



EMDR therapy in children and adolescents who have post-traumatic stress disorder: a six-week follow-up study

Mehmet Karadag, Cem Gokcen & Ayse Sevde Sarp

To cite this article: Mehmet Karadag, Cem Gokcen & Ayse Sevde Sarp (2020) EMDR therapy in children and adolescents who have post-traumatic stress disorder: a six-week follow-up study, *International Journal of Psychiatry in Clinical Practice*, 24:1, 77-82, DOI: [10.1080/13651501.2019.1682171](https://doi.org/10.1080/13651501.2019.1682171)

To link to this article: <https://doi.org/10.1080/13651501.2019.1682171>



Published online: 30 Oct 2019.



Submit your article to this journal [↗](#)



Article views: 1189



View related articles [↗](#)



View Crossmark data [↗](#)



Citing articles: 6 View citing articles [↗](#)

ORIGINAL ARTICLE



EMDR therapy in children and adolescents who have post-traumatic stress disorder: a six-week follow-up study

Mehmet Karadag^a, Cem Gokcen^b and Ayse Sevde Sarp^b

^aChild and Adolescent Psychiatry Department, Gaziantep University Medical School, Gaziantep, Turkey; ^bDepartment of Child and Adolescent Psychiatry, Gaziantep University Faculty of Medicine, Gaziantep, Turkey

ABSTRACT

Objectives: The purpose of this study is to explore whether eye movement desensitisation and reprocessing (EMDR) is an effective therapy and to investigate whether EMDR affects anxiety levels for children and adolescents.

Methods: We conducted this study with 30 clients. The clients completed self-administered questionnaires Child Post-Traumatic Stress Reaction Index Scale and The State-Trait Anxiety Inventory. The questionnaires were conducted before the therapy and 6 weeks after the completion of the therapy.

Results: Nineteen clients (63%) had only one traumatic event, but 11 clients (37%) had more than one traumatic event. While the mean score on the PTSD symptom scale was 60 (± 8.7), this rate decreased to 24 (± 10.1), whereas the mean STAI-T scale was 59 (± 8.9) before treatment and 41 (± 11.5) after treatment. We found a statistically significant difference between symptom scores as quantified by both questionnaires before and after EMDR therapy ($p < .05$).

Conclusions: As a result, we have shown that EMDR is an effective method for children and adolescents with PTSD in terms of both post-traumatic and anxiety symptom levels; however, we recommend a larger sample size with a control group to further establish the effectiveness of EMDR therapy in children.

KEY POINTS

- PTSD is a common disorder in children and adolescents.
- Additional psychiatric disorders such as anxiety and depression are common in children and adolescents with PTSD.
- In PTSD cases applying for psychiatric treatment, trauma associated with sexual abuse is more pronounced and complex.
- EMDR is an effective therapy in children and adolescents as well as in adults.
- There is a statistically significant decrease at anxiety and PTSD symptom scores as quantified by questionnaires in patients with PTSD after EMDR therapy.

ARTICLE HISTORY

Received 15 May 2019
Revised 3 October 2019
Accepted 15 October 2019

KEYWORDS

PTSD; EMDR; children; adolescent; trauma

Introduction

Children may experience traumatic events such as abuse, war, accidents and natural disasters. After these events some children may develop Posttraumatic Stress Disorder (PTSD) (Luthra et al., 2009; McLaughlin et al., 2013). PTSD can effect social and psychological life of young's (Foa, Keane, Friedman, & Cohen, 2008). Children experience PTSD symptoms including re-experiencing the trauma due to intrusive distressing recollections of the event, flashbacks and nightmares; emotional numbness and avoidance of places, people and activities that are reminders of the trauma; increased arousal resulting in difficulty sleeping and concentrating, feeling jumpy and being easily irritated and angered (Foa, Keane, & Friedman, 2000). If several of these symptoms continue for more than 1 month, the diagnosis of PTSD is applicable according to DSM-V (American Psychiatric Association, 2013). PTSD rates are high among children and adolescents (Alisic et al., 2014). A recent meta-analysis has revealed an overall prevalence of PTSD of around 16% in children and adolescents (Morina, Koerssen, & Pollet, 2016). If PTSD is not treated, it may lead to additional psychiatric disorders such as depression, anxiety

disorders or personality disorders, with functional impairment during both childhood and adulthood (Kessler, Petukhova, Sampson, Zaslavsky, & Wittchen, 2012). PTSD should be treated to avoid morbidities which it is linked (Keane, Brief, Pratt, & Miller, 2007). Trauma-focused psychological therapies such as eye movement desensitisation and reprocessing (EMDR) and trauma-focused cognitive behavioural therapies (TF-CBT) are recommended as the first-line treatment of PTSD (AACAP, 2010; NICE, 2005). EMDR may be more advantageous than other trauma-focused therapies especially considering that it takes considerably less time (Shapiro & Forrest, 2016).

