world and especially in our country (1). Due to genetic disorders, in thalassemia syndrome red blood cell hemoglobin construction has constructional defect, which causes anemia (2). This syndrome is divided into different types

based on defects in hemoglobin chains. Beta type thalassemia, in which there is a defect in the synthesis of beta chain, in its homozygous form creates severe anemia and the survival of the individual depends on frequent transfusion of blood, and it is called thalassemia major (3). Until

two decades ago, thalassemia disease was a fatal disease, but with the tremendous advances in the treatment of iron detoxification, life expectancy in patients with thalassemia has increased and what is important now is to increase the quality of care and patient's life (4).

Statistics of thalassemia in Iran is over 20 thousand people (5). About 10% of people with chronic diseases such as thalassemia are in their adolescence (6). Many reasons, including the disease's being chronic, treatment costs, disease scenarios, and premature death expectation cause social and psychological problems in patients with thalassemia (7). These patients undergo various pressures such as humiliation, hopelessness, anxiety, and depression, anxiety about school, job, treatment problems, welfare, cultural and family issues (8).

Studies have shown that teenagers with thalassemia are at a higher risk of psychosocial problems compared to their healthy peers (9).

Due to the chronicity of thalassemia and the need for repeated medical treatment, these children are exposed to the experience of long-term painful procedures, helplessness, and confusion (10).

Depression is a collection of various psychological states that occur in forms from mild feeling of boredom to silence and distance from everyday activities. There is no definitive cause for depression illness (11, 12).

Depression is determined by symptoms such as feelings of sadness, loss, anger and frustration, excitement and stress, and indifference to everything and sometimes to everyone. In fact, patient shows his discomfort with these symptoms (13).

To treat depression, in some cases, hospitalizing the child or adolescent in the hospital is necessary, like the cases where patient intends to harm himself, or simultaneously suffers drug abuse, but in other cases, treatment is in outpatient form and with a combination of medication and psychotherapy.

Among the drugs prescribed for the treatment of this disease are selective serotonin reuptake

inhibitors, such as fluoxetine and fluvoxamine and so on.

Among common non-drug treatments that are used to treat depression patients worshipping, massage therapy, exercise, cognitive therapy, muscular relaxation, music therapy, aromatherapy and guided imagery can be mentioned (14).

One of the methods of treating depression in patients with thalassemia is behavioral-cognitive techniques. The main objective of these techniques is to identify negative thoughts. Identifying negative thoughts is an important technique in behavioral-cognitive therapy (CBT). Some patients can identify these negative thoughts at the beginning of treatment and others need training to be able to identify the thoughts associated with anxiety (15).

One of these new CBT techniques is eye movement desensitization and reprocessing (EMDR). This technique is a new one that is safe, has no negative side effects, and does not rely on talk therapy or medication and the patient's regular and quick eye movements are used (16).

EMDR is a technique in which the therapist asks the patient to recall disturbing memories based on a regular program while moving his eyes. As a result, the level of arousal decreases and thoughts are organized once again. Recently, desensitization is considered as a first-line treatment in psychological trauma (17).

Because of the nature of existence of depression in patients with thalassemia, it is essential that nurses understand the importance of depression in the patient's condition and use a systematic and comprehensive approach to evaluate and treat depression in these patients.

Therefore, this study was conducted aimed to determine the effect of EMDR on depression in adolescents with thalassemia.

## **METHOD**

The present study is a clinical trial conducted to determine the effect of EMDR on depression in adolescents with Thalassemia. Research environment was thalassemia unit of Iran

Hospital, Iranshahr. Patients were selected by convenience sampling method by random assignment in Permutation Block form in two control and intervention groups. Inclusion criteria included age range of 12-20 years, lack of psychotic mental disorder, non-use of psychotropic drugs, lack of strabismus, no history of seizures and drug addiction, and exclusion criteria were lack of cooperation with the psychologist and not tolerating EMDR treatment. Due to the lack of similar studies, the sample size was determined as 60, based on a pilot study on five subject in intervention group and five subjects in the control group, who were randomly assigned to intervention and control groups (30 subjects in each group) . To collect the data, two tools were used including background information questionnaire and Beck Depression Inventory.

Background information questionnaire included age, sex, education level, and marital status. Beck Depression Inventory was used to assess depression. Kaviani and Mousavi (1999) had determined reliability and validity of the questionnaire earlier in examining the psychometric properties of this test in Iranian population as about 0.72 for validity, reliability of test retest with a month distance as 0.83 and Cronbach's alpha as 0.92. The questionnaire that consists of 21 questions was developed to assess feedback and symptoms of depression, the primarily items in it have been developed on the basis of observation and provisions of views and attitudes and common symptoms among depressed psychiatric patients. In other words, these materials and their weights have been selected logically. The content of this questionnaire is comprehensively symptomology of depression, but it mostly focuses on the cognitive content. Beck Depression Inventory is of self-assessment tests types and completed in five to ten minutes. The items of the test consist of the 21 items related to various symptoms and subject must answer on a four-point scale from zero to three. These items are in areas like sadness, pessimism, sense of failure, guilt, and

sleep disturbances, and loss of appetite, self-loathing, and so on. Two of them are allocated to affect matter, 11 to cognition, two to explicit behavior, five items to physical symptoms, and 1 item to interpersonal symptomology. Thus, this scale determines varying degrees of depression from mild to severe and the range of its scores are from zero to 63.

