Eye Movement Desensitization and Reprocessing Therapy and Change in Attachment Security: A Pilot Study

Natalie A. Barazzone
Salomons Institute for Applied Psychology, UK

Ines Santos
Sussex Partnership NHS Foundation Trust, UK

John F. McGowan
Salomons Institute for Applied Psychology, UK

Maeve Crowley
Alex R. Chamberlain
Sussex Partnership NHS Foundation Trust, UK

Eloise G. Donaghay-Spire
Salomons Institute for Applied Psychology, UK

Eye movement desensitization and reprocessing (EMDR) therapy has a rapidly growing evidence base; however, research into changes in attachment security during EMDR therapy is limited. This pilot study aimed to explore changes in attachment security in a clinical sample of adults who received EMDR therapy for symptoms of posttraumatic stress disorder (PTSD) and complex posttraumatic stress disorder (CPTSD). It also explored the quality of the therapeutic alliance in relation to changes in attachment security. A within-subject, repeated-measures design was used. Eighteen participants received fifteen EMDR sessions on average and completed self-report measures of attachment, PTSD, CPTSD, and therapeutic alliance. A decrease in attachment insecurity was observed. Changes in attachment security were partially associated with the quality of the therapeutic alliance and changes in symptomatology. This study contributes to the emerging literature on change in attachment security and EMDR therapy.

Keywords: eye movement desensitization and reprocessing (EMDR) therapy; attachment, posttraumatic stress disorder (PTSD); complex posttraumatic stress disorder (CPTSD); adults

Attachment theory provides a framework for understanding individual differences in relationships developed through early interactions with a caregiver (Bowlby, 1977). Early relationship patterns are internalized and influence associated expectations, attitudes, and beliefs. These Internal Working Models (IWM; Bowlby, 1988) encompass beliefs about one's self-worth and safety, in addition to the responsiveness and trustworthiness of others. IWMs have been shown to shape interactions toward future relationships and experiences and contribute to psychological dispositions in later life (Simard et al., 2011).

The quality of attachment in adulthood has been described in a four-category model proposed by Bartholomew (1990). This model outlines four attachment styles: *Secure, preoccupied, dismissing,* and *fearful,* which sit along dimensions of anxiety and avoidance (Brennan et al., 1998). Attachment anxiety reflects the extent of sensitivity to rejection and abandonment, whereas attachment avoidance reflects the extent of discomfort with closeness and comfort seeking in times

of distress. Both the anxious and avoidant dimensions are characterized by the failure of proximity-seeking to relieve distress (Mikulincer et al., 2003). A secure attachment is defined by having both low attachment anxiety and low avoidance. There is typically an ease with closeness in relationships and a tendency to seek support in distress. Dismissing attachment refers to low attachment anxiety and high avoidance. Attachment needs tend to be denied, closeness in relationships avoided, and there is a preference for self-reliance in times of stress. Preoccupied attachment is marked by high attachment anxiety and low avoidance. It refers to a strong need for closeness yet also includes fears of rejection, and expressions of emotion and suffering tend to be marked. Fearful attachment is characterized by high levels of both anxiety and avoidance. This leads to both a desire for closeness contrasted with a marked distrust in relationships.

Secure individuals tend to have higher self-worth (Lim et al., 2012) and better global functioning (Mikulincer & Shaver, 2007). Compared to insecure individuals, they tend to regulate emotions more effectively and recover more quickly from distressing experiences (Mikulincer & Shaver, 2019). Insecure individuals are more likely to experience difficulties in relationships and are more vulnerable to poor psychological health (Mikulincer & Shaver, 2007).

Change in Attachment Security

While attachment styles are largely believed to be stable over time (Franz et al., 2014), Taylor et al. (2015) synthesized research examining changes in attachment representations during a range of psychological therapies in 14 studies. They found that the majority of studies demonstrated improvements in attachment security.

From a psychodynamic perspective, a shift toward attachment security is an important treatment objective (Parish & Eagle, 2003). This has been evidenced in psychodynamically-oriented psychotherapy for borderline personality disorder (BPD; Fonagy et al., 2005; Fonagy et al., 2006), time-limited dynamic therapy for interpersonal difficulties (Travis et al., 2001), transference-focused psychotherapy for BPD (Diamond et al., 2003; Levy et al., 2006), and attachment-based compassion therapy (Navarro-Gil et al., 2018).

Changes in attachment status have also been evidenced in other modalities that do not have an emphasis on interpersonal dynamics. Tasca et al. (2007) compared cognitive behavioral therapy (CBT) and psychodynamic interpersonal therapy and found that attachment insecurity significantly decreased postintervention for both treatments. Strauß et al. (2018) compared CBT and short-term psychodynamic psychotherapy for social anxiety in a randomized control trial examining changes in attachment status characteristics. They found that those who received CBT revealed significant changes in attachment anxiety and avoidance, whereas those who received psychodynamic psychotherapy showed no significant changes. Further studies observing positive changes in attachment style include: A combined cognitive behavioral and psychodynamic group therapy for violent behavior (Lawson et al., 2006), an inpatient skill-based group for PTSD (Muller & Rosenkranz, 2009), an emotionally focused group therapy for binge eating disorder (Compare et al., 2018), prolonged exposure therapy, and skills training in emotion and interpersonal regulation for BPD and PTSD (Stovall-McClough & Cloitre, 2003).

