

ARTICLES

Efficacy of EMDR Therapy for Children With PTSD: A Review of the Literature

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The rationale is synthesized for the urgency of empirical studies demonstrating the efficacy of eye movement desensitization and reprocessing (EMDR) therapy for children and adolescents with posttraumatic stress disorder (PTSD), symptoms of PTSD, or other trauma-related symptoms. This literature review examined 15 studies (including nine randomized clinical trials) that tested the efficacy of EMDR therapy for the treatment of children and adolescents with these symptoms. All studies found that EMDR therapy produced significant reductions in PTSD symptoms at posttreatment and also in other trauma-related symptoms, when measured. A methodological analysis identified limitations in most studies, reducing the value of these findings. Despite these shortcomings, the methodological strength of the identified studies has increased over time. The review also summarized three meta-analyses. The need for additional rigorous research is apparent, and in order to profit from experiences of the past, the article provides some guidelines for clinicians seeking to conduct future research in their agencies.

Keywords: eye movement desensitization and reprocessing (EMDR) therapy; children; adolescents; efficacy; research

Eye movement desensitization and reprocessing (EMDR) therapy is an empirically based treatment for adults with posttraumatic stress disorder (PTSD), supported by more than 20 randomized controlled trials (RCTs) and at least four meta-analyses of clinical trials (Bisson & Andrew, 2007; Chen, Zhang, Hu, & Liang, 2015; Cusack et al., 2016; Seidler & Wagner, 2006). Therefore, EMDR therapy is included in many general international practice guidelines (Chemtob, Tolin, van der Kolk, & Pitman, 2000; Foa et al., 2008; National Collaborating Centre for Mental Health [NCCMH], 2005; World Health Organization [WHO], 2013). However, considerably less research has been conducted on the effectiveness of EMDR with children.¹ As in other areas of psychotherapy, the number of child studies lags behind the extent of adult research. Results in clinical practice of numerous EMDR therapists working in various countries suggest that EMDR is a highly efficacious treatment for children with PTSD. These clinical results indicate the need to rigorously test the effectiveness of EMDR for children. With sufficient

evidence, EMDR therapy could also be confidently recommended within significant national and international practice guidelines for this patient-group.

The questions for this review of the literature are: What research studies have been published exploring the efficacy of EMDR for children with trauma-related psychopathology? How accurately do they meet the methodological criteria for the evaluation of studies (Hertlein & Ricci, 2004)?

Urgency

Extent and Impact of Exposure to Traumatic and Adverse Events

The prevalence of being exposed to one or more traumatic events before the age of 18 years varies between 25% and 68% according to European and U.S. reports (Alisic et al., 2014; Cohen, 2010; Copeland, Keeler, Angold, & Costello, 2007). The Adverse Childhood Experiences (ACE) study (Felitti et al., 1998) demonstrated that being confronted with adverse experiences

in childhood is both common and a risk factor for a range of medical and social problems later in life. More recently, Nemeroff (2016) identified the increased risk of several somatic illnesses and psychiatric disorders after exposure to childhood maltreatment. He summarized how neurobiological and clinical consequences, such as persistent changes in neuroendocrine systems and specific alterations in brain areas, associated with mood regulation, induce disease vulnerability. Many studies have indicated that childhood sexual abuse is a nonspecific risk factor for developing psychopathology (Maniglio, 2009). Thanks to the work of several researchers like Perry (2006), Teicher et al. (2003), Teicher and Samson (2013), we know that victims of childhood maltreatment and of sexual abuse are at a significant higher risk of exhibiting a wide range of medical, psychological, and sexual problems during adolescence and adulthood, including substance abuse, conduct disorder, and depression (Cohen, 2010).

The potential impact of exposure to adverse events—besides traumatic events—for children and adolescents was demonstrated in a study of Verlinden et al. (2013), where as many as 62% of a general population sample ($n = 588$) presented partial symptoms of PTSD, after having been exposed to adverse events (e.g., being bullied) not meeting criterion A of the *Diagnostic and Statistical Manual of Mental Disorders* (5th ed.; *DSM-5*). Interestingly, Mol et al. (2005) found in a study of adults in the general population ($n = 1,498$) that respondents who had experienced adverse life events (like chronic illness, marital discord, unemployment) reported stronger PTSD symptoms than people who reported having experienced traumatic events. These studies indicate that both adults and children may develop PTSD symptoms after having experienced adverse events not meeting criterion A of the *DSM-5*.

Resulting Symptomatology. Following exposure to traumatic—or adverse—events, children may develop PTSD or acute stress disorder as well as a range of other mental health problems and psychiatric conditions not categorized in the *DSM-5* as “trauma or stressor-related disorder” such as depression, generalized anxiety disorder, childhood traumatic grief, separation anxiety, and substance abuse (Stallard, 2006; Teicher & Samson, 2013). Additionally, correlations have been found between trauma and severe behavioral problems (Duke, Pettingell, McMorris, & Borowsky, 2010; Hamerlynck, 2008; Kroneman & Beer, 2013; Leenarts et al., 2013).

Full-blown PTSD has been found to occur in only a minority of cases across different developmental

phases during childhood. In contrast, subclinical (partial) PTSD is more common in both adolescence and childhood, ranging from 2%–25% (Alisic et al., 2014; Cohen, 2010; Copeland et al., 2007; Stallard, 2006). Subclinical PTSD is as potentially invalidating as full-blown PTSD (Cohen, 2010), because of the interfering effects of the symptoms.

Importance of Treatment. Lack of treatment increases the risk of revictimization, comorbidity, and chronicity, and additionally may result in developmental delays at psychological, physical, and neurobiological levels (Perry, 2006; Perry & Szalavitz, 2007; Teicher et al., 2003; Teicher & Samson, 2013; Zamir, Szepeswol, Englund, & Simpson, 2018). Moreover, maltreated children often have parents who have been maltreated during their childhood too and who regularly show high rates of untreated or undertreated psychopathology; trauma is frequently transmitted over generations (Teicher & Samson, 2013). The severity, pervasiveness, and long-term consequences of trauma exposure and related psychopathology indicate the significant urgency for validated effective treatments for children.

Trauma Treatments in the Guidelines

International practice guidelines recommend some form of trauma-focused cognitive behavioral therapy (TF-CBT) as a first-line treatment for PTSD in children based on empirical research (Cohen, 2010; Foa et al., 2008; Forbes et al., 2007; NCCMH, 2005; Potgieter Marks, Struik, & Sabau, 2017; WHO, 2013). The program of TF-CBT, developed by Cohen, Mannarino, and Deblinger (2006), is the most researched program (Cohen, 2010; Diehle, Opmeer, Boer, Mannarino, & Lindauer, 2015; Foa et al., 2008) for traumatized children. Besides reducing PTSD and other trauma-related symptoms, this program aspires to enhance relevant coping skills in parents and children for supporting better communication about what happened within the family and for ensuring future safety (building resilience).

EMDR therapy is mentioned in the guidelines mostly as “promising.” In the revised guidelines of the International Society for Traumatic Stress Studies (Foa et al., 2008), EMDR is rated for adults with an A status (meaning that empirical evidence is based on randomized and controlled studies) and for children with a B status (evidence based on controlled studies without randomization and without placebo condition).

Based on efficacy studies, we know now to a certain degree about the effectiveness of these recommended treatments. However, we do not know enough as yet

which children are more at risk of developing psychopathology after traumatic or adverse events and what factors influence the effectiveness of treatment in a specific child or family. Additional research is needed to further investigate these important areas. This review is focused on efficacy studies.

Method

Search Strategy

Key words in English and combinations, relevant to the research review questions were used to identify published studies: *EMDR, research, children, adolescents, PTSD, trauma-related, and efficacy*. The Google search engine was used, as was and the website of the EMDR Institute—the Francine Shapiro Library because most EMDR studies tend to be published there.

Inclusion and Exclusion Criteria

The studies cited were written in English; children and adolescents were participants, and effects were measured on the application of the EMDR standard protocol for treatment of PTSD and other trauma-related symptoms after having experienced traumatic or adverse events. Excluded studies were those written in other languages, in which adults were participants or which were non-evaluative in design; studies evaluating EMDR group treatment; studies in which EMDR was integrated with other interventions; and studies in which only a part of the EMDR standard protocol was used in combination with other interventions. Also excluded were studies not dealing with trauma-related symptoms (Muris, Merckelbach, Holdrinet, & Sijsehaar, 1998; Muris et al., 1997).

Criteria for Evaluation of Research Studies

Different criteria have been added since Foa and Meadows (1997) formulated seven methodological criteria for the evaluation of the quality of studies, known as the *Golden Standards*. See Table 1.

In order to address the divergence of results in previous studies, Maxfield and Hyer (2002) added three extra criteria: (a) *no confounded conditions* (i.e., concurrent psychotherapy), because confounded treatment conditions diminish construct validity; (b) *multimodal measures*, because these provide more accurate evaluation presumably than self-report measures only; and (c) *length of treatment*, since survivors of multiple trauma generally require more extensive treatment and insufficient treatment could interfere with good assessment of efficacy.

TABLE 1. Criteria for the Evaluation of Empirical Studies

1. Clearly defined target symptoms
2. Reliable and valid measures
3. Blind, independent assessors of treatment effect
4. Assessor's training
5. Manual-based replicable treatment
6. Randomized allocation to treatment condition
7. Reliable application of protocol (treatment fidelity)
i. No confounded conditions
ii. Multi-modal measures
iii. Length of treatment
iv. Reported level of therapist(s) training
v. Control or comparison group
vi. Report of effect size

Three more criteria were supplemented 5 years later and together with the previous ones were called the *Platinum Standards* (Hertlein & Ricci, 2004): (d) *reported level of therapist(s) training* is relevant, not only for EMDR therapy, but also for the control conditions; (e) *control or comparison group* should be included, because without this one cannot exclude that reduction of symptoms can be attributed to spontaneous remission; and (f) *report of effect size* is necessary for better measurement and clear publication of the results. In this review the studies will be evaluated according to these criteria.²

Analysis of Studies

Studies are categorized in Table 2 in terms of design at three levels: (1) without control group; (2) with control group, but no randomization; or (3) RCTs, targeting PTSD, PTSD symptoms, or other trauma-related symptoms, including behavior problems.