EMDR therapy is a brief form of trauma-focused therapy for PTSD (Shapiro & Forrest, 2016). This therapeutic technique was first used by Francine Shapiro in 1987. EMDR combines imagined exposure, cognitive and psychoanalytic techniques. The main feature of the EMDR is the bilateral stimulation while the client imagines the worst part of the trauma. EMDR consists of eight structured steps that were identified by Shapiro. The phases are history taking and treatment planning, preparation, assessment, desensitisation, installation, body scan, closure and re-evaluation

(Shapiro, 1996). Although EMDR therapy is approved for PTSD in adults (World Health Organisation, 2013), there is limited knowledge about its efficacy in young people. Several studies show that EMDR is an effective treatment method for children and adolescents with PTSD (Diehle, Opmeer, Boer, Mannarino, & Lindauer, 2015; Hensel, 2009; Kemp, Drummond, & McDermott, 2010; Mevissen, Didden, Korzilius, & de Jongh, 2017). A meta-analysis and a systematic review also suggest that EMDR therapy is effective in reducing symptoms reported both by the children and parents in children with PTSD and other related difficulties like depressive and anxious symptoms (Chen et al., 2018; Moreno-Alcázar et al., 2017). EMDR was found to be effective in reducing symptoms not only in PTSD but also in depressive disorders, anxiety disorders, chronic pain, bipolar disorder, psychosis and substance use disorders. (Gerhardt et al., 2016; Gil-Jardiné et al., 2018; Soberman, Greenwald, & Rule, 2002; Valiente-Gómez et al., 2017). Our trial was designed to provide more evidence base of EMDR for young people with PTSD. We hypothesised that EMDR would reduce symptoms of PTSD, depression and anxiety in children with PTSD after a 6-week follow-up.

Method

Study design and participants

In this study, 30 children with PTSD were offered EMDR therapy. The participants were recruited from among new referrals to Gaziantep University Child and Adolescent Mental Health Department. The study was conducted between January 2018 and December 2018 in a single centre. The study was also approved by the Ethics Committee of Gaziantep University.

Inclusion and exclusion criteria

The participants were diagnosed with PTSD with the K-SADS (Kiddie Schedule for Affective Disorders and Schizophrenia), aged between 6 and 18 years old and were fluent speakers of Turkish. We excluded clients who had symptoms of psychosis, substance use disorders, mental retardation, autism spectrum disorder as determined by K-SADS or any acute condition that would overshadow the symptoms of PTSD such as suicidality.

Measures

The participating children were evaluated with a demographics questionnaire to obtain sociodemographic data and K-SADS to assess PTSD and other psychiatric disorders. They were given one EMDR session per week with a total of up to six EMDR sessions within 6 weeks. To determine the efficacy of EMDR therapy, the rating scales, child post-traumatic stress reaction index (to quantify PTSD symptoms) and The State-Trait Anxiety Inventory For Children (to quantify anxiety symptoms) were administered before therapy and then for a second time 6 weeks after therapy was completed.

Demographics questionnaire

Sociodemographic data of children and adolescents were collected with a demographics questionnaire that was prepared by the researchers. This questionnaire included age, gender, number of siblings, age of the mother and father, and whether the child and parents had had a history psychiatric disorders, whether they took any psychotropic medication, the type of traumatic event, when the traumatic event occurred and number of traumatic events.

The Turkish version of the schedule for affective disorders and schizophrenia for school-age children at present and throughout life (K-SADS-PL)

The Schedule for Affective Disorders and Schizophrenia for School-age Children at Present and Throughout Life (K-SADS-PL) is a structured interview and was developed by Kaufman et al. (1997). These tools are used to evaluate past and present psychiatric disorders of children in line with DSM-III-R and DSM-IV diagnostic measures (Kaufman et al., 1997).

Child post-traumatic stress reaction index (PTSD-I)

We used PTSD-I, that was developed by Pynoos et al. (1987), to evaluate the severity of PTSD symptoms. It consists of 20 Likert type questions to evaluate children and adolescents who have experienced traumatic events. With regard to this measure that quantifies a cut-off score of 40 or higher than 40 as a diagnosis of PTSD, 78% of children who had PTSD according to the K-SADS interview were shown to have PTSD.

The State-Trait Anxiety Inventory (STAI)

STAI is measure that was developed to determine anxiety state and anxiety trait levels in clinical settings and research. It was developed by Spielberger, Gorsuch, and Lushene (Gaudry, Vagg, & Spielberger, 1975). There are two parts in this scale. The first part measures the current anxiety, or anxiety state (STAI-S) whereas the second part evaluates general feelings of anxiety, referred to anxiety trait (STAI-T).