Together, these studies suggest that therapy may contribute to a positive change in attachment status in psychodynamic and nonpsychodynamic therapies, in both individual and group therapies, and in time-limited therapies. However, there is currently insufficient evidence to suggest that all psychological interventions lead to an increase in attachment security.

Eye Movement Desensitization and Reprocessing Therapy and Change in Attachment Security

There has been a developing interest in EMDR's capacity to improve attachment security (Wesselmann & Potter, 2009; Wesselmann et al., 2012). EMDR is an evidence-based therapy founded on an adaptive information processing model that theorizes that psychopathology is due to either maladaptive encoding or incomplete processing of traumatic or disturbing life experiences (Hase et al., 2017). The eight-phased, three-pronged (past, present, and future) treatment protocol is used to facilitate information processing and reintegration (Shapiro, 2001; Van den Hout et al., 2001). It is an integrative and comprehensive treatment approach, incorporating features of psychodynamic, cognitive-behavioral, experiential, interpersonal, and physiological therapies (Schubert & Lee, 2009). Although the primary focus of EMDR is not relational, it is designed to address emotional regulation and cognitive representation of self and others—both integral features of attachment security (Obegi & Berant, 2009; Shapiro, 2001). Furthermore, the processing of memories is believed to bring about not only "state" changes but also "trait" changes (Brown & Shapiro, 2006; Shapiro, 2007).

Journal of EMDR Practice and Research, Volume 17, Number 1, 2023
Eye Movement Desensitization and Reprocessing Therapy and Change in Attachment Security

39

Wesselmann and Potter (2009) presented a case study of three clients demonstrating that 10–15 sessions of EMDR therapy combined with group-based dialectical behavior therapy led to a positive shift in attachment security. Attachment status was assessed using the Adult Attachment Interview (AAI; George et al., 1985), and EMDR was used to process attachment-related memories. All three clients, classified with insecure attachment styles prior to therapy, developed secure attachments following therapy.

Civilotti et al. (2019) found a positive shift toward attachment security in 20 adults following EMDR therapy using the AAI, in addition to an increase in narrative coherence and reflective functioning. EMDR therapy has demonstrated similarly encouraging effects on attachment security in an unremitting eating disorder client (Zaccagnino et al., 2017). Following six months of twice-weekly EMDR therapy combined with integrated psychoeducation, resource development installation, and ego state therapy, the client no longer met diagnostic criteria and progressed from a dismissing attachment style on the AAI to an earned free-autonomous state of mind. This was maintained at the 12- and 24-month follow-ups.

The Present Study. This current pilot study aimed to develop on these findings suggesting that EMDR may help improve attachment security in clients presenting with PTSD and CPTSD. Such disorders are of particular interest given the prevalence of attachment insecurity in PTSD (Barazzone et al., 2019; Franz et al., 2014) and CPTSD (Liotti, 2004; Sandberg, 2010). Research indicates that almost two-thirds of individuals with PTSD meet the criteria for an insecure attachment style (Dieperink et al., 2001), and this figure appears to increase to at least three quarters for individuals who had suffered childhood abuse (Anderson & Alexander, 1996; Liotti, 1995; Muller et al., 2000). The study sought to explore the associations between attachment style changes and PTSD and CPTSD symptom severity.

Given that the therapeutic alliance is believed to share many of the features of an attachment relationship (Bowlby, 1988) and the possibility that a good therapeutic relationship may influence a client's attachment system (Lambert & Barley, 2001), this study also considered its influence on attachment change. It was hypothesized that:

1. Following EMDR therapy, there will be a positive change in attachment security (i.e., a decrease in attachment insecurity or an increase in attachment security).

2. Positive changes in attachment security over the course of treatment will be associated with a decrease in PTSD and CPTSD.
3. The quality of the therapeutic alliance will be associated with a positive change in attachment security.

Method

Design

This pilot study adopted a within-subject, repeated-measures design to explore changes in attachment security during EMDR therapy. Measures of attachment security and PTSD were administered by EMDR therapists at baseline (Time 1, T1), session eight (Time 2, T2), and in multiples of eight sessions until the end of therapy (Time 3, T3). T3 could, therefore, represent sessions between 8 and 20 sessions depending on the participant's therapy completion. A measure of therapeutic alliance was administered by EMDR therapists every three sessions. To account for therapist-specific factors, EMDR therapists completed a questionnaire designed to establish their level of EMDR training and self-perceived level of competence. They were also asked to state their adherence to the eight-phased protocol and whether the therapy had been informed by other therapeutic models and techniques. Finally, to ensure EMDR protocol fidelity, therapists' clinical work was supervised by an EMDR consultant.