Results

The search identified a total of 15 studies. There were two studies at Level 1 (without control group); four at Level 2 (with control group, but no randomization); and nine at Level 3 (RCTs targeting PTSD and/or trauma-related symptoms). The studies used a wide variety of measures for diagnosis and outcome. For the reader's convenience, a list of instruments used in the 15 studies in this review is created in Table 3.

TABLE 2. Studies on Efficacy of EMDR With Children

Author(s)	N	Age	Treatment (Number of sessions)	Events	Target-Symptoms	Measure(s) ^a	Significant Results
Level 1. Studies without control group							
Hensel, 2009	32	1, 9–18	EMDR (average 3)	Single: Varied	PTSD and other trauma- related symptoms	PROPS	Reduction of PTSD and other presenting symptoms (e.g., separation anxiety)
Ribchester et al., 2010	11	8–16	EMDR (Between 1–4, Average 2. 4 per child)	Single: Road traffic accident	PTSD, anxiety, depression, and attentional deficits	ADIS for DSM-IV, CASQ-R, CRIES, DSRS, RCMAS, emotional STROOP test, and more	Reduction in symptoms of PTSD, anxiety, and depression. If reduction in PTSD, then significant improvement in attention tasks
Level 2. Studies with control group, no randomized allocation							
Puffer et al., 2000	20	8–17	EMDR (1) versus Waiting list (WL)	Single: Varied	PTSD symptoms	IES	EMDR >WL Reduction of PTSD symptoms.
Kemp et al., 2010	27	6–12	EMDR (4) versus WL	Single: Motor vehicle accident	PTSD symptoms, anxiety, depression	PTS-RI, CBCL, CDS, GFS, GHQ-12, IES, STAIC,	EMDR >WL For two or more PTSD symptoms: decrease in EMDR group from 100% to 25%; no decrease in WL group. For anxiety and depression: no significant difference pre- to posttreatment in both groups.
Wadaa et al., 2010	37	7–12	EMDR (12) versus No treatment (NT)	Chronic: War and violence	PTSD	UCLA PTSD Index	EMDR >NT Reduction of PTSD symptoms.
Tang et al., 2015	83	12–15	EMDR (4) versus Treatment as usual (TAU)	Single: Typhoon	Symptoms of anxiety (disaster-related or general), and depression	CES-D, IES, MASC	EMDR >TAU Alleviation of symptoms of disaster-related anxiety, general anxiety, and depression.
Level 3. RCTs, targeting trauma-related symptoms, including behavior problems							
Scheck et al., 1998	60	16–25	EMDR (2) versus Active listening (AL) (2)	Chronic: Sexual abuse / molestation in childhood	Anxiety, depression, self-image	Various adult measures	EMDR >AL In EMDR group more reduction of PTSD symptoms, anxiety, depression. Participants showed also severe behavioral problems; effect on these unclear.
Chemtob et al., 2002	32	6–12	EMDR (3) versus WL	Single: Hurricane	PTSD, Anxiety and Depression	CDI, CRI, RCMAS, and count of visits to health nurse	EMDR >WL. Reduction of PTSD, symptoms of fear and depression.
Soberman et al., 2002	29	10–16	EMDR +CAU (3) versus Care As Usual (CAU)	Chronic: Varied	PTSD symptoms, severe behavioral problems	CROPS, PROPS, IES	EMDR >CAU Decrease of problem behavior and of reactivity on targeted memory; not all measures significant.
Jaberghaderi et al., 2004	14	12–13	EMDR(as needed) versus CBT (12)	Single + chronic: Sexual abuse	PTSD symptoms	CROPS, PROPS, Rutter Teacher Scale	EMDR = CBT Both effective Less sessions for EMDR (average 6.1 versus 11.6).
Ahmad et al., 2007	33	6–16	EMDR (8) versus WL	Single + chronic: varied	PTSD	PTSS C	EMDR >WL Reduction of PTSD, especially on symptoms of reliving and avoidance.

(Continued)

TABLE 2. Studies on Efficacy of EMDR With Children (Continued)

Author(s)	N	Age	Treatment (Number of sessions)	Events	Target-Symptoms	Measure(s) ^a	Significant Results
Wanders et al., 2008	26	10–14	EMDR (4) versus CBT (4)	Single + chronic: Children were not screened on this variable	Self-esteem, behavioral, emotional problems	CBCL, DQ-C, NASSQ-A, PSI, PNG-C, SPCC.	EMDR >CBT on improvement of target behaviors.
de Roos et al., 2011	52	4–18	EMDR (4) versus CBT (4)	Disaster: Explosion of a fireworks factory	PTSD, anxiety, depression, behavioral problems	CBCL, CROPS, DSRS, MASC, PROPS, PTSD-RI for <i>DSM-IV</i>	EMDR = CBT Both effective: reduction on all measures. EMDR needed less sessions (average 3.2 versus 4).
Diehle et al., 2015	48	8–18	EMDR (8) versus TF-CBT (8)	Single & chronic: Varied	PTSD, anxiety, depression, behavioral problems	ADIS C / ; CRIES; CAPS-CA; RCADS; SDQ	EMDR = TF-CBT Both effective for reduction of PTSD. For reduction of comorbid (depressive and hyperactive) symptoms TF-CBT >EMDR according to parent-report in TF-CBT group.
de Roos et al., 2017	103	8–18	EMDR (6) versus CBWT (6) versus WL	Single: Varied	PTSD, anxiety, depression, behavioral problems, negative trauma-related appraisals	ADIS-C/P, CSI-C/P, C-PTCI, IPG, KIDSCREEN-27, RCADS-C/P, CRTI-C/P, SDQ-A/P,	EMDR = CBWT Both effective for reduction of PTSD symptoms + comorbid problems. EMDR needed less sessions (average 4.1 versus 5.4).

^aFor full names of the measures and the authors, see Table 3.

TABLE 3. Measures Used in the EMDR Studies With Children and Adolescents

1. Anxiety and Related Disorders Interview Schedule (ADIS for *DSM-IV*; Albano & Silverman, 1996)
2. Center for Epidemiologic Studies Depression Scale (CES-D; Radloff, 1977)
3. Child Behavior Checklist (CBCL; Achenbach, 1991)
4. Children's Depression Inventory (CDI; Kovacs, 1992)
5. Child Post Traumatic Stress Reaction Index (Frederick, Pynoos, & Nader, 1992)
6. Child Post Traumatic Stress Reaction Index: Parent Questionnaire (Parent PTS-RI; Nader, 1994)
7. Child Report of Post-Traumatic Symptoms (CROPS; Greenwald & Rubin, 1999)
8. Child Reaction Index (CRI; Pynoos et al., 1987)
9. Child Somatization Inventory, Child and Parent Version (CSI-C/P; Meesters, Muris, Ghys, Reumerman, & Rooijmans, 2003)
10. Children's Attributional Style Questionnaire-Revised (CASQ-R; Thompson, Kaslow, Weiss, & Nolen-Hoeksema, 1998)
11. Children's Depression Scale (CDS; Lang & Tisher, 1983)
12. Children's Post Traumatic Cognitions Inventory (C-PTCI; Meiser-Stedman et al., 2009)
13. Children's Revised Impact of Event Scale (CRIES; Dyregov & Yule, 1995)
14. Clinician-Administered PTSD Scale for Children and Adolescents (CAPS-CA; Nader, Kriegler, Blake, Pynoos, & E., 1996)
15. Depression Questionnaire for Children (DQ-C; de Wit, 1987)
16. Depression Self Rating Scale (DSRS; Birlerson, 1981)
17. General Functioning Scale (GFS derived from Family Assessment Device; Epstein, Baldwin, & Bishop, 1983)
18. General Health Questionnaire-12 (GHQ-12; Goldberg, 1978)
19. Impact of Event Scale (IES; Horowitz, Wilner, & Alvarez, 1979)
20. Inventory of Prolonged Grief for Children and Adolescents (IPG; Spuij et al., 2012)
21. Kidscreen-27, Child and Parent Version (Ravens-Sieberer et al., 2007)
22. Multidimensional Anxiety Scale for Children (MASC; March, Parker, Sullivan, Stallings, & Conners, 1997)
23. Negative Affect Self-Statement Questionnaire (NASSQ-A; Ronan, Kendall, Rowe, & Rowe, 1994)
24. Parent Report of Post-Traumatic Symptoms (PROPS; Greenwald & Rubin, 1999)
25. Parenting Stress Index (PSI; Abidin, 1983)
26. Positive and Negative Affect Self-Statement Questionnaire for Children (PNG-C; Bracke & Braet, 2000)
27. Post-Traumatic Stress Symptom Scale for Children (PTSS C; Ahmad, Sundelin-Wahlsten, Sofi, Qahar, & von Knorring, 2000)
28. Revised Child Anxiety and Depression Scale (RCADS; Chorpita, Yim, Moffitt, Umemoto, & Francis, 2000)
29. Revised Children's Manifest Anxiety Scale (RCMAS; Reynolds & Richmond, 1978)
30. Revised Children's Responses to Trauma Inventory (CRTI; Alisic & Kleber, 2010)
31. Rutter Teacher Scale (Kresanov, Tuominen, Piha, & Almqvist, 1998)
32. Self-Perception Profile for Children (SPCC; Harter, 1985)
33. State Trait Anxiety Inventory for Children (STAIC; Spielberger, 1979)
34. Strength and Difficulties Questionnaire (SDQ; Goodman, 2001)
35. UCLA PTSD Index (Rodriguez, Steinberg, & Pynoos, 1998); UCLA PTSD Reaction Index (PTSD-RI) for *DSM-IV* (Steinberg, Brymer, Decker, & Pynoos, 2004)

Level 1: Studies Without Control Group

Level 1 contains two studies that were conducted without a control condition. Two field studies were excluded, because the intervention was either a group variant of the EMDR standard protocol (Fernandez, Gallinari, & Lorenzetti, 2004) or

EMDR was combined with other interventions (Fernandez, 2007). Hence, these studies did not meet the inclusion criteria. Outcome measures of both field studies might suggest nevertheless that EMDR therapy can have an impact in disaster situations.