Intervention procedure

EMDR therapy was applied to the participants by two Child and Adolescent Psychiatrists who had completed the EMDR Training given by an EMDR Institute trainer. For treatment fidelity assessment, when a child and adolescent psychiatrist performed therapy, a second psychiatrist accompanied the therapy sessions. Also, the therapists filled out protocol-specific checklists. The supervision for therapy was provided via email and telephone upon request. We used age-modified protocol for EMDR in children and adolescents (Adler-Tapia & Settle, 2008). EMDR therapy sessions were manual-based and the duration of each session was 60 min maximum. The main components of this protocol were history taking, information about trauma and therapy, preparation to EMDR, assessment of traumatic image, desensitisation and installation with bilateral stimulation, body scan, closure and re-evaluation phases respectively. We finished the therapy when Subjective Units of Distress Scale (SUDS) score was zero and the Validity of Cognition (VoC) was seven for the index traumatic memory and we conducted up to six sessions once per week. Once EMDR therapy was concluded, the patients were recalled on the sixth week after their last therapy session, for post-intervention assessments.

Data analysis

All statistical analyses were performed with IBM Statistical Package for Social Science (IBM SPSS) software version 22 for Windows. Conformity of the variables to normal distribution was evaluated visually by histogram and with Kolmogorov-Smirnov or Shapiro-Wilk tests. We used Chi-square test, Fisher's exact test, and Student's *t*-test to assess statistical significance for values conforming to normal distribution. As for descriptive statistics, we used mean \pm standard deviation (\pm SD) for numerical variables and

percentage (%) for categoric variables. *p*-Values of $<.05$ were considered significant.

Results

Adherence to treatment

Out of 33 patients who were introduced to EMDR therapy protocol, three clients did not complete the therapy. There was a high willingness to participate as evidenced by the 90% participation rate. Two clients did not want to continue the therapy and were referred to another child and adolescent psychiatrist. One client was excluded from the study due an acute condition that required hospitalisation. The mean number of EMDR sessions was 4.15 ± 1.30 per client.

Sociodemographic data and psychiatric evaluation

Out of 30 participants in the PTSD group, 10 (33%) were boys and 20 (67%) were girls. The mean age was 14.7 ± 2.7 (min: 7 years, max: 18 years). The mean number of siblings was 4.3 ± 1.6 (min: 2, max: 8). The mean age of mothers was 39.8 ± 12.7 . The mean age of fathers was 42.1 ± 15.7 . Three (10%) clients were going to primary school, 4 (13%) to secondary school, 19 (63%) to high school, 1 (4%) to university and 3 (10%) were not attending school. Seven (21%) clients had lost a father or mother. A history of psychiatric disorders among mothers (27%) was more frequent than among fathers (7%) (Table 1).

Table 1. Sociodemographic data.

Mean age	14.7 \pm 2.7 (min: 7, max: 18) years
Sex	
Males	10 (33%)
Females	20 (67%)
Number of siblings	4.3 \pm 1.6 (min: 2, max: 8)
Mean age of the mothers	39.8 \pm 12.7 years
Mean age of the fathers	42.1 \pm 15.7 years
School	
Primary school	3 (10%)
Secondary school	4 (13%)
High school	19 (63%)
University	1 (4%)
Not going to school	3 (10%)
Parental psychopathology	
Mothers	8 (27%)
Fathers	2 (7%)

Table 2. Psychiatric evaluation.

Psychiatric disorders	
Only PTSD	11 (37%) clients
More than one diagnosis	19 (63%) clients
Specialist application	
First application	21 (70%) clients
Previously application	9 (30%) clients
Time between Traumatic Experience and Presentation to a Specialist	4 (\pm 3.6) years
Medication status	
Medication-free	15 (50%) clients
On medication	15 (50%) clients
Number of traumatic events	
One trauma	19 (63%) clients
Multiple traumas	11 (37%) clients
Type of traumatic experience	
Sexual abuse	13 (43%) clients
Traffic accident	7 (23%) clients
Death of a family member	5 (17%) clients
Other	5 (17%) clients

With regard to psychiatric comorbidities, 11 clients had only PTSD (37%). Nine (30%) clients had previously applied to a psychiatry clinic, on the other hand 21 (70%) clients had not. The mean time between the traumatic experience and ask the specialist for help was 4 (\pm 3.6) years. Fifteen (50%) clients did not use medication at the start of EMDR therapy, but 15 (50%) clients had used psychotropic medications previously. Nineteen clients (63%) reported one traumatic event but 11 clients (37%) reported more than one traumatic event. Sexual abuse was the prevailing type of trauma (n : 13, 43%). The other types of trauma were seven (23%) traffic accidents, five (17%) deaths of a family member and five (17%) were other reasons (Table 2).