Measures

Attachment Style. The *relationship scales questionnaire* (RSQ; Griffin & Bartholomew, 1994) is a self-reported measure of attachment security. It is a widely used measure that is less resource-intensive than other interview-based attachment style measures. Items are based on four prototypes of attachment security: Fearful, dismissing, secure, and preoccupied. Participants were asked to rate 30 statements regarding close relationships (e.g., *"I find it difficult to depend on other people"* and *"I want emotionally close relationships"*) on a 5-point scale ranging from *"not at all like me"* to *"very much like me."* Scores were also used to compute the anxiety (self-model) and avoidance (other model) dimensions (see Frayley & Waller, 1998). In the current study, the scale reliability for individual subscales, derived from the baseline scores, ranged from unacceptable to good: Secure: five items, $\alpha = .29$; Preoccupied: four items, $\alpha = .011$; Dismissing: five items, $\alpha = .675$; Fearful: four items,

α = .79. When reliability analyses were conducted on a combination of baseline, T2, and T3 scores, Cronbach's similarly ranged from unacceptable to good: Secure: five items, α = .41; Preoccupied: four items, α = .18; Dismissing: five items, α = .82; Fearful: four items, α = .66. It is unclear why reliability for the secure and preoccupied scales was tenuous. Both scales were included in the analysis on the basis that it is a widely used measure that has demonstrated good validity and reliability in previous research (Guédeney et al., 2010).

Therapeutic Alliance. The *working alliance inventory-short version* (WAI-S; Tracey & Kokotovic, 1989) consists of two parallel self-report measures, one completed by the client and one by the therapist. It comprised 12 items on a 1–7 Likert scale (1 = never, 7 = always). Items included: *"[The therapist/client] and I are working towards mutually agreed upon goals"* and *"I believe* [the therapist/client] *likes me."* The WAI-S contains three subscales centered on agreement on goals, tasks, and the therapeutic relationship. These subscale scores were summed to give the total score. The measure has demonstrated nearly equivalent predictive validity to the WAI-S (Horvath & Greenberg, 1986) for treatment outcome (.34 and .36; Tracey & Kokotovic, 1989). Reliability estimates indicated excellent internal consistency in this sample for WAI-S (client version; α = .92), and WAI-S (therapist version; α = .93) at baseline (session 3 for this measure).

Posttraumatic Stress Disorder. The 22-item *impact of event scale-revised* (IES-R; Weiss & Marmar, 1997) assessed the presence and severity of PTSD. This is a well-established measure, based on the Diagnostic and Statistical Manual (DSM-IV) criteria for PTSD (APA, 1994). The IES-R measures intrusions (e.g., *"I thought about it when I didn't mean to"*), avoidance (*"I stayed away from reminders about it"*), and hyperarousal (*"I was jumpy and easily startled"*). Participants were asked to rate each item in terms of its frequency of occurrence over the past 7 days on a 5-point Likert scale (0 = not at all, 5 = often). Respondents were asked to provide IES-R ratings for the trauma they were focusing on during therapy. To ensure consistency, if the therapy targeted multiple traumas, participants were asked to respond to items in relation to the most traumatic event. The three subscale scores were totaled. The correlation between the IES-R and the PTSD symptom checklist has been shown to be high (.84; Creamer et al., 2003). Based on the baseline scores, the measure demonstrated good internal consistency (α = .92). A

clinical cut-off score of ≥ 33 was applied, as recommend by Creamer et al. (2003).

The type of traumatic experiences to which clients were exposed was assessed using the *Life Events Checklist* (Blake et al., 1995). The *Life Events Checklist* is a 17-item checklist asking individuals to indicate whether they have experienced, witnessed, or learned about each of a series of stressful life events (e.g., unwanted sexual experience, fire, and accident). The current study recorded the total number of experienced, witnessed, and learned about life events.

A self-report version of the *Structured Interview for Disorders of Extreme Stress-Self Report* (SIDES-SR; Van der Kolk, 1996) was used to measure the presence and severity of CPTSD. The SIDES-SR comprises 45 items on a 5-point Likert scale, based on six subscales reflecting the symptoms of DESNOS: (a) Alteration in regulation of affect and impulses (*"small problems get me very upset"*), (b) alterations in attention or consciousness (*"I 'space' out when I feel frightened or under stress"*), (c) alterations in self-perception (*"I feel that I have something wrong with me after what happened to me that can never be fixed"*), (d) alterations in relations with others (*"I avoid having relationships with other people"*), (e) somatization (*"I suffer from [circle items that apply], yet doctors have not found a clear cause for it"*), and (f) alterations in systems of meaning (*"I feel hopeless and pessimistic about the future"*). Each question required participants to state: (a) Whether they have experienced the symptom in their lifetime and (b) the severity of experience in the past month. Each subscale is considered significant if certain internal SIDES-SR scoring criteria are met on their composite items. The presence of CPTSD was indicated by the occurrence of at least one significant subscale. The symptom severity of CPTSD was calculated using the criteria of Spinazzola (2019) where raw participant scores were summed, allowing for a better comparison of the relative severity of symptoms across the sample. The SIDES-SR demonstrated good internal consistency for this sample (α = .93). It has also demonstrated good construct validity (Zlotnick & Pearlstein, 1997).

Participants

Clients aged 18 years and older who had been referred for EMDR therapy for PTSD were recruited from community mental health teams in primary and secondary care in two U.K.-based NHS Trusts. This included two Improving Access to Psychological Therapies services and six secondary care teams in Assessment and Treatment Services.