Hensel (2009) examined if young preschool children could benefit from treatment and if their results would be comparable to those of older children. He used an extended case series design and provided each child with the number of sessions needed until symptoms had disappeared or reduced sufficiently, according to the child and/or parent and therapist. He compared the results of 32 children who had developed a variety of trauma symptoms (e.g., separation anxiety, specific phobias, depression, behavioral problems) after a single traumatic event. These events were diverse in nature (e.g., car accident, witnessing domestic violence, sexual assault). The severity of the symptoms was assessed with parent-report measures (see Table 3: 24). There was no significant difference between symptom improvement of preschool (age 6 and younger) and school-aged children, although the latter had a greater benefit. Children who were exposed to a traumatic event longer ago, and who had remained untreated for a longer period, showed stronger symptoms of PTSD, but also benefited more from treatment. Limitations of this study were: no selection procedure for inclusion of participants (all children referred during a period of 5 years were included), the number of participants was small, there was no control group, progress was measured by one measure only, the author was both assessor and therapist, and data were not analyzed by an independent evaluator.

Ribchester, Yule, and Duncan (2010) explored in a case study design the effects of EMDR on symptoms of PTSD, anxiety, and depression in 11 children (8–16 years) diagnosed with PTSD who had been involved in a traffic accident. Additionally, the study investigated whether reductions in PTSD brought about reduction of attentional bias to emotionally laden information, because of the presumption that these measures could be valuable in clarifying the psychological process and outcome of EMDR. Multimodal measures were used including self-report questionnaires, structured diagnostic interviews, and computer tasks, testing attention, and memory functions (Table 3: 1, 10, 13, 16, 29). Significant results were found for reduction of PTSD, anxiety, depression, and attentional bias. However, the study could not answer the question whether the positive shift in attention was mediated by or only correlated with the effects of EMDR. Study limitations included the first author conducting all the treatments, although treatment fidelity was checked by independent evaluators.

Level 2: Studies With Control Group, but No Randomization

These studies did use a control group, but without randomized allocation of patients. Because results

of EMDR therapy are compared to either a waiting list condition or to another treatment condition, it remains unclear to what we can attribute detected differences. The included studies assessed effects of EMDR on PTSD and other trauma-related symptoms. Hence, the studies of Muris et al., 1997 Muris et al., 1998) are excluded, because they tested the effects on spider phobia and did not target distressing memories or experiences.

Puffer, Greenwald, and Elrod (2000) studied the effects of a single EMDR therapy session in 20 children, 8–17 years, with PTSD symptoms, using a 1-month waiting list control. Formal diagnoses were not obtained. Criterion for eligibility was that there were disturbing memories of a specific event that was not being circumscribed. The EMDR session presumably targeted the memory of this event, though this is not mentioned in the publication. The PTSD scores reduced significantly from the clinical to the normal range in more than 50% of the children (for measure, see Table 3: 19). A Limitation was that the therapist was also the assessor and had only limited training in EMDR therapy, meaning that treatment fidelity was questionable.

Kemp, Drummond, and McDermott (2010) compared the effects of four EMDR sessions versus a waiting list condition in 27 children (6–12 years), who presented with PTSD symptoms after a motor vehicle accident. The children were screened with the Child Post Traumatic Stress Reaction Index (Table 3: 5) and included when having a score >12 or when meeting two or more criteria for PTSD (*DSM-IV*), rated by a clinician. The children in the waiting list condition received EMDR therapy after 6 weeks, the usual period for a waiting list in the institution. Outcome measures were taken pretreatment, posttreatment, 3 months posttreatment, and 12 months posttreatment (Table 3: 3, 11, 17, 18, 19, 33). The PTSD symptoms reduced to 25% in the EMDR group, while remaining 100% in the waiting list condition. Reported improvements remained stable at follow-up after 3 months and had improved further at 12 months. There was only one therapist, however, who also did the outcome assessments.

Wadaa, Zaharim, and Alqashan (2010) examined the effects of EMDR in a group of 12 children (7–12), who had been exposed to different kinds of war and violence (military, civil and sectarian war, and war of terrorism). All children suffered from severe PTSD according to the parents (Table 3: 35). The children had moved from Iraq to Malaysia after the war in 2003 with their parents. The parents

were students at the university in Malaysia. None of the children had received any therapy previously. The parents of 12 children allowed their children to participate in the study; these children received 12 weekly sessions of EMDR within 3 months. The parents of 25 children did not give permission for participation; these children formed the control group and received no treatment during these 3 months. At pretreatment, there was no significant difference between the groups on mean PTSD scores, but posttreatment the mean scores of the experimental group had decreased significantly. In terms of limitations, the sample was very small and homogeneous (only children of postgraduate parents were included).

Tang, Yang, Yen, and Liu (2015) assessed in a group of 83 Taiwanese adolescents (12–15 years), who had experienced a typhoon 3 months earlier, the effects of four EMDR sessions on reduction of the severity of symptoms of anxiety and depression. All of them had been diagnosed with PTSD, depressive disorder, and/or an average to high suicide risk. The experimental group received four EMDR sessions and the control group received psychoeducation by weekly sessions. The results demonstrated that EMDR significantly alleviated symptoms of depression and general anxiety and reduced symptoms of disaster-related anxiety (Table 3: 2, 19, 22), all of which had developed after experiencing a major natural disaster. Limitations: the sample was small, allocation of treatment was not randomized (parents chose the treatment for their child), and there was no follow-up measurement.

Level 3: RCTs, Targeting PTSD, PTSD Symptoms, and/or Other Trauma-Related Symptoms

This level includes an overview of RCTs targeting PTSD and trauma-related symptoms, including behavioral problems. Studies in this category are closest to meeting all criteria.

The study of Farkas, Cyr, Lebeau, and Lemay (2010) is excluded because effects were measured of a combined intervention and not of EMDR alone.

Scheck, Schaeffer, and Gillette (1998) examined the effects of EMDR compared to active listening in a group of 60 adolescents and young adults (16–25 years). All participants had been confronted during their early childhood with interpersonal violence and all of them presented with severe behavioral problems besides PTSD. In the EMDR group, symptoms of

PTSD, anxiety, and depression decreased significantly, measured by several self-report questionnaires. The effects on behavioral problems were not measured. So, this study showed efficacy of EMDR more than active listening for reduction of symptoms of PTSD, anxiety, and depression.

Chemtob, Nakashima, and Carlson (2002) examined the effects of EMDR on 32 children (6–12 years) who experienced intrusive memories of a hurricane that had taken place 3 years earlier. The children still suffered from PTSD a year after Care As Usual (psychoeducation) had taken place. The EMDR group received three sessions while the control group remained on the waiting list; treatment of the control group started 1 month later, after treatment of the experimental group had finished. Significant reduction of PTSD, anxiety, and depression was reported (Table 3: 4, 8, 29). Results remained stable at follow-up after 6 months. In the control group (waiting list) there was no improvement. So, apparently EMDR was effective for these children to recover from disaster-related PTSD.

Soberman, Greenwald, and Rule (2002) examined the effects of three EMDR sessions on top of Care As Usual—milieu treatment—in 29 boys (10–16 years) living in residential (day) care and diagnosed with PTSD, ADHD, and/or behavioral disorders. Study goals were to test whether EMDR would be effective for children with conduct problems, whether trauma treatment would result in reduction of conduct problems (besides PTSD symptoms), and whether this would result from the reduction of trauma-related distress. One key memory was targeted, and the measures were self-report and parent-report questionnaires (Table 3: 7, 19, 24). The measures showed a significant decrease of problem behavior and of reactivity on the targeted memory. Not all measures were convincing (significant) though, and the study had several methodological shortcomings (one single therapist and no blind assessors). The authors expressed doubts about the long-lasting effects of this brief intervention. Their intention was to demonstrate with this study that, by an effective trauma treatment, children with a history of multiple traumatization—reacting with conduct problems, and hence vulnerable to behavioral deterioration after new trauma—may become more open to respond to other interventions, which are appropriate for treatment of youth with conduct problems.

Jaberghaderi, Greenwald, Rubin, Zand, and Dolatabadi (2004) studied 14 Iranian girls (12–13 years) who had been sexually abused. They received either

CBT (10–12 sessions) or EMDR (4–8: as many as needed until memories related to the abuse were fully processed). Three measures were used pretreatment and posttreatment (2 weeks after last session): self-report; parent-report, and teacher-report (Table 3: 7, 24, 31). Both groups showed statistically significant results, with big-effect sizes for reduction of PTSD symptoms and medium-effect sizes for reduction of problem behavior. EMDR appeared significantly more efficient because of fewer therapy sessions and less time for homework. Drop-out rate was equal for both conditions. After termination, three patients in the CBT condition were referred for further treatment versus none in the EMDR condition. Limitations were that the groups were too small to be conclusive, there was a single therapist in each condition, formal procedures for independent checking of treatment fidelity was lacking, and there was no follow-up measurement and no non-treatment condition.