In the control group, no intervention took place, and only subjects completed their demographic and depression questionnaires in the first session and two days later in the second session. In the intervention group, besides researchers' introducing themselves and explaining the objectives of the study and explanation about EMDR, intervention began. This method of treatment was done for each patient in the experimental group individually three times a week (every other day) in thalassemia ward of Iran Hospital, Iranshahr. A 30 to 45 minute sessions per day was performed for each patient. Every day, before and after the intervention, depression was measured by Beck's Self-report Depression Tool. The researchers had been trained in this treatment technique under the supervision of the experts of this treatment method. Data collected in the two intervention and control groups were analyzed by SPSS v 21 software, descriptive statistics, and independent t test for comparing depression scores in two groups, and paired t-test was used to compare mean score of depression in both groups, before and after intervention.

### Findings

The mean age of subjects was ( $15.22 \pm 1.93$ ) in the age range of 12-19 years. Twenty-six subjects (43.3) percent of the subjects were female and 34 (56.7) percent were male and regarding education, 10 (20%) had primary, 30 (50%) guidance and 20 patients (30%) had high school degrees.

Table (1)-The mean of depression of adolescents with thalassemia at first session in the control group was ( $27.86 \pm 3.74$ ) and in intervention group, it was ( $27.73 \pm 3.52$ ), which did not have

statistically a significant difference ( $P=0.89$ ).

Table 2

The average depression in the two groups after the intervention, in the control group was ( $27.53\pm3.64$ ) and in the intervention group, it was ( $17.80\pm2.38$ ). The average depression values of subjects in the intervention group was significantly lower than the control group after intervention ( $P>0.001$ ). Table 3.

**Table 1:** Description of the sample based on demographic variables

Variable	The intervention group (average percentage)	The control group (average percentage)
Age	15.13	15.30
Gender	40%	46.7%
Girl	60%	53.3%
Boy	20%	11.3%
	50%	50%
	30%	36.7%

**Table 2:** Comparison of depression average before intervention in two groups

Group	Frequency	SD Mean	Independent t test result
Control intervention	<b>30</b>	3.74	t=0.14 df=58 p=0.89
		3.52	
		27.86	
Total	<b>60</b>	3.63 27.79	

**Table 3:** Comparison of depression mean after intervention in two groups

Group	Frequency	SD Mean	Independent t test result
Control	<b>30</b>	2.36	t=13.05 df=58 p<0.001
		17.80	
		3.64	
		27.53	
intervention	<b>60</b>	3.40 22.65	

## DISCUSSION

Many reasons, including the disease's being chronic, treatment costs, disease scenarios, and premature death expectation cause social and psychological problems in patients with thalassemia (7). Depression is one of the psychosocial problems of patients with thalassemia that has negative effects on their

health, so evaluation of depression and its treatment should be part of every patient's care for better recovery. The analysis of the results showed that the mean or average rate of depression in adolescents with thalassemia before running EMDR therapy in the intervention group was ( $27.73\pm3.52$ ) that had an average value in the interpretation of depression scores. This suggests that teenagers with thalassemia experience high levels of depression, which may be due to negative understanding of the disease, treatment cost, states of sickness, and premature death expectation. Another finding of the study was that the average depression in adolescents with thalassemia after EMDR treatment by the investigator in the intervention group reached ( $2.36 \pm 17.80$ ), which had greatly decreased compared to pre-intervention ( $P<0.001$ ). This substantial decrease can be attributed to the effects of EMDR treatment.

In the studies by Rabona et al (2006), Arabia et al (2011), Abbasnejad et al (2007) and Shahnnavazi et al (2015) the anxiety of the patients after intervention (EMDR treatment) was  $0.38\pm5.03$ ,  $33.10 (29.56-36.63)$ ,  $16.19\pm6.54$  and  $19.37\pm 2.42$ , which had statistically significant decreases ( $P=0.001$ ) confirmed the results above.