Journal of EMDR Practice and Research, Volume 17, Number 1, 2023
Eye Movement Desensitization and Reprocessing Therapy and Change in Attachment Security

41

Inclusion criteria stipulated that the participant had (a) experienced at least one traumatic event, (b) was eligible for EMDR therapy, and (c) could speak and read English. Disorders where PTSD and CPTSD symptoms were not the primary focus of therapy were excluded. A total of 20 clients gave informed consent to participate, and two participants dropped out of treatment before completing measures. A total of 18 participants' data were included in the study.

The ethical approval was granted by an Independent Research Ethics Committee and NHS Research and Development departments.

Procedure

EMDR therapy was delivered according to the eight-phased protocol. Therapists administered measures at specified session numbers, as outlined above. Therapists were requested not to read through any data that were not part of routine care to avoid confounding results. Participants were provided with an envelope to conceal responses for the WAI-S.

Results

Analyses

Treatment of the Data. Normality was assessed for variables using Shapiro–Wilk tests. The distributions of seven variables were found to significantly differ from normality. These were fearful attachment style at Time 1 (T1; $W = .85$, $p = .01$), SIDES-SR severity (T1; $W = .88$, $p = .013$), WAI-S client version session 3 ($W = .86$, $p = .036$), WAI-S client version session 6 ($W = .77$, $p < .001$), secure attachment style time 2 (T2; $W = .88$, $p = .029$), SIDES-SR severity T2 ($W = .88$, $p = .035$), and SIDES-SR severity time 3 (T3; $W = .84$, $p = .009$). One explanation for this could be the notable variation in the number of sessions participants received when measures were administered at T3. Nonparametric tests were applied to variables that did not meet this standard of parametric testing.

Bootstrapping was applied to parametric analysis to produce 95% confidence intervals (CIs). Paired sample t-tests were used to analyze parametric data, where effect sizes were calculated using Cohen's d (small = .2, medium = .5, large = .8; Cohen, 1992). Nonparametric variables were compared using Wilcoxon's signed-rank test, where the effect size was calculated using effect size r (Rosental & Rubin, 2003; small = .1, medium = .3, large = .5).

The analyses were two-fold: First, participants' scores were compared at session 1 (T1) and session 8 (T2). This was to ensure uniformity since all

participants completed at least eight sessions. The second phase of analyses involved comparing participants' scores at T1 and at the end of therapy (T3). Therefore, T3 represented different session numbers for different participants, depending on how many sessions they received overall.

Descriptive Statistics

Participants. Out of the 18 participants (13 women, 5 men, $M_{age} = 39.89$, age range: 22–61 years), 16 participants identified themselves as White British and two as "White Other." Twelve out of the eighteen participants reported a history of childhood abuse as defined by Briere (1992) (i.e., physical, sexual, emotional, neglect, and witnessing domestic violence). The most common type of trauma reported as the main target for EMDR therapy was sexual assault ($n = 9$), followed by physical assault ($n = 4$), serious accidents ($n = 3$), bereavement ($n = 2$), and combat-related ($n = 1$).

Eleven therapists (2 men and 9 women) comprising qualified clinical/counseling psychologists ($n = 6$), a psychoanalytic psychotherapist ($n = 1$), and mental health practitioners ($n = 4$) delivered EMDR therapy. All but one had completed all three parts of EMDR training, and one was at "consultant" level. All therapists were supervised by consultant EMDR practitioners. Therapists rated themselves as either "competent" ($n = 8$), "highly experienced" ($n = 1$), or "novice" ($n = 2$). The number of years therapists had practiced EMDR ranged from 1–15 years ($M = 4.33$, $SD = 4.38$).

Posttraumatic Stress Disorder and Complex Posttraumatic Stress Disorder. All but one of the participants' IES-R scores were higher than the clinical cutoff (33) at baseline. Fifteen (83.33%) participants reported symptoms of CPTSD at baseline, as indicated by at least one significant subscale of the SIDES-SR.

Attachment Style. Participants were categorized in terms of attachment style according to their highest rating on the RSQ scales. Fearful was the most common attachment style ($n = 12$). Four participants were categorized as having a dismissing attachment style, and two participants had a secure attachment style. Participants categorized with a fearful attachment style reported the highest level of posttraumatic stress symptoms with a mean PTSD score of 59.00 ($n = 12$, SE = 4.69), followed by those with a dismissing attachment style ($n = 4$, $M = 52.00$, SE = 5.50). The participants categorized with secure attachments reported the lowest PTSD symptoms ($n = 2$, $M = 43.50$, SE = 16.56).