Ahmad, Sundelin-Wahlsten, Sofi, Qahar, and von Knorring (2007) conducted a study with 33 children (6–16 years) who were diagnosed with PTSD, resulting from physical and sexual abuse (both single and chronic); 26 of them fulfilled criteria for an additional DSM diagnosis. All children lived currently in stress-inducing circumstances. For measure of symptoms and treatment outcome, see Table 3: 27. They were randomly allocated to an EMDR condition or a waiting list condition and participants in the EMDR condition received eight sessions, irrespective of their progress. Immediately after treatment, The Post Traumatic Stress Symptom Scale for Children (Ahmad et al., 2000) demonstrated a significant symptom reduction, particularly in the re-experiencing symptoms, but not in hyperarousal symptoms. The persistence of the hyperarousal symptoms might be due to the fact that the children were still living in stressful circumstances. Follow-up was not measured; therefore, the long-term effects of EMDR are unknown. Other limitations of this study were again a small sample size and lack of independent verification of treatment fidelity.

Wanders, Serra, and de Jongh (2008) studied 26 children between 10 and 14 years who were referred to a child psychiatric (day) clinic because of behavioral problems resulting from exposure to varied traumatic experiences. The effects of four EMDR sessions were compared with an equal number of CBT sessions on measures of self-esteem, emotional, and behavioral problems. The children received four experimental sessions, either CBT or EMDR, shortly after admission to the (day) clinic, during a period in which only observation and assessment take place regularly, but

not therapeutic interventions. After their four experimental sessions, they all received identical Care As Usual. The hypothesis was tested whether EMDR therapy–targeting meaningful memories of events that had damaged their self-esteem–would have a significant positive effect on their self-esteem and on reduction of behavioral problems related to this negative self-esteem. To test this hypothesis, parents and mentors completed a series of questionnaires and behavioral measures and the children completed self-assessment instruments pretreatment, immediately after treatment, and at 6 months follow-up (Table 3: 3, 15, 23, 25, 26, 32). Results revealed that both EMDR and CBT had significant positive effects on behavioral and self-esteem problems. The changes in target behaviors of children in the EMDR group seemed slightly larger. This supported the hypothesis that EMDR can produce significant and sustained effects on children’s self-esteem and related problems. Despite these encouraging results, the study also showed several limitations: There was no waiting list control group composed of children who received neither CBT nor EMDR, nor Care As Usual after the period of the experimental sessions. Nor was there a control group of children who received only the Care As Usual (and not the experimental sessions). Therefore, it is impossible to determine to what extent the reported outcomes might be attributed to the regular program (Care As Usual), rather than the experimental sessions, or even to passage of time rather than specific interventions. Another limitation was the small size of the sample, making it difficult to detect meaningful differences between the two groups.

de Roos et al. (2011) compared the effects of EMDR and CBT in a group of 52 children (4–18 years), who had experienced a disaster in their residential area (explosion of a fireworks factory) 1–3 years before, and who showed disaster-related symptoms and were not receiving treatment elsewhere. In this field study both conditions yielded significant results on self-report and parent-report measures. Outcome measures were: symptoms of PTSD, anxiety, depression, and problem behavior (Table 3: 3, 7, 16, 22, 35). No significant differences were found between the two groups. The posttreatment gains were maintained at 3 months follow-up. For efficiency though, a statistically significant difference was demonstrated in the EMDR condition: Results were achieved in fewer sessions (average 3.2 sessions EMDR versus 4 sessions CBT). Study limitations included a relatively small sample; no non-treatment condition; only short-term follow-up after 3 months; and treatment fidelity

check was based on a checklist, as sessions were not recorded.

Diehle et al. (2015) compared the effects of eight sessions of EMDR and TF-CBT (Cohen et al., 2006), the treatment program being recommended in practice guidelines as first-line treatment (Cohen, 2010). Data were collected from 48 children (8–18 years) with various (single or chronic) traumatic experiences who presented varied forms of psychopathology besides partial or full PTSD. Results were assessed by both self-report and parent-report measures on reduction of PTSD and comorbid anxiety, depression, and behavior problems (Table 3: 1, 13, 14, 28, 34). The results for reduction of PTSD symptoms were strong in both conditions, statistically significant and equally effective. The results on comorbid problems suggest that parents of children in the TF-CBT condition reported more positive treatment effects than parents in the EMDR condition. Did the parents in the TFC-BT condition possibly learn to cope better with the emotions and the behavior of their child? Did they develop more effective behavior management skills than the parents in the EMDR condition, because in this condition they were more involved in the treatment of their child? The number of sessions, measured in both conditions, was equal; so, no differences were reported for efficiency. EMDR is compared here with an established treatment; therefore, these results are of great importance for EMDR. The study illustrates strong efficacy of both treatments. Limitations include: the sample size was small, there was no waiting list condition, and there was no long-term follow-up.

de Roos et al. (2017) compared three conditions in a large group of 103 children (8-18 years), recruited from multisite standard referrals: (a) EMDR, (b) Cognitive Behavioral Writing Therapy (CBWT) developed by Van der Oord, Lucassen, Van Emmerik, and Emmelkamp (2010), and (c) waiting list. All children had been exposed to a single traumatic event and were diagnosed with PTSD or subclinical PTSD. A statistically and clinically significant strong reduction was found in symptoms of PTSD, anxiety, depression, and behavior problems both in the EMDR and the CBWT conditions, measured by child- and parent-report measures and negative trauma-related appraisals reported by the child (Table 3: 1, 9, 12, 20, 21, 28, 35). Gains remained stable at follow-up 3 and 12 months posttreatment. Only in the EMDR group was a significant ongoing gain reported between the 3 and 12 months follow-up. Similar to the previous study of de Roos et al. (2011), the results in the EMDR condition were achieved in significantly less therapist contact

time (mean = 4.1 sessions versus 5.4 sessions for the CBWT condition). Contrary to Diehle et al. (2015), De Roos did not find differences in results for the comorbid problems (anxiety, depression, problem behavior) between both conditions. This may be explained by the fact that CBWT does not include modules targeting skill-building for parents and child and therefore is closer to EMDR than TF-CBT (Cohen et al., 2006). This study illustrates that both CBWT and EMDR are highly effective for the reduction of trauma-related symptoms after a single-incident trauma.

Meta-Analyses

Three meta-analyses have been conducted, to my knowledge, since the first child studies on EMDR were published. The first meta-analysis was done by Rodenburg, Benjamin, de Roos, Meijer, and Stams (2009). The goal of this meta-analysis was to give an overview of studies that examined the effects of EMDR, while considering the criterion of incremental efficacy. At that point in time 22 studies with EMDR had been conducted, but only seven studies could be included in the meta-analysis while meeting the inclusion criteria. The conclusion from these seven studies was that effect sizes, based on comparisons between EMDR and non-established trauma treatment or no-treatment control groups, showed an indication for efficacy of EMDR therapy, plus incremental efficacy when effect sizes were based on comparisons between EMDR and established (CBT) trauma treatment.

The second meta-analysis (Brown et al., 2017) that included EMDR is a meta-analysis of psychosocial interventions for children after man-made and natural disasters. The goal was to examine their effectiveness and to explore moderating factors. The reason for conducting this analysis was the increasing numbers of refugees below 18 years of age, worldwide, and (child) victims of natural disasters like earthquakes and hurricanes, which demand effective treatments. Studies were included (36) that reported on treatment outcome regarding PTSD symptoms in children after natural or man-made disasters, published between 2002–2016. Four EMDR studies—with the standard protocol—were included (Chemtob et al., 2002; de Roos et al., 2011; Tang et al., 2015; Wadaa et al., 2010) as well as six studies with the EMDR Integrative Group Treatment Protocol (EMDR-IGTP; Jarero, Artigas, Montero, & Lena, 2008). Also included were classroom interventions, to be delivered by teachers or trained health care professionals so that larger numbers of children can be reached at the same time.

The meta-analysis revealed that group interventions yielded lower effect sizes in pre-post comparisons, but in terms of cost-effectiveness group treatments with a smaller number of sessions could be considered, as they seem to yield similar effect sizes as individual treatments with a larger number of sessions. Other investigated treatment methods, to be delivered by well-trained health care specialists, were CBT, and KIDNET (narrative exposure therapy for children). EMDR, CBT, and KIDNET had all yielded high effect sizes in pre-post comparison and moderate effectsizes in controlled studies. The type of trauma (natural versus man-made disaster) did not moderate treatment effect sizes.

The aim of the third meta-analysis by Moreno-Alcázar et al. (2017) was to update the evidence for efficacy of EMDR therapy in the treatment of PTSD symptoms with children. Additionally, the authors wanted to assess whether EMDR is effective for improvement of comorbid depressive and anxious symptoms, because that was not done before. The meta-analysis is based on eight RCTs. See the studies listed in level 3, Table 2; only the study of de Roos et al. (2017) is lacking in this meta-analysis, because this was not published yet. The main result of the meta-analysis is that a significant reduction in trauma-associated symptoms and comorbid anxiety symptoms was established in patients treated with EMDR; a non-statistically-significant trend was observed for trauma-associated depressive symptoms. These findings are in line with what is found for adults. The incremental efficacy, which was observed by Rodenburg et al. (2009) when comparing EMDR to CBT, was not confirmed in this meta-analysis. Nonetheless, both these meta-analyses showed that EMDR is at least as effective as other techniques such as CBT for reducing PTSD symptoms (Cusack et al., 2016; Moreno-Alcázar et al., 2017, p. 7). No differences were detected in the number of drop-out patients between EMDR and control groups. In terms of limitations, only eight studies (RCTs) could be included in this meta-analysis; they used different control conditions, and the number of sessions that the patients received varied considerably.