While the mean score on the PTSD symptom scale was 60 ± 8.7 , this decreased to 24 ± 10.1 after EMDR, a statistically significant difference ($p = .001$). According to the cut off values of the scale, before the treatment, 16 (53%) patients had very severe symptoms and 14 (47%) had severe symptoms. There were no patients in the mild and moderate symptoms range as quantified by the scale. However, after the treatment, there were 19 (63%) patients with mild symptoms and 7 (23%) patients with moderate symptoms and 4 (13%) patients with severe symptoms. While the mean score on the STAI-T scale was 59 ± 8.9 , before treatment, this decreased to 41 ± 11.5 after treatment and which was a statistically significant difference between pre- and post-treatment anxiety scores ($p = .001$). According to the cut off values of the scale, before EMDR therapy, the number of patients with high anxiety was 28 (93%) and the number of patients with low anxiety was 2 (7%). We observe that after the therapy, the number of low anxiety patients increased to 19 (63%) and the number of high-anxiety patients decreased to 11 (37%) (Table 3). In the statistical analysis, no statistically significant relationship between response to treatment and frequency, time and duration of trauma was found ($p > .05$). There was also no significant difference in symptom scores for clients who had psychiatric comorbidities and those who did not ($p > .05$).

Discussion

This study aimed to show whether EMDR therapy will reduce the symptoms of posttraumatic stress disorder and anxiety in children and adolescents. We know that EMDR is an effective therapy although it is a relatively new technique even for adults (Shapiro, 2014). A small number of studies has shown that EMDR is effective in children and adolescents (Kemp, Drummond, & McDermott, 2010; Moreno-Alcázar et al., 2017; Usta et al., 2018). Given the scarcity of research in this area, we believe our study will provide essential information for clinicians considering the use of EMDR in paediatric patients. Our study has shown that EMDR treatment can improve both posttraumatic stress symptoms and anxiety levels in treatment of posttraumatic stress disorder in children and adolescents. Another strength of this study is that we included

Table 3. EMDR therapy response according to symptom scales.

	Before therapy	After therapy	<i>p</i> Value
PTSD symptom scale	60 (\pm 8.7)	24 (\pm 10.1)	.001
PTSD severity			.001
Very severe	16 (53%) clients	0	
Severe	14 (47%) clients	4 (13%) clients	
Mild	0	19 (63%) clients	
Moderate	0	7 (23%) clients	
STAI-T scale	59 (SD: 8.9)	41 (SD: 11.5)	.001
STAI-T severity			.001
High anxiety	28 (93%) clients	11 (37%) clients	
Low anxiety	2 (7%) clients	19 (63%) clients	

children with a history of both single and multiple trauma so we deduce that EMDR may be efficient for both single and multiple traumas if EMDR protocols are correctly applied according to the child's developmental level.

The mean age of children who participated in our study was 14.7. The majority of participants were girls (n : 20, 67%). Similarly in a meta-analysis about EMDR therapies in adolescents, 70% of clients were reported to be girls (Rodenburg, Benjamin, de Roos, Meijer, & Stams, 2009). Although studies have shown that men are exposed to more traumatic events than women (Frans, Rimmo, Aberg, & Fredrikson, 2005) adolescent girls present at psychiatry clinics at a higher rates than boys and there is evidence that girls less resilience in dealing with PTSD symptoms than boys (De Bellis & Van Dillen, 2005; Gillies, Taylor, Gray, O'Brien, & D'Abrew, 2013; Matud, 2004). We found a greater frequency of psychopathology in mothers than in fathers. In many studies, corresponding results were found (Joelsson et al., 2017; Karadag et al., 2019). In a study conducted in 2008, the effect of maternal psychopathology on psychological stress in children after a hurricane was evaluated and a moderate relationship was observed (Spell et al., 2008). It is also known that presence of psychopathology in mothers may increase the incidence of psychopathology in children (Deblinger, Steer, & Lippmann, 1999; Feldman & Vengrober, 2011). However, further research is needed to demonstrate the cause of the difference between psychopathology in mothers and fathers.

The drop-out rate in our study was low compared to most other therapies (9%). One explanation for this may be that EMDR is shorter than other therapies such as psychoanalytic and cognitive behavioural therapy (Cusack et al., 2016). Similarly, the drop-out rate is generally low in other studies using EMDR. In a randomised controlled trial conducted in 2015, 21 of the 25 clients completed all EMDR therapy sessions and only four clients discontinued treatment (Diehle et al., 2015).