TABLE 1. PTSD and CPTSD Scores Derived From IES-R and SIDES-SR Administered at T1 and T2 (*N* = 18)

Measures	Baseline (T1) Mean (*SD*)	Session 8 (T2) Mean (*SD*)	Paired samples *t*-test (*df*)[a] *t* (*df*)	CI (*x, y*)	Effect size[b] (*d* value)
IES-R	55.94 (17.81)	38.88 (25.41)	4.53** (16)	10.01, 23.64	.78

Measures	Baseline (T1) Mean (*SD*)	Session 8 (T2) Mean (*SD*)	Wilcoxon signed-rank test[a] Z value	Test statistic	Effect size (*r* value)[c]
SIDES-SR (significant subscales)	3.88 (1.45)	3.12 (2.03)	−1.68*	14.50	.30
SIDES-SR (total score)	41.0 (20.45)	35.12 (24.79)	−2.90*	9.50	.48

[a]One tailed. [b]Cohen's $d = (M2 − M1)/SD_{pooled}$, where $SD_{pooled} = \sqrt{((SD12 + SD22)/2)}$. Effect size, $r = Z\,score\,/\,\sqrt{(number\,of\,observations)}$ (Rosental & Rubin, 2003).
*Significant at the $p < .05$ level. **Significant at the $p = .001$ level.

Therapy. Participants received a mean number of 15 therapy sessions (*SD* = 4.37), using the eight-phase EMDR protocol as the principal model. Five out of eleven therapists reported having drawn from other models (e.g., cognitive-analytic therapy, psychodynamic therapy, and CBT). This is unsurprising given the clinical complexity of the sample, which often demands the therapists' ability to draw from other models to meet clients' complex mental health and attachment needs.

Posttraumatic Stress and Complex Posttraumatic Stress Symptom Decrease. Although the change in PTSD scores following EMDR was not the focus of the present study, it was of clinical relevance to note that posttraumatic stress symptoms significantly reduced from T1 (M = 55.94, SD = 17.81) to T2 (M = 38.88, SD = 25.41): t(16) = 4.53, p < .001, d = .78. There was also a significant decrease in IES-R scores from T1 to T3 (M = 35.94, SD = 26.36): t(16) = 4.59, p < .001, d = .89. Tables 1 and 2 outline the coefficients. Similarly, levels of CPTSD symptoms were observed to significantly decrease on the SIDES-SR between T1 (M = 41.12, SD = 21.11) and T2 (M = 35.12, SD = 24.79), with a medium effect size: Z = −2.7, p = .007, r = .48. There

TABLE 2. PTSD and CPTSD Scores Derived From IES-R and SIDES-SR Administered at T1 and T3[c] (*N* = 18)

Measures	Session 8 (T2) Mean (*SD*)	(T3) Mean (*SD*)	Paired samples *t*-test (*df*)[a] *t* (*df*)	CI (*x, y*)	Effect size[b] (*d* value)
IES-R	55.94 (17.81)	35.94 (26.36)	4.59** (16)	11.41, 28.41	.89

Measures	Baseline (T1) Mean (*SD*)	(T3) Mean (*SD*)	Wilcoxon signed-rank test[a] Z value	Test statistic	Effect size (*r* value)[c]
SIDES-SR (significant subscales)	3.88 (1.45)	2.5 (2.19)	−2.72*	14.13	.48
SIDES-SR (total score)	41.0 (20.45)	30.87 (26.04)	−2.97**	10.5	.52

Note. Bootstrap results are based on 1,000 bootstrap samples.
[a]One-tailed. [b]Cohen's $d = (M2 − M1)/SD_{pooled}$, where $SD_{pooled} = \sqrt{((SD12 + SD22)/2)}$. [c]Effect size $r = Z\,score\,/\,\sqrt{(number\,of\,observations)}$ (Rosental & Rubin, 2003).
*Significant at the $p < .05$ level. **Significant at the $p = .001$ level.

was also a significant decrease in scores between T2 and T3 (M = 30.87, SD = 26.04) with a medium effect size: Z = −2.97, p = .003, r = .52. Repeated measures t-tests and Wilcoxon signed-rank tests were used to assess these differences for the IES-R and SIDES-SR scores, respectively.

Main Analysis

Hypothesis 1. It was hypothesized that there would be an increase in attachment security and a decrease in attachment insecurity following EMDR therapy. When the data met parametric standards, repeated measures t-tests were used to test for differences, and Wilcoxon signed-rank tests were used when the data did not. In support of hypothesis 1, analyses revealed a significant reduction in fearful attachment style scores between T1 and T2, $Z = −1.87$, $p = .31$, $r = .32$, which decreased further between T1 and T3, $Z = 2.83$, $p = .006$, $r = .56$. Furthermore, a significant decrease in dismissive attachment style was found between T1 and T3: $t(16) = 2.4$, $p = .014$, $d = .42$. All other mean scores did not reach significance but trended in the hypothesized directions.

Changes in the underlying dimensions of attachment anxiety and avoidance were calculated. On average, participants reported less attachment anxiety and avoidance over time. Significant differences in attachment avoidance were observed between T1 and T2: $t(16) = −2.42$, $p = .014$, $d = .38$; and between T1 and T3: $t(16) = −2.67$, $p = .008$, $d = .47$. No significant differences were seen regarding attachment anxiety, although these were close to being significant with medium effect sizes. A summary of the results for hypothesis 1 can be found in Tables 3 and 4.

Hypothesis 2. An increase in attachment security and a decrease in insecurity over the course of treatment were expected to be associated with a reduction in PTSD and CPTSD symptoms. Attachment security, attachment insecurity, and PTSD and CPTSD symptoms scores at T1 were subtracted from T3 scores to create variables of change. Having computed change as a difference in scores, the interval status of the data was uncertain; therefore, nonparametric and more conservative analyses using Spearman's correlations were conducted between PTSD and CPTSD, and attachment styles. Correlation coefficients are presented in Table 5.