Discussion

In this review 15 studies have been included of which 13 were controlled studies and nine were RCTs. Control conditions were: waiting list, treatment or care as usual, active listening, or some form of TF-CBT. In total, 582 children were involved. Studies were located in 10 different countries (Australia,

Germany, Hawaii, Iran, Malaysia, the Netherlands, Sweden, Taiwan, United Kingdom, United States) on four continents (Asia, Australia, Europe, United States).

The studies were heterogeneous, treating children of all ages (1.9–18³ years) and with symptom-presentations varying from some PTSD symptoms to diagnosed PTSD to severe conduct problems. The types of trauma varied from a one-time incident (e.g., motor vehicle accident) to chronic trauma (e.g., sexual abuse). The length of treatment varied from one session (Puffer et al., 2000) to 12 sessions (Wadaa et al., 2010) and also the diagnostic and outcome measures were heterogeneous: 35 different measures were used⁴, and no two studies shared a common battery. Only one study (Diehle et al., 2015) included parental skills training (part of the TF-CBT condition).

The methodological weaknesses reduced the value of the studies' findings. In particular, many failed to conduct diagnostic assessments, use multimodal measures, conduct blind assessments, or provide therapist fidelity evaluations. In addition, only three studies provided longer follow-up assessments (Hensel, 2009, 6 months; Kemp et al., 2010, 12 months; and de Roos et al., 2017, 12 months). Most studies neglected to report how they addressed potential bias by independent assessors checking treatment fidelity.

Also, most studies failed to report the clinical significance of the treatment besides the statistical significance; after statistically significant reduction of symptoms, a child can indeed still be bothered by symptoms of PTSD. Criterion iii (Maxfield & Hyer, 2002) about treatment length, stating that insufficient (too short) treatment could interfere with assessing efficacy, is relevant in this respect. When it will not be necessary any longer to prove that EMDR therapy is an effective treatment, then studies can test what is the optimal length of therapy for children with what kind of problems and after what type of experiences.

Outcomes

Consistent in all 15 studies is the report of significant reductions in PTSD symptoms. In most studies, this is accompanied by significant reduction in measured comorbid symptoms. This effect was less clear in one study (Diehle et al., 2015), where parents reported less improvement on some of the subscales measuring symptoms of anxiety, conduct, and hyperactivity; however, these differences were not significant. The meta-analysis of Moreno-Alcázar et al. (2017) showed statistically significant reduction of anxiety symptoms, and not significant reduction of depressive

symptoms, which may be due to the small number of studies measuring this ($n = 5$). So, for assessing the efficacy of EMDR for comorbid problems more studies are needed.

Four studies compared EMDR with various trauma-focused CBT interventions (de Roos et al., 2011, 2017; Jaberghaderi et al., 2004; Wanders et al., 2008) and one study (Diehle et al., 2015) compared EMDR with the program TF-CBT, developed by Cohen et al. (2006). All (five) studies found no significant difference between the two treatment conditions for PTSD symptom reduction. This is consistent with findings in adult studies.

Three studies found greater efficiency for EMDR and less time needed for therapy sessions (de Roos et al., 2011, 2017; Jaberghaderi et al., 2004), which was not established in one study (Diehle et al., 2015).

None of the studies reported a drop-out rate for EMDR being higher than for control conditions.

Future Research

Potential questions for future research, which are relevant for clinicians, are raised here, and practical recommendations for future research are listed in the Appendix.

Once the efficacy of EMDR therapy for children with trauma-related symptoms has been assessed by sufficient replications of rigorous RCTs, it is possible that EMDR will be rated as an evidence-based treatment with an A status for childhood PTSD in future guideline revisions. In the subsequent phase, empirical studies will be relevant to provide guidance for assessment of a variety of other factors, including scope of applicability (in what psychiatric conditions besides PTSD can EMDR be applied successfully), efficiency (does EMDR yield results quicker than comparable treatments), moderators (what factors influence the effects that EMDR can generate), and mediators (what mechanisms or factors make EMDR work).

Potential Research Questions

EMDR therapy has been found to be an effective treatment for a variety of symptoms, wherever a relation exists between symptoms in the present and distressing memories of past events, or indeed, fantasies about anticipated future events (Engelhard et al., 2011; Logie & de Jongh, 2014). The presumption of the Adaptive Information Processing (AIP) model is that these memories or fantasies cause symptoms because they are not stored adaptively. This model evokes the following questions: Which symptoms/disorders in children and adolescents besides PTSD can EMDR therapy effectively address?

Can EMDR address all symptoms, that are elicited or maintained by intrusive memories or fantasies evoking arousal by negative emotions? Are the effects (dis)similar to PTSD when the negative emotion is anger or disgust instead of fear?

Within a political and economic societal context that wants good value for money invested, is the question of cost-effectiveness valid? Do the results achieved with EMDR require equal, less, or more therapist hours compared to other effective treatments? And if so, why? Such comparisons are less than clear cut, however, since the other recommended evidence-based treatments for children (e.g., TF-CBT, developed by Cohen et al., 2006) do not necessarily share identical goals with EMDR (Beer, 2014).

Future research could also examine if there are certain child characteristics or symptom presentations that require modifications to the standard EMDR procedure. This would allow the therapist to modify treatment according to the child's needs. Research could also investigate whether children benefit equally from a variety of attention demanding tasks,⁵ or whether different tasks have different effects.

Apart from future research regarding the standard protocol, the efficacy of other EMDR protocols should also be tested in controlled studies, such as the group protocol (developed by Jarero, Artigas, Mauer, Alcalá, & Lopez, 1999; Jarero et al., 2008) and protocols based on the storytelling method (developed by Lovett 1999, 2015).

Conclusions

This review discussed 15 studies exploring the efficacy of the EMDR standard protocol for treatment of trauma-related psychopathology in children. Despite the methodological limitations of most studies, an advancement is visible of studies increasingly meeting the criteria for evaluation of studies.

Teamwork between researchers and clinicians is essential for conducting research projects. By collaboration between EMDR therapists and researchers, funds and ways can be found to make more research feasible. Publications of research results will bring answers to questions of clinicians, will contribute to acceptance of EMDR in the guidelines, and will guide us in improvement of our clinical practice. This issue of the *Journal of EMDR Practice and Research* will enlighten both researchers and clinicians about new research with children and therefore will be a source of inspiration for future plans.

Notes

1. In this article, the word “children” refers to both children and adolescents.
2. In addition to the Platinum Standards, an international guideline and standard was formulated in 2010 for evaluating RCT publications, the Consolidation of the Standards of Reporting Trials - CONSORT-Statement (Schulz, Altman, & Moher, 2010), <http://www.consort-statement.org>. This one is not used here, as several studies do not concern RCTs.
3. Except for Scheck et al. (1998) who included 18 adolescents, age 16–19, and 42 young adults, age 20–25.
4. Even more were mentioned in the publications. I only included the measures that could be identified.
5. Instead of “bilateral stimulation,” the term “attention demanding tasks” seems more appropriate, because of the hypothesis concerning the working mechanism of EMDR which is supported by the strongest empirical evidence so far: the hypothesis of taxing the working memory (Gunter & Bodner, 2008). This hypothesis states that by having the patient performing an attention demanding task combined with simultaneously concentrating on a disturbing memory (or fantasy), the working memory is taxed too much, which causes reduction of disturbance and vividness of the memory (fantasy). Research with adults has demonstrated that these working memory taxing tasks do not need to be bilateral and that a wide variety of tasks are similarly effective.