Thus, it can be said that EMDR treatment resulted in a significant reduction in the rate of depression in adolescents with thalassemia in the intervention group ( $P<0.001$ ). The results of the studies by Rabona et al (2006), Tavanety et al (2008), Arabia et al (2011), Mahmudi et al (2012), Abbasnejad et al. (2007) and Shahnnavazi et al (2015) are consistent with the results of this study causing a significant reduction in rates of depression ( $P<0.0001$ ). In comparison of the mean difference of depression in adolescents with thalassemia in control and intervention groups, the analysis results showed that the mean rate of depression in adolescents with thalassemia before and after EMDR therapy in the intervention group reached  $10.93\pm1.16$ . This rate in the control group was  $0.33\pm0.13$ , which had significant difference with the intervention group. This high mean

difference of depression in the intervention group confirms that EMDR is a very effective method in reducing depression in adolescents with thalassemia, and this reduction of depression  $10.93 \pm 1.16$  can certainly be attributed to the impact of EMDR therapy. There was a fundamental difference between the mean rates of depression in control and intervention groups, and the difference was in favor of the group treated with EMDR therapy. Therefore, it can be concluded that EMDR treatment technique has had the most important role in reducing depression in patients. The results of the study are consistent and confirm the results of research by Rabona et al (2006), Tavanety et al (2008), Arabia et al (2011), Sarichelou (1996), Abbasnejad et al (2007), Narimani et al (2008), Ashayeri et al (2009) and Shahnavaizi et al (2015) that tested the reduction of depression and anxiety using EMDR therapy.

Patient age range was 12-20, and we cannot argue whether the results also apply outside of this range or not.

## CONCLUSIONS

The findings of this study previously described, generally indicate that EMDR is an effective, useful, new, result producing, non-invasive method to treat or reduce the severity of depression in adolescents with thalassemia.

Ultimately, it can be suggested that nurses use EMDR method as a standard, effective, non-invasive, innovative, and cost-effective method in reducing depression in adolescents with thalassemia.

## ACKNOWLEDGMENTS

This article was done in Thalassemia ward of Iranshahr Hospital, and the Thalassemia staff of Iran Hospital, Iranshahr Medical Sciences Faculty members, and all the patients participating in this study are sincerely appreciated.

## REFERENCES

1. Ansari Hussain, Hamid Tabatabai. Evaluate the hazard rate of thalassemia major endocrine city

of Shiraz in the Cox model. Healer East University Journal of Medical Sciences 2006, 8 (3) :177-167. (Persian)

2. Arab M.Ranjbar H. Rezaei H. Depression and anxiety in patients with acute coronary artery disease. Journal of Critical Care Nursing.2011;4(4):197-202.
3. Barbarayy B. Mental Health Nursing. 2.Tehran: Community; 1388.
4. Cappellini M, Cohen A, Eleftheriou A, Piga A, Porter J, Taher A. Guidelines for the clinical management of thalassemia; 2007. p. 31-64.
5. DaneshmandR.Oxford Psychiatry.1. Tehran: Tymorzadh; 1387.
6. Fucharoen S, Winichagoon P. Prevention and control of thalassemia in Asia. Asian Biomedicine J; 2007;1(1):1-6
7. Guidelines for the Clinical Management of Thalassemia: Thalassemia International Federation The thalassemia overview 2000. p.1-2
8. Kaplan and Sadvk. Manual of Clinical Psychiatry. Translation doctor Mohsen al. 5. Tehran: the venerable; 1389.
9. KeringAn M. Et al. Psychopathology (abnormal psychology). Translation Hamid Shamsipour. 1. Tehran: the Mighty; 1388.
- 10.Mahmodi N, Malekshahi M, The effectiveness of EMDR therapy in reducing anxiety, stress and depression, GAD Students with Psychosomatic Disorders, Fourth International Congress of psychosomatic (Psychosomatic) , Isfahan 2013.
- 11.Sadok B, and Sadok. Summary of Psychiatry. 1. Translation doctor Farzin foster, Tehran: the venerable; 1387.
- 12.Sadok B. Pocket Guide to Clinical Psychiatry. 1. Tehran: Tymorzadh;1390.
- 13.Shahnavaizi A, behnammoghadam M, Rigi K, Allahyari E, Bakhshi F, behnammoghadam A. Effectiveness of Eye Movement Desensitization and Reprocessing on Anxiety in Children with Thalassemia in a 12-month follow up. Armaghane danesh. 2016; 20 (11) :962-971

14. Shahnnavazi A, Delshad A, Basiri Moghaddam M, Tavakolizadeh J. Effectiveness of Eye Movement Desensitization and Reprocessing on Anxiety in Children with Thalassemia. *IJPN*. 2016; 4 (1) :11-17
15. Shapiro F. EMDR Therapy: adaptive information processing, clinical application and research recommendation. *Mental research institute. Trauma Psychology Newsletter* 2010; 12-16.
16. Zakry Moghadam M, Shaban M, Mehran A, Hashemi S. Et al. Benson relaxation effect on the level of anxiety in patients awaiting cardiac catheterization. *Journal of Nursing and Midwifery, Tehran University of Medical Sciences (Life)*. 2010; 16(2):63-71.
17. Zeynaliyan M, samawat A, detection B Thalassemia disease control and prevention program of Thalassemia major in the city affiliated to Isfahan university of medical sciences. *zemestan*. 2009; 6(4): 238-247. (Persian)