Secure attachment style was negatively correlated with PTSD symptom change, indicating that an increase in attachment security at T3 was associated with a reduction in PTSD symptoms at T3 [$r(16) = −.47$, $p = .032$]. There was a significant negative correlation between change in secure attachment style and CPTSD, suggesting an increase in attachment

TABLE 3. Scores for RSQ Attachment Classifications and Dimensions, Administered at T1 and T2 (*N* = 18)

RSQ subscale	Baseline (T1)	Session 8 (T2)	Paired samples t-test (df)[a]		
	Mean (SD)	Mean (SD)	t (df)	CI (x, y)	Effect size[b] (d value)
Preoccupied	2.61 (.65)	2.59 (.70)	.17 (16)	− .29, .34	.04
Dismissing	3.70 (.74)	3.52 (.75)	1.17 (16)	− .10, .47	.23
Anxiety (model of self)	.35 (1.58)	− .12 (1.86)	1.62 (16)	− .10, .97	.26
Avoidance (model of other)	2.53 (2.09)	1.68 (2.12)	2.42* (16)	.24, 1.48	.38

	Baseline (T1)	Session 8 (T2)	Wilcoxon signed-rank test[a]		
	Mean (SD)	Mean (SD)	Z value	Test statistic	Effect size[c] (r value)
Secure	2.59 (.64)	2.83 (.74)	1.38	94.5	.24
Fearful	4.03 (.95)	3.65 (.89)	−1.87*	19	.32

Note. Bootstrap results are based on 1000 bootstrap samples.
[a]One-tailed. [b]Cohen's $d = (M2 − M1)/SD_{pooled}$, where $SD_{pooled} = \sqrt{((SD1^2 + SD2^2)/2)}$. [c]Effect size $r = Z$ score/$\sqrt{(\text{number of observations})}$ (Rosental & Rubin, 2003).
*Significant at the $p < .05$ level. **Significant at the $p = .001$ level.

TABLE 4. Scores for RSQ Attachment Classifications and Dimensions, Administered at T1 and T3[c] (*N* = 18)

RSQ subscale	Baseline (T1) Mean (*SD*)	(T3) Mean (*SD*)	Paired samples *t*-test (*df*)[a]		
			t (*df*)	CI (*x, y*)	Effect size[b] (*d* value)
Preoccupied	2.61 (.65)	2.56 (.55)	0.35 (16)	−0.26, .37	.09
Dismissing	3.70 (.74)	3.39 (.69)	2.40* (16)	.08, .55	.42
Fearful	4.03 (.95)	3.45 (1.03)	2.83* (16)	.22, .90	.56
Anxiety (model of self)	0.35 (1.58)	−0.16 (1.64)	1.59 (16)	−.11, 1.08	.30
Avoidance (model of other)	2.53 (2.09)	1.49 (2.09)	2.67* (16)	.32, 1.70	.47
	Baseline (T1) Mean (*SD*)	Session 8 (T3) Mean (*SD*)	Wilcoxon signed-rank test[a]		
			Z value	Test statistic	Effect size[c] (*r* value)
Secure	2.59 (.64)	2.79 (.66)	.97	77.0	.17

Note. Bootstrap results are based on 1000 bootstrap samples.
[a]One-tailed. [b]Cohen's *d* = (M2 − M1)/SD_{pooled}, where SD_{pooled} = $\sqrt{((SD12 + SD22)/2)}$. [c]Effect size *r* = Z score / $\sqrt{(\text{number of observations})}$ (Rosental & Rubin, 2003).
*Significant at the *p* < .05 level. **Significant at the *p* = .001 level.

security by T3 was also associated with a reduction in CPTSD symptoms at T3 [*r*(17) = −.45, *p* = .034]. This suggested that as secure attachment increased, levels of complex posttraumatic stress decreased. Furthermore, significant positive correlations between CPTSD symptoms and dismissing attachment style [*r*(17) = .59, *p* =.006] and fearful attachment style [*r*(17)=.53, *p* =.014] were also observed, suggesting that as fearful and dismissing attachment style decreased, so did CPTSD symptoms at T3. In addition, there was a significant positive correlation noted between posttraumatic stress symptoms and fearful attachment style change [*r*(16)=.50, *p* = .025],

suggesting that as PTSD symptoms decreased, so did fearful attachment style.

The change in attachment anxiety was positively correlated with PTSD symptoms [*r*(16)=.44, *p* =.044]. This suggested that as levels of anxious attachment decreased, so did levels of PTSD. The change in attachment avoidance was positively correlated with CPTSD symptom change [*r*(17)=.73, *p* < .001] suggesting that as attachment avoidance decreased, CPTSD symptoms also reduced. No significant correlations were found between the change in the number of significant SIDES-SR subscales between times T1 and T3 and any variable of attachment change.