References

- Abidin, R. (1983). *Parenting Stress Index: Manual, administration booklet and research update*. Charlottesville, VA: Pediatric Psychology Press.
- Achenbach, T. (1991). *Manual for the child behavior checklist/4-18 & 1991 profile*. Burlington: University of Vermont, Department of Psychiatry.
- Ahmad, A., Sundelin-Wahlsten, V., Sofi, M. A., Qahar, J. A., & von Knorring, A. L. (2000). Reliability and validity of a child-specific cross-cultural instrument for assessing posttraumatic stress disorder. *European Child Adolescent Psychiatry, 9*(4), 285–294.
- Ahmad, A., Larsson, B., & Sundelin-Wahlsten, V. (2007). EMDR treatment for children with PTSD: Results of a randomized controlled trial. *Nordic Journal of Psychiatry, 61*(5), 349–354. <http://dx.doi.org/10.1080/08039480701643464>
- Albano, A. M., & Silverman, W. K. (1996). *Anxiety disorders interview schedule for DSM-IV: Clinical manual*. San Antonio, TX: Psychological Corporation.
- Alisic, E., & Kleber, R. J. (2010). Measuring posttraumatic stress reactions in children: A preliminary validation of the children’s responses to trauma inventory. *Journal of Child and Adolescent Trauma, 3*(3), 192–204. <http://dx.doi.org/10.1080/19361521.2010.500979>
- Alisic, 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*(5), 335–340. <http://dx.doi.org/10.1192/bjp.bp.113.131227>
- Beer, R. (2014). Trauma Focused Cognitive Behavior Therapy (TF-CBT) and EMDR therapy: Two of a kind. *The Bridge, 2*, 20–22.
- Birleson, P. (1981). The validity of depressive disorder in childhood and the development of a self-rating scale: A research report. *Journal of Child Psychology and Psychiatry, 22*(1), 73–88. <http://dx.doi.org/10.1111/j.1469-7610.1981.tb00533.x>
- Bisson, J., & Andrew, M. (2007). Psychological treatment of post-traumatic stress disorder (PTSD). *The Cochrane Database of Systematic Reviews, 3*, CD003388. <http://dx.doi.org/10.1002/14651858.CD003388.pub3>
- Bracke, D., & Braet, C. (2000). Vragenlijst positieve en negatieve gedachten bij kinderen (PNG-k) [The positive and negative thoughts questionnaire for children]. *Gedragstherapie, 33*(1), 43–61.
- Brown, R. C., Witt, A., Fegert, J. M., Keller, F., Rassenhofer, M., & Plener, P. L. (2017). Psychosocial interventions for children and adolescents after man-made and natural disasters: Meta-analysis and systematic review. *Psychological Medicine, 47*(11), 1893–1905. <http://dx.doi.org/10.1017/S0033291717000496>
- Chemtob, C. M., Nakashima, J., & Carlson, J. G. (2002). Brief treatment for elementary school children with disaster-related posttraumatic stress disorder: a field study. *Journal of Clinical Psychology, 58*(1), 99–112. <http://dx.doi.org/10.1002/jclp.1131>
- Chemtob, C. M., Tolin, D. F., van der Kolk, B. A., & Pitman, R. K. (2000). Eye movement desensitization and reprocessing. In E. A. Foa, T. M. Keane, & M. J. Friedman (Eds.), *Effective treatments for PTSD: Practice guidelines from the International Society for Traumatic Stress Studies* (pp. 139–154). New York, NY: Guilford Press.
- Chen, I., Zhang, G., Hu, M., & Liang, X. (2015). Eye movement Desensitization and Reprocessing versus cognitive-behavioral therapy for adult posttraumatic stress disorder: a meta-analysis of randomized controlled trials. *PLoS one, 9*, e103676.
- Chorpita, B. F., Yim, L., Moffitt, C., Umemoto, L. A., & Francis, S. E. (2000). Assessment of symptoms of DSM-IV anxiety and depression in children. *Behavior Research and Therapy, 38*, 835–855. [http://dx.doi.org/10.1016/S0005-7967\(99\)00130-8x](http://dx.doi.org/10.1016/S0005-7967(99)00130-8x)

- Cohen, J. A., Mannarino, A. P., & Deblinger, E. (2006). *Treating trauma and traumatic grief in children and adolescents*. New York, NY: Guilford Press.
- Cohen, J. A. (2010). Practice parameters for the assessment and treatment of children and adolescents with post-traumatic stress disorder. *Journal of the American Academy of Child and Adolescent Psychiatry*, 46(4), 414–430. <http://dx.doi.org/10.1016/j.jaac.2009.12.020>
- Copeland, W. E., Keeler, G., Angold, A., & Costello, E. J. (2007). Traumatic events and posttraumatic stress in childhood. *Archives of General Psychiatry*, 64(5), 577–584. <http://dx.doi.org/10.1001/archpsyc.64.5.577>
- 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. <http://dx.doi.org/10.1016/j.cpr.2015.10.003>
- de Roos, C., Greenwald, R., den Hollander-Gijsman, M., Noorthoorn, E., van Buuren, S., & de Jongh, A. (2011). A randomised comparison of cognitive behavioural therapy (CBT) and eye movement desensitisation and reprocessing (EMDR) in disaster-exposed children. *European Journal of Psychotraumatology*, 2(1), 5694. <http://dx.doi.org/10.3402/ejpt.v2i0.5694>
- de Roos, C., van der Oord, S., Zijlstra, B., Lucassen, S., Perrin, S., Emmelkamp, P., & de Jongh, A. (2017). Comparison of eye movement desensitization and reprocessing therapy, cognitive behavioral writing therapy, and wait-list in pediatric posttraumatic stress disorder following single-incident trauma: a multicenter randomized clinical trial. *Journal of Child Psychology and Psychiatry*, 58(11), 1219–1228. <http://dx.doi.org/10.1111/jcpp.12768>
- de Wit, C. A. M. (1987). *Depressie vragenlijst voor kinderen. Handleiding en testmateriaal*. Amersfoort, The Netherlands: Academische Uitgeverij Amersfoort.
- 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(2), 227–236. <http://dx.doi.org/10.1007/s00787-014-0572-5>
- Duke, N. N., Pettingell, S. L., McMorris, B. J., & Borowsky, I. W. (2010). Adolescent violence perpetration: associations with multiple types of adverse childhood experiences. *PEDIATRICS*, 125(4), e778–e786. <http://dx.doi.org/10.1542/peds.2009-0597>
- Dyregov, A., & Yule, W. (1995). Screening measures: The development of the UNICEF screening battery. *Paper presented at the Fourth European Conference on Traumatic Stress*, Paris, France.
- Engelhard, I. M., van den Hout, M. A., Dek, E. C., Giele, C. L., van der Wielen, J. W., Reijnen, M. J., & van Roon, B. W. (2011). Reducing vividness and emotional intensity of recurrent “flashforwards” by taxing working memory: An analogue study. *Journal of Anxiety Disorders*, 25(4), 599–603. <http://dx.doi.org/10.1016/j.janxdis.2011.01.009>
- Epstein, N. B., Baldwin, L. M., & Bishop, D. S. (1983). The McMaster family assessment device. *Journal of Marital and Family Therapy*, 9(2), 171–180. <http://dx.doi.org/10.1111/j.1752-0606.1983.tb01497.x>
- Farkas, L., Cyr, M., Lebeau, T. M., & Lemay, J. (2010). Effectiveness of MASTR EMDR therapy for traumatized adolescents. *Journal of Child and Adolescent Trauma*, 3(2), 125–142. <http://dx.doi.org/10.1080/19361521003761325>
- Fernandez, I., Gallinari, E., & Lorenzetti, A. (2004). A school-based EMDR intervention for children who witnessed the Pirelli building airplane crash in Milan, Italy. *Journal of Brief Therapy*, 2, 129–136.
- Fernandez, I. (2007). EMDR as treatment of post-traumatic reactions: A field study of child victims of an earthquake. *Educational and Child Psychology*, 24(1), 65–72.
- Felitti, V. J., Anda, R. F., Nordenberg, D., Williamson, D. F., Spitz, A. M., Edwards, V., . . . Marks, J. S. (1998). Relationship of childhood abuse and household dysfunction to many of the leading causes of death in adults. The Adverse Childhood Experiences (ACE) Study. *American journal of preventive medicine*, 14(4), 245–258.
- Foa, E. B., & Meadows, E. A. (1997). Psychosocial treatments for posttraumatic stress disorder: A critical review. *Annual Review of Psychology*, 48, 449–480. <http://dx.doi.org/10.1146/annurev.psych.48.1.449>
- Foa, E. B., Keane, T. M., Friedman, M. J., & Cohen, J. A. (2008). *Effective treatments for PTSD*. New York, NY: Guilford Press.
- Forbes, D., Creamer, M., Phelps, A., Bryant, R., McFarlane, A., Deville, G. J., . . . Newton, S. (2007). Australian guidelines for the treatment of adults with acute stress disorder and post-traumatic stress disorder. *Australian and New Zealand Journal of Psychiatry*, 41(8), 637–648. <http://dx.doi.org/10.1080/00048670701449161>
- Frederick, C. J., Pynoos, R. S., & Nader, K. (1992). Childhood Post-Traumatic Stress Reaction Index (CPTTS-RI). Copyrighted Semi-Structured Interview.
- Goldberg, D. (1978). *General health questionnaire-12*. Windsor, UK: National Foundation for Educational Research-Nelson.
- Goodman, R. (2001). Psychometric properties of the strengths and difficulties questionnaire. *Journal of the American Academy of Child & Adolescent Psychiatry*, 40(11), 1337–1345. <http://dx.doi.org/10.1097/00004583-200111000-00015>
- Greenwald, R., & Rubin, A. (1999). Assessment of posttraumatic symptoms in children. Development and preliminary validation of parent and child scales. *Research on Social Work Practice*, 9(1), 61–75. <http://dx.doi.org/10.1177/104973159900900105>
- Gunter, R. W., & Bodner, G. E. (2008). How eye movements affect unpleasant memories: Support for a