As we had assumed, an additional psychiatric diagnosis was prevalent in our study. Only 11 clients had a single diagnosis of PTSD, while 19 clients had additional psychiatric diagnoses such as major depression, anxiety disorders, dissociative disorders or attention deficit and hyperactivity disorder in our study. In a large study on 165 adults with PTSD, only 7% of clients had no psychiatric comorbidities, and the remaining clients had at least one additional diagnosis (Resick, Suvak, & Wells, 2014). The reason of the lower rate of comorbidities in our study may be that the clients are still children and adolescents and, therefore, the number of negative life events they have experienced overall may be smaller.

Nineteen (63%) of the clients had a single trauma and 11 (37%) had more than one trauma. In addition, the mean time between trauma and time of presentation was about 4 years. In the statistical analysis, no significant difference between the frequency and time of traumatic experiences and treatment response was found. This may indicate that EMDR can be effective both in patients with multiple traumas as well as those who have had a traumatic experience a long time ago. EMDR is shown as an effective method in the treatment of both single and multiple traumas (Chen et al., 2014) and is also effective for both old and recent traumas according to literature (Gillies et al., 2016). Despite all our positive results, our study is limited by a sample size and studies with larger sample sizes are required to elucidate these positive results.

Sexual abuse was the most common type of trauma among our clients. In a study conducted in the USA, sexual abuse increased the risk of developing PTSD by 49% (Cuffe et al., 1998).

In our study, no significant difference was found between the type of trauma and response to treatment. A recent large study reached a similar conclusion, where there was no difference between treatment response in clients who developed PTSD due to sexual abuse or those who developed PTSD another reason than sexual abuse such as traffic accidents, disasters or death of a family member (Wagenmans, Van Minnen, Sleijpen, & De Jongh, 2018). Similar results have been found in previous studies (Resick et al., 2014; Stein, Dickstein, Schuster, Litz, & Resick, 2012). However, this data should be supported by studies with larger sample sizes as well.

While half of the clients were in this study were using psychotropic medications, the other half did not use any medication during the therapy. In statistical analysis, we did not find a significant difference between clients who used medication and those who did not in terms of treatment response. The reason why some of the clients did not use medications whereas some did in our study was that we did not want to disrupt their current status of medical treatment. The fact that some of the participants were on medication was a confounding factor in our study. However, due to the treatment response in both groups, it may still show that EMDR is as effective in all client groups whether they are on medication or not.

In accordance with literature, posttraumatic stress disorder symptom levels, which were high before the therapy, dropped after EMDR therapy (Chen et al., 2018; Diehle et al., 2015; Mevissen et al., 2017; Moreno-Alcázar et al., 2017; Rodenburg et al., 2009). In our study, anxiety levels also decreased significantly after the treatment. There are other studies on this subject in the literature, in some studies, there was a decrease in depression and anxiety symptom levels in addition to posttraumatic stress symptoms (Alliger-Horn, Zimmermann, & Mitte, 2015; Chen et al., 2014), while in other studies, the decrease in the symptoms of PTSD was not accompanied by a decrease in anxiety symptoms (Gillies et al., 2016; Moreno-Alcázar et al., 2017).

Limitations

Limitations of the study were the small sample size, the absence of a control group and lack of follow-up measurements. We evaluated the clients only on the sixth week post-intervention. So we cannot make deductions about longer term effects of EMDR with this study. Another restriction is the confounding factors such as trauma type, frequency of trauma and use of medications. Finally, the lack of equal distribution of genders may be considered a limitation. Because we included all clients with PTSD who were admitted to our clinic randomly, the number of girls was more than the number of boys. Our results should be elucidated by randomised controlled trials with larger sample sizes.

Conclusion

PTSD is a serious disorder among children, and it can deeply affect the current and future life of many children and adolescents. Although there are many trauma-focused therapies for the treatment of PTSD, recent studies with EMDR show its efficacy. However, there are very few publications on EMDR therapy for children and adolescents. Our study shows the effectiveness of EMDR in children and adolescents. The children in our study were of various ages with various types of traumatic experiences, so our results show that EMDR can be effective in a diverse sample. However, we recommend further research on the effectiveness of

EMDR therapy with larger sample sizes and addition of a control group.

Acknowledgments

The Authors would like to thank all the clients, EMDR therapists and psychiatrists who participated.

Disclosure statement

No potential conflict of interest was reported by the authors.