TABLE 5. Correlation Coefficients for Change Attachment Styles and Change PTSD/CPTSD Symptoms[a] (*N* = 18)

Measures	Secure	Dismissing	Fearful	Preoccupied	Anxiety	Avoidance
PTSD: IES-R:	−.47★ (−.77, −.035)	.19 (−.29, .61)	.50[b] (−.05, .87)	.17 (−.46, .69)	.44[b] (−.14, .82)	.34 (−.12, .71)
CPTSD: SIDES-SR (significant subscales)	−.08 (−.63, .51)	.19 (−.39, .71)	.37 (−.14, .73)	.01 (−.39, .45)	.11 (−.34, .51)	.30 (−.29, .82)
CPTSD: SIDES-SR (total score)	−.45 (−.81, .06)	.59[C] (.02, .91)	.53[b] (.07, .82)	.04 (−.37, .44)	.28 (−.21, .67)	−.73[c] (.27, .95)

Note. Bootstrap results are based on 1,000 bootstrap samples.
[a]One-tailed. [b]Correlation is significant at the *p* < .05 level (one-tailed). [c]Correlation is significant at the *p* < .01 level (one-tailed).

TABLE 6.   Correlation Coefficients for Alliance Strength and Change in Attachment Styles[a] (*N* = 18)

Measures	Secure	Dismissing	Fearful	Preoccupied	Anxiety	Avoidance
WAI-S (client)	−.158 (−.67, .45)	.42 (−.09, .75)	.28 (−.31, .81)	.01 (−.57, .52)	.13 (−.44, .60)	.36 (−.25, .75)
WAI-S (therapist)	.03 (−.51, .49)	.16 (−.36, .61)	−.12 (−.62, .46)	−.29 (−.69, .21)	−.23 (−.67, .35)	.21 (−.35, .67)

Note. Bootstrap results are based on 1,000 bootstrap samples.
[a]One-tailed.

Hypothesis 3. It was hypothesized that the strength of the therapeutic alliance would be associated with a positive change in attachment security. The change in attachment style was computed by subtracting T1 from T3 scores. These were correlated with client and therapist ratings of the therapeutic alliance at T3. The correlation coefficients are outlined in Table 6.

The average client ratings of the therapeutic alliance remained relatively consistent across therapy at session 3 (*M* = 72.58, *SD* = 10.73), session 6 (*M* = 74.06, *SD* = 11.41) (*M* = 75.18, *SD* = 11.41), and at T3 (*M* = 75.58, *SD* = 9.37). Therapists' ratings were lower than clients' ratings at session 3 (*M* = 65.70, *SD* = 9.71), session 6 (*M* = 66.0, *SD* = 9.80), and at T3 (*M* = 67.89, *SD* = 11.89). Although the WAI-S does not provide cut-offs for what constitutes a "good" therapeutic alliance, the highest possible score is 84 and the lowest is 12. The scores in the current sample, therefore, suggest that good therapeutic alliances were formed.

No significant changes in therapeutic alliances or changes in attachment style, avoidance, or anxiety were observed. Therefore, the findings did not support the hypothesis that therapeutic alliances would be correlated with changes in attachment security.

Discussion

This pilot study examined changes in attachment security during EMDR therapy for clients presenting with symptoms of PTSD and CPTSD. It also examined whether the therapeutic alliance influences attachment security.

Eighty-nine percent of the current sample was categorized as having an insecure attachment style, and 67% had a fearful attachment style. The level of insecurity is comparable to or greater than that of other clinical samples (Lawson et al., 2006; Stovall-McClough & Cloitre, 2003; Travis et al., 2001), including samples of individuals who have experienced childhood sexual abuse (Anderson & Alexander, 1996; Muller et al., 2000). The level of posttraumatic stress symptoms reported was comparable to previous studies

(Muller & Rosenkranz, 2009; Stovall-McClough & Cloitre). Due to the lack of measurement of CPTSD in previous samples, it is not known how the level of CPTSD in the current sample compares to other clinical samples.

Change in Attachment Security

The focus of this study was to establish whether self-reported attachment security or insecurity could change over the course of EMDR therapy. The findings indicated a significant decrease in the reported level of fearful and dismissing attachment insecurity over time. The reported levels of preoccupied attachment style decrease and increase in reported attachment security followed this trend but did not reach statistical significance. Across dimensional measures of attachment, results demonstrated a significant decrease in attachment avoidance toward the end of therapy; however, this was not the case for attachment anxiety. Together, these findings are interesting considering both the relatively few sessions of EMDR during which change occurred combined with the level of clinical complexity within the sample, with over half reporting symptoms of CPTSD and three-quarters reporting a fearful attachment style. It is important to highlight that while these findings may be important, the research design limits the conclusions about the causalities of such changes. Nevertheless, it is worthy of note that while previous studies demonstrated a change in attachment security during time-limited therapy (Muller & Rosenkranz, 2009; Tasca et al., 2007), most demonstrated a significant change after at least 16 sessions (Stovall-McClough & Cloitre, 2003; Travis et al., 2001).

The lack of significant findings with regards to changes in secure and preoccupied attachment styles could be understood in terms of the large discrepancies in proportionality of these attachment styles within the sample, in addition to the limited sample size. Furthermore, the therapy was focused specifically on improving symptoms of PTSD rather than attachment security; therefore, treatment targets were

46

Journal of EMDR Practice and Research, Volume 17, Number 1, 2023
Barazzone et al.