- working-memory account. *Behaviour Research and Therapy*, 46(8), 913–931. <http://dx.doi.org/10.1016/j.brat.2008.04.006>
- Hamerlynck, S. M. J. J. (2008). *Girls in juvenile institutions. Psychopathology and sexual risk behavior*. Amsterdam, The Netherlands: Ponsen & Looijen.
- Harter, S. (1985). *Manual for the self-perception profile for children*. Denver, CO: University of Denver.
- Hensel, T. (2009). EMDR with children and adolescents after single-incident trauma: An intervention study. *Journal of EMDR Practice and Research*, 3(1), 2–9. <http://dx.doi.org/10.1891/1933-3196.3.1.2>
- Hertlein, K. M., & Ricci, R. J. (2004). A systematic research synthesis of EMDR studies: Implementation of the platinum standard. *Trauma, Violence and Abuse*, 5(3), 285–300. <http://dx.doi.org/10.1177/1524838004264340>
- Horowitz, M. H., Wilner, N., & Alvarez, W. (1979). Impact of event scale. *Psychosomatic Medicine*, 41(3), 209–218.
- Jaberghaderi, N., Greenwald, R., Rubin, A., Zand, S. O., & Dolatabadi, S. (2004). A comparison of CBT and EMDR for sexually-abused Iranian girls. *Clinical Psychology and Psychotherapy*, 11(5), 358–368. <http://dx.doi.org/10.1002/cpp.395>
- Jarero, I., Artigas, L., Mauer, M., Alcalá, N., & Lopez, T. (1999, November 14–17). EMDR Integrative Group Treatment Protocol and the butterfly hug. Paper presented at annual meeting of the International Society for Traumatic Stress Studies, Miami, Florida.
- Jarero, I., Artigas, L., Montero, M., & Lena, L. (2008). The EMDR Integrative Group Treatment Protocol: Application with child victims of a mass disaster. *Journal of EMDR Practice and Research*, 2(2), 97–105. <http://dx.doi.org/10.1891/1933-3196.2.2.97>
- 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(1), 5–25. <http://dx.doi.org/10.1177/1359104509339086>
- Kovacs, M. (1992). *Children's depression inventory*. North Tonawanda, NY: Multi-Health Systems.
- Kresanov, K., Tuominen, J., Piha, J., & Almqvist, F. (1998). Validity of child psychiatric screening methods. *European Child and Adolescent Psychiatry*, 7(2), 85–95. <http://dx.doi.org/10.1007/s007870050052>
- Kroneman, L., & Beer, R. (2013). Stapstenen: Een groepstraining voor adolescenten in de gesloten jeugdzorg met een geschiedenis van complex trauma. [Stepping stones: A group training for adolescents in compulsory closed facilities for residential care with a history of complex trauma]. *Kinder- and Jeugdpsychotherapie*, 40(3), 5–19.
- Lang, M., & Tisher, M. (1983). *Children's Depression Scale*. Melbourne, Australia: ACER Press.
- Leenarts, L. E., Vermeiren, R. R., van de Ven, P. M., Lodewijks, H. P., Doreleijers, T. A., & Lindauer, R. J. (2013). Relationships between interpersonal trauma, symptoms of posttraumatic stress disorder, and other mental health problems in girls in compulsory residential care. *Journal of Traumatic Stress*, 26(4), 526–529. <http://dx.doi.org/10.1002/jts.21831>
- Logie, R. D. J., & Jongh, A. D. (2014). The “Flashforward Procedure”: Confronting the Catastrophe. *Journal of EMDR Practice and Research*, 8(1), 1, 25–32. <http://dx.doi.org/10.1891/1933-3196.8.1.25>
- Lovett, J. (1999). *Small wonders*. New York, NY: Free Press.
- Lovett, J. (2015). *Trauma-attachment. Modifying EMDR to help children resolve trauma and develop loving relationships*. New York, NY: Routledge.
- Maniglio, R. (2009). The impact of child sexual abuse on health: A systematic review of reviews. *Clinical Psychology Review*, 29(7), 647–657. <http://dx.doi.org/10.1016/j.cpr.2009.08.003>
- March, J. S., Parker, J. D., Sullivan, K., Stallings, P., & Conners, C. K. (1997). The Multidimensional Anxiety Scale for Children (MASC): Factor structure, reliability, and validity. *Journal of the American Academy of Child and Adolescent Psychiatry*, 36(4), 554–565. <http://dx.doi.org/10.1097/00004583-199704000-00019>
- Maxfield, L., & Hyer, L. (2002). The relationship between efficacy and methodology in studies investigating EMDR treatment of PTSD. *Journal of Clinical Psychology*, 58(1), 23–41. <http://dx.doi.org/10.1002/jclp.1127>
- Meesters, C., Muris, P., Ghys, A., Reumerman, T., & Rooijmans, M. (2003). The Children's Somatization Inventory: Further evidence for its reliability and validity in a pediatric and a community sample of Dutch children and adolescents. *Journal of Pediatric Psychology*, 28(6), 413–422. <http://dx.doi.org/10.1093/jpepsy/jsg031>
- Meiser-Stedman, R., Smith, P., Bryant, R., Salmon, K., Yule, W., Dalgleish, T., & Nixon, R. D. (2009). Development and validation of the Child Post-Traumatic Cognitions Inventory (CPTCI). *Journal of Child Psychology & Psychiatry*, 50, 432–440.
- Mevisen, L., Didden, R., Korzilius, H., & de Jongh, A. (2016). Assessing posttraumatic stress disorder in children with mild to borderline intellectual disabilities. *European Journal of Psychotraumatology*, 7, 29786. <http://dx.doi.org/10.3402/ejpt.v7.29786>
- Mol, S. S., Arntz, A., Metsemakers, J. F., Dinant, G. J., Vilters-van Montfort, P. A., & Knottnerus, J. A. (2005). Symptoms of post-traumatic stress disorder after non-traumatic events: Evidence from an open population study. *British Journal of Psychiatry*, 186, 494–499. <http://dx.doi.org/10.1192/bjp.186.6.494>
- 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 adolescents with Post-traumatic stress disorder: A meta-analysis of randomized controlled trials. *Frontiers in Psychology*, 8, 1–10. <http://dx.doi.org/10.3389/fpsyg.2017.01750>

- Muris, P., Merckelbach, H., van Haften, H., & Mayer, B. (1997). Eye movement desensitisation and reprocessing versus exposure in vivo. A single-session crossover study of spider-phobic children. *British Journal of Psychiatry*, *171*, 82–86. <http://dx.doi.org/10.1192/bjp.171.1.82>
- Muris, P., Merckelbach, H., Holdrinet, I., & Sijenaar, M. (1998). Treating phobic children: Effects of EMDR versus exposure. *Journal of Consulting and Clinical Psychology*, *66*(1), 193–198. <http://dx.doi.org/10.1037/0022-006X.66.1.193>
- Nader, K. (1994). *Child Post-Traumatic Stress Disorder-Reaction Index: Parent Questionnaire: Adapted for parents to accompany CPTS* (© Frederick, Pynoos & Nader, 1992).
- Nader, K., Kriegler, J. A., Blake, D. D., Pynoos, R. S. N., & E., Weather, F. W. (1996). *Clinician-administered PTSD scale for children and adolescents*. White River Junction, VT: National Centre for PTSD.
- National Collaborating Centre for Mental Health [NCCMH]. (2005). Post-traumatic stress disorder: The management of PTSD in adults and children in primary and secondary care (National Clinical Practice Guideline Number). London, UK: Royal College of Psychiatrists. Retrieved from <https://www.nice.org.uk/guidance/cg26/evidence/full-guideline-including-appendices-113-pdf-193442221>
- Nemeroff, C. B. (2016). Paradise lost: The neurobiological and clinical consequences of child abuse and neglect. *Neuron*, *89*(5), 892–909. <http://dx.doi.org/10.1016/j.neuron.2016.01.019>
- Perry, B. D. (2006). Applying principles of neurodevelopment to clinical work with maltreated and traumatized children. In N. B. Webb (Ed.), *Working with traumatized youth in child welfare* (pp. 27–52). New York, NY: Guilford Press.
- Perry, B. D., & Szalavitz, M. (2007). *The boy who was raised as a dog*. New York, NY: Basic Books.
- Potgieter Marks, R., Struik, A., & Sabau, A. (2017). Guidelines for the assessment and treatment of children and adolescents with dissociative symptoms and dissociative disorders. Retrieved from https://www.estd.org/sites/default/files/files/estd_guidelines_child_and_adolescents_first_update_july_2.pdf
- Puffer, M. K., Greenwald, R., & Elrod, D. E. (2000). A single session EMDR study with twenty traumatized children and adolescents. *Traumatology*, *3*(2). <http://dx.doi.org/10.1037/h0101053>
- 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*(12), 1057–1063. <http://dx.doi.org/10.1001/archpsyc.1987.01800240031005>
- Radloff, L. S. (1977). The CED-D Scale: A self-report depression scale for research in the general population. *Applied Psychological Measures*, *1*(3), 385–401. <http://dx.doi.org/10.1177/014662167700100306>
- Ravens-Sieberer, U., Auquier, P., Erhart, M., Gosch, A., Rajmil, L., Bruil, J., . . . Kilroe, J. (2007). The KIDSCREEN-27 quality of life measure for children and adolescents: psychometric results from a cross-cultural survey in 13 European countries. *Quality of Life Research*, *16*(8), 1347–1356. <http://dx.doi.org/10.1007/s11136-007-9240-2>
- Reynolds, C. R., & Richmond, B. O. (1978). What I think and feel: A revised measure of children's manifest anxiety. *Journal of Abnormal Child Psychology*, *6*(2), 271–280. <http://dx.doi.org/10.1007/BF00919131>
- Ribchester, T., Yule, W., & Duncan, A. (2010). EMDR for childhood PTSD after road traffic accidents: Attentional, memory, and attributional processes. *Journal of EMDR Practice and Research*, *4*(4), 138–147. <http://dx.doi.org/10.1891/1933-3196.4.4.138>
- 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*(7), 599–606. <http://dx.doi.org/10.1016/j.cpr.2009.06.008>
- Rodriguez, N., Steinberg, A., & Pynoos, R. S. (1998). *The UCLA PTSD reaction index for DSM IV (revision 1)*. Trauma Psychiatry Program. Los Angeles: University of California.
- Ronan, K. R., Kendall, P. C., & Rowe, M. (1994). Negative affectivity in children: Development and validation of a self-statement questionnaire. *Cognitive Therapy and Research*, *18*(6), 509–528. <http://dx.doi.org/10.1007/BF02355666>
- Scheck, M. M., Schaeffer, J. A., & Gillette, C. (1998). Brief psychological intervention with traumatized young women: The efficacy of eye movement desensitization and reprocessing. *Journal of Traumatic Stress*, *11*(1), 25–44. <http://dx.doi.org/10.1023/A:1024400931106>
- Schulz, K. F., Altman, D. G., & Moher, D. (2010). CONSORT 2010 statement: Updated guideline for reporting parallel group randomised trials. Retrieved from <http://www.consort-statement.org/downloads>
- Seidler, G. H., & Wagner, F. E. (2006). Comparing the efficacy of EMDR and trauma-focused cognitive-behavioral therapy in the treatment of PTSD: A meta-analytic study. *Psychological Medicine*, *36*(11), 1515–1522. <http://dx.doi.org/10.1017/S0033291706007963>
- Soberman, G. B., Greenwald, R., & Rule, D. L. (2002). A controlled study of eye movement desensitisation and reprocessing (EMDR) for boys with conduct problems. *Journal of Aggression, Maltreatment and Trauma*, *6*(1), 217–236. http://dx.doi.org/10.1300/J146v06n01_11
- Spielberger, C. D. (1979). *The State Trait Anxiety Inventory for Children (STAIC)*. Palo Alto, CA: Mind Garden.
- Spuij, M., Prinzie, P., Zijderlaan, J., Stikkelbroek, Y., Dillen, L., de Roos, C., & Boelen, P. A. (2012). Psychometric properties of the Dutch inventories of prolonged grief for children and adolescents. *Clinical Psychology and Psychotherapy*, *19*(6), 540–551. <http://dx.doi.org/10.1002/cpp.765>
- Stallard, P. (2006). Psychological interventions for post-traumatic reactions in children and young people: A review of randomised controlled trials. *Clinical Psychology Review*,