References

- AACAP. (2010). Practice parameter for the assessment and treatment of children and adolescents with posttraumatic stress disorder. *Journal of the American Academy of Child & Adolescent Psychiatry*, 49, 414–430.
- Adler-Tapia, R., & Settle, C. (2008). *EMDR and the art of psychotherapy with children*. New York, NY: Springer Publishing Company.
- Alicic, E., Zalta, A. K., Van Wesel, F., Larsen, S. E., Hafstad, G. S., Hassanpour, K., & Smid, G. E. (2014). Rates of post-traumatic stress disorder in trauma-exposed children and adolescents: Meta-analysis. *British Journal of Psychiatry*, 204, 335–340. doi:10.1192/bjp.bp.113.131227
- Alliger-Horn, C., Zimmermann, P., & Mitte, K. (2015). Comparative effectiveness of IRRT and EMDR in Wartraumatized German soldiers. *Trauma & Gewalt*, 9, 204–215.
- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders (DSM-5®)*. Arlington, VA: American Psychiatric Publishing.
- Chen, R., Gillespie, A., Zhao, Y., Xi, Y., Ren, Y., & McLean, L. (2018). The efficacy of eye movement desensitization and reprocessing in children and adults who have experienced complex childhood trauma: A systematic review of randomized controlled trials. *Frontiers in Psychology*, 9, 534. doi:10.3389/fpsyg.2018.00534
- Chen, Y.-R., Hung, K.-W., Tsai, J.-C., Chu, H., Chung, M.-H., Chen, S.-R., ... Chou, K.-R. (2014). Efficacy of eye-movement desensitization and reprocessing for patients with posttraumatic-stress disorder: A meta-analysis of randomized controlled trials. *PLoS One*, 9, e103676. doi:10.1371/journal.pone.0103676
- Cuffe, S. P., Addy, C. L., Garrison, C. Z., Waller, J. L., Jackson, K. L., McKeown, R. E., & Chilappagari, S. (1998). Prevalence of PTSD in a community sample of older adolescents. *Journal of the American Academy of Child & Adolescent Psychiatry*, 37, 147–154. doi:10.1097/00004583-199802000-00006
- Cusack, K., Jonas, D. E., Forneris, C. A., Wines, C., Sonis, J., Middleton, J. C., ... Gaynes, B. N. (2016). Psychological treatments for adults with posttraumatic stress disorder: A systematic review and meta-analysis. *Clinical Psychology Review*, 43, 128–141. doi:10.1016/j.cpr.2015.10.003
- De Bellis, M. D., & Van Dillen, T. J. C. (2005). Childhood post-traumatic stress disorder: An overview. *Child Adolescent Psychiatric Clinics of North America*, 14, 745–772. doi:10.1016/j.chc.2005.05.006
- Deblinger, E., Steer, R., & Lippmann, J. (1999). Maternal factors associated with sexually abused children's psychosocial adjustment. *Child Maltreatment*, 4, 13–20. doi:10.1177/1077559599004001002
- Diehle, J., Opmeer, B. C., Boer, F., Mannarino, A. P., & Lindauer, R. J. (2015). Trauma-focused cognitive behavioral therapy or eye movement desensitization and reprocessing: What works in children with posttraumatic stress symptoms? A randomized controlled trial. *European Child & Adolescent Psychiatry*, 24, 227–236. doi:10.1007/s00787-014-0572-5
- Feldman, R., & Vengrober, A. (2011). Posttraumatic stress disorder in infants and young children exposed to war-related trauma. *Journal of the American Academy of Child & Adolescent Psychiatry*, 50, 645–658. doi:10.1016/j.jaac.2011.03.001