- 26(7), 895–911. <http://dx.doi.org/10.1016/j.cpr.2005.09.005>
- Steinberg, A. M., Brymer, M. J., Decker, K. B., & Pynoos, R. S. (2004). The University of California at Los Angeles Post-Traumatic Stress Disorder Reaction Index. *Current Psychiatry Reports*, 6(2), 96–100. <http://dx.doi.org/10.1007/s11920-004-0048-2>
- Tang, T. C., Yang, P., Yen, C. F., & Liu, T. L. (2015). Eye movement desensitization and reprocessing for treating psychological disturbances in Taiwanese adolescents who experienced Typhoon Morakot. *The Kaohsiung Journal of Medical Sciences*, 31(7), 363–369. <http://dx.doi.org/10.1016/j.kjms.2015.04.013>
- Teicher, M. H., Andersen, S. L., Polcari, A., Anderson, C. M., Navalta, C. P., & Kim, D. M. (2003). The neurobiological consequences of early stress and childhood maltreatment. *Neuroscience and Biobehavioral Reviews*, 27(1-2), 33–44. [http://dx.doi.org/10.1016/S0149-7634\(03\)00007-1](http://dx.doi.org/10.1016/S0149-7634(03)00007-1)
- Teicher, M. H., & Samson, J. A. (2013). Childhood maltreatment and psychopathology: A case for ecophenotypic variants as clinically and neurobiologically distinct subtypes. *American Journal of Psychiatry*, 170(10), 1114–1133. <http://dx.doi.org/10.1176/appi.ajp.2013.12070957>
- Thompson, M., Kaslow, N. J., Weiss, B., & Nolen-Hoeksema, S. (1998). Children's Attributional Style Questionnaire-Revised: Psychometric examination. *Psychological Assessment*, 10(2), 166–170. <http://dx.doi.org/10.1037/1040-3590.10.2.166>
- Van der Oord, S., Lucassen, S., Van Emmerik, A. A., & Emmelkamp, P. M. (2010). Treatment of post-traumatic stress disorder in children using cognitive behavioural writing therapy. *Clinical Psychology and Psychiatry*, 17(3), 240–249. <http://dx.doi.org/10.1002/cpp.670>
- Verlinden, E., Schippers, M., Van Meijel, E. P. M., Beer, R., Opmeer, B. C., Olf, M., . . . Lindauer, R. J. L. (2013). What makes a life event traumatic for a child? The predictive values of DSM-Criteria A1 and A2. *European Journal of Psychotraumatology*, 4(1), 20436. <http://dx.doi.org/10.3402/ejpt.v4i0.20436>
- Wadaa, N. N., Zaharim, N. M., & Alqashan, H. F. (2010). The use of EMDR in the treatment of traumatized Iraqi Children. *Digest of Middle East Studies*, 19(1), 26–36. <http://dx.doi.org/10.1111/j.1949-3606.2010.00003.x>
- Wanders, F., Serra, M., & de Jongh, A. (2008). EMDR Versus CBT for children with self-esteem and behavioral problems: A randomized controlled trial. *Journal of EMDR Practice and Research*, 2(3), 180–189. <http://dx.doi.org/10.1891/1933-3196.2.3.180>
- World Health Organization [WHO]. (2013). *Guidelines for the management of conditions specifically related to stress*. Geneva, Switzerland: Author.
- Zamir, O., Szepsenwol, O., Englund, M. M., & Simpson, J. A. (2018). The role of dissociation in revictimization across the lifespan: A 32-year prospective study. *Child Abuse & Neglect*, 79, 144–153. <http://dx.doi.org/10.1016/j.chiabu.2018.02.001>

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Appendix: Practical Recommendations for Research Implementation

These recommendations for future research are based on experiences in past research projects.¹ They concern *prerequisites* for conducting research in an institution and *exploitable benefits* of being involved in research for therapists and patients. They are summarized in Table A1 and will be explained.

Prerequisites

Several logistic prerequisites are of vital importance for the start and progress of a research project.

1. Conditions Within the Institution

Support of the Management. Goodwill of the management of the institution(s) where the research is going to take place is essential. Therefore, take time before and during the process to ensure that goodwill and commitment of key persons on different levels in the institution(s) is guaranteed.

Keep the key persons informed of relevant developments.

Culture and Infrastructure. A research-minded culture within the institution(s) is important. In research with EMDR, the researcher cooperates with therapists who are used to working with protocols. Therefore, it will not be difficult to have therapists adhere to a research protocol for treatment fidelity, generally. However, having pre- and post-measurements conducted by colleagues, because assessors and therapists must be different persons, is not what therapists are used to, generally, in clinical practice.

Hence, make sure that the infrastructure is (made) ready for this. Explain to therapists the significance of deviating from their routine procedures, if necessary.

2. Therapists

Involvement. Involvement of the therapists, who must do the job, motivates them to cooperation, because being involved evokes the feeling of being a vital part of the project.

Therefore, promote involvement as early as possible in the process by giving information and asking for feedback.

TABLE A1. Practical Recommendations

Prerequisites	1. Institution	<ul style="list-style-type: none"> • Support of management • Culture and infrastructure
	2. Therapists	<ul style="list-style-type: none"> • Involvement • Clear goals and tasks • Pilot study
	3. Instruments	<ul style="list-style-type: none"> • Reliable and valid
	4. Information flow	<ul style="list-style-type: none"> • Rationale • Monitoring progress
	5. Research team	<ul style="list-style-type: none"> • Clinical and statistical expertise • Consultation and coordination
Exploitable benefits	1. Therapists	<ul style="list-style-type: none"> • Relevance of research data • Prevention from “overprotection”
	2. Patients	<ul style="list-style-type: none"> • Participation reassuring and rewarding

Clear Goals and Tasks. Formulate measurable and attainable goals and create situations, where it is clear for everyone how they can contribute.

Pilot Study. Consider a pilot study in the institution for getting everyone used to potentially new routines and also for discovering and tackling preliminary problems.

3. Instruments

Adequate Instruments. Valid and reliable instruments for measurements have to be available. Mevissen wanted to examine the efficacy of EMDR for children and adults with mental disabilities. However, before she could start her research project, she first had to develop and validate a structured interview for assessment of PTSD with this target group, because there were no instruments available (Mevissen, Didden, Korzilius, & de Jongh, 2016). Fortunately, valid and reliable measures for measuring PTSD in children of the general population are available.

It would be helpful—and so much more efficient—if on an international level all researchers could make use of a (more) standardized battery of instruments, so that research data from different countries can be compared more easily.

4. Information (-flow)

Rationale for the Project. A clear rationale for the research project is important for enhancing cooperation of both therapists and patients.

Compose information sheets and brochures for patients with clear messages that convince people to come and stay aboard.

Monitoring Progress. Evaluation of progress of inclusion is a matter of course. Report regularly about it.

5. Research Team: Conditional Qualities

Clinical Curiosity and Statistical Expertise. Clinical curiosity and statistical expertise are both necessary and complementary. These qualities are not necessarily present in one person, but both have to be present in the research team.

Consultation and Coordination. Research therapies should be supervised on a regular basis by consultants accredited by EMDR Europe² for guarantee of treatment fidelity.

An EMDR trainer or consultant—apart from the researcher—can play a supportive role in the research team by coordinating the needs: explaining the goals of the research project to the therapists and paying attention to potential attitudinal conflicts of therapists.

Exploitable Benefits of Being Involved in Research

Participation in research projects implies benefits for both therapists and patients, which the researcher should exploit.

1. For Therapists

Relevance of Research Data. Research data give therapists a valid and solid ground for decisions they have to take and explain to their patients, concerning therapy choice.

Prevention From “Overprotection”. Having to adhere to research protocols can prevent therapists from seeing their patients as “special cases” who are not fit for inclusion because they seem “too traumatized,” “too complex,” or “too much suffering from their multi-problem family.”

2. For Participants

Participation Reassuring and Rewarding. In general, patients are willing and happy to cooperate, because they experience it as reassuring to receive a therapy that is investigated thoroughly and as rewarding that assessment takes place several times, pre- and postmeasurement, and even once again after several months for follow-up. Feedback of these data is mostly highly appreciated.

Notes

1. Source: Dutch researchers who studied (the effects of EMDR on) traumatized children (Carlijn de Roos, Julia Diehle, Ramón Lindauer, Liesbeth Mevissen, Els van Meijel, Eva Verlinden) and the author being involved as therapist and consultant in the research project of Diehle et al. (2015).

2. Or equivalent organizations outside of Europe.