- Foa, E. B., Keane, T. M., & Friedman, M. (2000). Guidelines for treatment of PTSD. *Journal of Traumatic Stress*, 13, 539–588. doi:10.1023/A:1007802031411
- Foa, E. B., Keane, T. M., Friedman, M. J., & Cohen, J. A. (2008). *Effective treatments for PTSD: practice guidelines from the International Society for Traumatic Stress Studies*. New York, NY: Guilford Press.
- Frans, O., Rimmo, P. A., Aberg, L., & Fredrikson, M. (2005). Trauma exposure and post-traumatic stress disorder in the general population. *Acta Psychiatrica Scandinavica*, 111, 291–299. doi:10.1111/j.1600-0447.2004.00463.x
- Gaudry, E., Vagg, P., & Spielberger, C. D. J. M. B. R. (1975). Validation of the state-trait distinction in anxiety research. *Multivariate Behavioral Research*, 10, 331–341. doi:10.1207/s15327906mbr1003_6
- Gerhardt, A., Leisner, S., Hartmann, M., Janke, S., Seidler, G. H., Eich, W., & Tesarz, J. (2016). Eye movement desensitization and reprocessing vs. treatment-as-usual for non-specific chronic back pain patients with psychological trauma: A randomized controlled pilot study. *Frontiers in Psychiatry*, 7, 201. doi:10.3389/fpsyg.2016.00201
- Gil-Jardiné, C., Evrard, G., Al Joboory, S., Tortes Saint Jammes, J., Masson, F., Ribéreau-Gayon, R., ... Lagarde, E. (2018). Emergency room intervention to prevent post concussion-like symptoms and post-traumatic stress disorder: A pilot randomized controlled study of a brief eye movement desensitization and reprocessing intervention versus reassurance or usual care. *Journal of Psychiatric Research*, 103, 229–236. doi:10.1016/j.jpsy-chires.2018.05.024
- Gillies, D., Maiocchi, L., Bhandari, A. P., Taylor, F., Gray, C., & O'Brien, L. (2016). Psychological therapies for children and adolescents exposed to trauma. *Cochrane Database of Systematic Reviews*, 10, CD012371.
- Gillies, D., Taylor, F., Gray, C., O'Brien, L., & D'Abrew, N. (2013). Psychological therapies for the treatment of post-traumatic stress disorder in children and adolescents. *Evidence-Based Child Health: A Cochrane Review Journal*, 8, 1004–1116. doi:10.1002/ebch.1916
- Gökler, B., Ünal, F., Pehlivan Türk, B., Kültür, E. Ç., Akdemir, D., & Taner, Y. (2004). Reliability and Validity of Schedule for Affective Disorders and Schizophrenia for School Age Children-Present and Lifetime Version-Turkish Version (K-SADS-PL-T). *Turkish Journal of Psychiatry*, 11, 109–116.
- Hensel, T. (2009). EMDR with children and adolescents after single-incident trauma: An intervention study. *Journal of EMDR Practice and Research*, 3, 2–9. doi:10.1891/1933-3196.3.1.2
- Joelsson, P., Chudal, R., Uotila, J., Suominen, A., Sucksdorff, D., Gyllenberg, D., & Sourander, A. (2017). Parental psychopathology and offspring attention-deficit/hyperactivity disorder in a nationwide sample. *Journal of Psychiatric Research*, 94, 124–130. doi:10.1016/j.jpsy-chires.2017.07.004
- Karadag, M., Gokcen, C., Nacarkahya, G., Namiduru, D., Dandil, F., Caliskan, B., & Eroglu, S. (2019). Chronotypical characteristics and related miR-142-3p levels of children with attention deficit and hyperactivity disorder. *Psychiatry Research*, 273, 235–239. doi:10.1016/j.psychres.2018.12.175

- Kaufman, J., Birmaher, B., Brent, D., Rao, U. M. A., Flynn, C., Moreci, P., ... Ryan, N. (1997). Schedule for affective disorders and schizophrenia for school-age children-present and lifetime version (K-SADS-PL): Initial reliability and validity data. *Journal of the American Academy of Child & Adolescent Psychiatry*, 36, 980–988. doi:10.1097/00004583-199707000-00021
- Keane, T. M., Brief, D. J., Pratt, E. M., & Miller, M. W. (2007). *Handbook of PTSD: Science practice*. New York, NY: The Guilford Press.
- Kemp, M., Drummond, P., & McDermott, B. (2010). A wait-list controlled pilot study of eye movement desensitization and reprocessing (EMDR) for children with post-traumatic stress disorder (PTSD) symptoms from motor vehicle accidents. *Clinical Child Psychology and Psychiatry*, 15, 5–25. doi:10.1177/1359104509339086
- Kessler, R. C., Petukhova, M., Sampson, N. A., Zaslavsky, A. M., & Wittchen, H. U. (2012). Twelve-month and lifetime prevalence and lifetime morbid risk of anxiety and mood disorders in the United States. *International Journal of Methods in Psychiatric Research*, 21, 169–184. doi:10.1002/mpr.1359
- Luthra, R., Abramovitz, R., Greenberg, R., Schoor, A., Newcorn, J., Schmeidler, J., ... Chemtob, C. M. (2009). Relationship between type of trauma exposure and posttraumatic stress disorder among urban children and adolescents. *Journal of Interpersonal Violence*, 24, 1919–1927. doi:10.1177/0886260508325494
- Matud, M. P. (2004). Gender differences in stress and coping styles. *Personality and Individual Differences*, 37, 1401–1415. doi:10.1016/j.paid.2004.01.010
- McLaughlin, K. A., Koenen, K. C., Hill, E. D., Petukhova, M., Sampson, N. A., Zaslavsky, A. M., & Kessler, R. C. (2013). Trauma exposure and posttraumatic stress disorder in a national sample of adolescents. *Journal of the American Academy of Child & Adolescent Psychiatry*, 52, 815–830.e814. doi:10.1016/j.jaac.2013.05.011
- Mevisen, L., Didden, R., Korzilius, H., & de Jongh, A. J. J. O. (2017). Eye movement desensitization and reprocessing therapy for posttraumatic stress disorder in a child and an adolescent with mild to borderline intellectual disability: A multiple baseline across subjects study. *Journal of Applied Research in Intellectual Disabilities*, 30, 34–41. doi:10.1111/jar.12335
- Moreno-Alcázar, A., Treen, D., Valiente-Gómez, A., Sio-Eroles, A., Pérez, V., Amann, B. L., & Radua, J. (2017). Efficacy of eye movement desensitization and reprocessing in children and adolescent with post-traumatic stress disorder: A meta-analysis of randomized controlled trials. *Frontiers in psychology*, 8, 1750. doi:10.3389/fpsyg.2017.01750
- Morina, N., Koerssen, R., & Pollet, T. V. (2016). Interventions for children and adolescents with posttraumatic stress disorder: A meta-analysis of comparative outcome studies. *Clinical Psychology Review*, 47, 41–54. doi:10.1016/j.cpr.2016.05.006
- National Institute for Clinical Excellence NICE. (2005). The management of PTSD in adults and children in primary and secondary care. Wilshire, United Kingdom: Cromwell Press.
- Özusta, Ş. (1995). Adaptation, validity and reliability study of state-trait anxiety inventory for children. *Turkish Journal of Psychology*, 10, 32–44.
- Pynoos, R. S., Frederick, C., Nader, K., Arroyo, W., Steinberg, A., Eth, S., & Fairbanks, L. (1987). Life threat and posttraumatic stress in school-age children. *Archives of General Psychiatry*, 44, 1057–1063. doi:10.1001/archpsyc.1987.01800240031005
- Resick, P. A., Suvak, M. K., & Wells, S. Y. (2014). The impact of childhood abuse among women with assault-related PTSD receiving short-term cognitive-behavioral therapy. *Journal of Traumatic Stress*, 27, 558–567. doi:10.1002/jts.21951
- Rodenburg, R., Benjamin, A., de Roos, C., Meijer, A. M., & Stams, G. J. (2009). Efficacy of EMDR in children: A meta-analysis. *Clinical Psychology Review*, 29, 599–606. doi:10.1016/j.cpr.2009.06.008
- Shapiro, F. (1996). Eye movement desensitization and reprocessing (EMDR): Evaluation of controlled PTSD research. *Journal of behavior therapy and experimental psychiatry*, 27(3), 209–218. doi:10.1016/S0005-7916(96)00029-8
- Shapiro, F. (2014). The role of eye movement desensitization and reprocessing (EMDR) therapy in medicine: Addressing the psychological and physical symptoms stemming from adverse life experiences. *The Permanente Journal*, 18, 71. doi:10.7812/TPP/13-098
- Shapiro, F., & Forrest, M. S. (2016). *EMDR: The breakthrough therapy for overcoming anxiety, stress, and trauma*. New York: Basic Books.
- Soberman, G. B., Greenwald, R., & Rule, D. L. (2002). A controlled study of eye movement desensitization and reprocessing (EMDR) for boys with conduct problem. *Journal of Aggression, Maltreatment Trauma*, 6, 217–236. doi:10.1300/J146v06n01_11
- Spell, A. W., Kelley, M. L., Wang, J., Self-Brown, S., Davidson, K. L., Pellegrin, A., ... Baumeister, A. (2008). The moderating effects of maternal psychopathology on children's adjustment post-Hurricane Katrina. *Journal of Clinical Child & Adolescent Psychology*, 37, 553–563. doi:10.1080/15374410802148210
- Stein, N. R., Dickstein, B. D., Schuster, J., Litz, B. T., & Resick, P. A. (2012). Trajectories of response to treatment for posttraumatic stress disorder. *Behavior Therapy*, 43(4), 790–800. doi:10.1016/j.beth.2012.04.003
- Usta, M. B., Gumus, Y. Y., Say, G. N., Bozkurt, A., Şahin, B., & Karabekiroğlu, K. J. N. J O P. (2018). Basal blood DHEA-S/cortisol levels predicts EMDR treatment response in adolescents with PTSD. *Nordic Journal of Psychiatry*, 72, 164–172. doi:10.1080/08039488.2017.1406984
- Valiente-Gómez, A., Moreno-Alcázar, A., Treen, D., Cedrón, C., Colom, F., Pérez, V., & Amann, B. L. (2017). EMDR beyond PTSD: A systematic literature review. *Frontiers in Psychology*, 8, 1668. doi:10.3389/fpsyg.2017.01668
- Wagenmans, A., Van Minnen, A., Sleijpen, M., & De Jongh, A. (2018). The impact of childhood sexual abuse on the outcome of intensive trauma-focused treatment for PTSD. *European journal of psychotraumatology*, 9(1), 1430962. doi:10.1016/S0005-7916(96)00029-8
- World Health Organisation. (2013). *Guidelines for the management of conditions specifically related to stress*. Geneva: WHO.