PTSD-related trauma memories as opposed to focusing on attachment-related memories as described in Wesselmann and Potter's (2009) case studies. PTSD symptoms are likely to be more amenable to change than underlying structures such as IWMs. Further research and large-scale studies may help to determine the differences in outcomes where target selection is an attachment-related memory in contrast to a PTSD-related memory.

Change in Posttraumatic Stress Disorder and Complex Posttraumatic Stress Disorder

While not the focus of the current study, the significant improvement in PTSD and CPTSD symptoms after eight sessions, followed by a further significant improvement at the end of therapy, is noteworthy. This is consistent with large-scale studies demonstrating that EMDR can facilitate relatively rapid changes in the case of PTSD (Wilson et al., 2018). Treatment outcomes for CPTSD in the wider literature are less clear, although research is increasingly demonstrating its responsiveness to EMDR (De Jongh et al., 2019). In a recent systematic review and meta-analysis of 51 randomized controlled trials of psychological interventions for PTSD and CPTSD, EMDR was shown to be an effective treatment for both clinical presentations; however, the quality of the research for EMDR was considered to be moderate to low (Karatzias et al., 2019). This meta-analysis also demonstrated that experience of childhood sexual abuse was shown to moderate treatment outcomes (Karatzias et al., 2019).

In the current study, while the lack of follow-up measures made it impossible to ascertain whether these therapeutic gains were maintained, the observation of PTSD and CPTSD symptom improvement after eight sessions for participants, many of whom reported a high proportion of childhood trauma and were largely fearful in their attachment style, is promising.

Attachment Security, Posttraumatic Stress Disorder, and Complex Posttraumatic Stress Disorder

Consistent with the findings of Muller and Rosenkranz (2009), this study provided preliminary evidence for a relationship between an increase in attachment security and a decrease in PTSD and CPTSD symptoms. A reduction in dismissing and fearful attachment style ratings was associated with a decrease in CPTSD symptoms but not PTSD. These results partially support Woodhouse et al.'s review (2015), highlighting a robust relationship between secure attachment security and reduced symptoms of PTSD, and contrasts with the

review's evidence of a relationship between a fearful attachment style and PTSD. The finding that a fearful attachment style was associated with disturbances in self-organization (DSO) symptoms is consistent with Karatzias et al.'s (2021) research demonstrating the close relationship with CPTSD.

The disparities in the relationships between both attachment security and insecurity, and PTSD and CPTSD symptoms are interesting. A decrease in dismissing fearful attachment style ratings and attachment avoidance were associated with a reduction in CPTSD symptoms but not PTSD symptoms. Decreased attachment anxiety was associated with reduced PTSD but not CPTSD, consistent with Barazzone et al.'s review findings (2019), suggesting that individuals who experience early and multiple traumas are more likely to avoid relationships rather than anxiously cling to them as adults.

The Therapeutic Alliance and Change in Attachment Security

The current sample reported good therapeutic alliances. Findings did not support the hypothesis that a higher quality therapeutic relationship was associated with a positive change in attachment security. While it is possible that the quality of the therapeutic relationship was not a necessary factor influencing shifts in attachment security, it is also possible that the variations in the number of sessions received were insufficient to fully explore the effects of the therapeutic alliance.

Clinical Implications

This study observed improvements in attachment security over the course of EMDR therapy for PTSD and CPTSD. Interestingly, the findings suggest that it may not be necessary to target attachment-related memories in order to improve attachment security, although this is a topic worthy of further investigation in large-scale research. Studies that find improvements in attachment security during trauma-focused therapies raise the question of whether improving attachment security may in turn help individuals to reprocess trauma more effectively. For example, it is possible that increased attachment security is associated with greater tolerance of affect in addition to being able to make effective use of comfort within the therapeutic relationship. Furthermore, greater attachment security may also increase the likelihood of being able to access more adaptive material to successfully reprocess traumatic memories.

The clinical sample within this study comprised a high proportion of insecure attachments. Given

Journal of EMDR Practice and Research, Volume 17, Number 1, 2023
Eye Movement Desensitization and Reprocessing Therapy and Change in Attachment Security

47

the links between attachment security and general well-being (Mikulincer & Florian, 1998), treatment that focuses on improving attachment security in addition to reducing symptomatology is likely to be beneficial not only for PTSD and CPTSD itself but also for individuals' well-being and relationships. Furthermore, it is likely to be important in helping to interrupt the intergenerational transmission of unresolved trauma, which has been shown to perpetuate insecure attachment and low levels of reflective functioning in parents (Berthelot et al., 2015). The current study builds on evidence suggesting that EMDR therapy has the potential to do this. It is possible that this effect may be enhanced through additional resourcing techniques, such as those adopted within an attachment-focused EMDR protocol (Parnell, 2013); nevertheless, research is yet to ascertain this.

Limitations

Limitations in this study include the small sample size, which increases the chance of Type I and Type II errors (Field, 2005). It also limited the extent to which any conclusions can be drawn about the effects of EMDR therapy on attachment security as well as the ability for analyses to account for potentially confounding variables. Client factors such as other diagnoses (e.g., personality and mood disorders), their relationship status, and motivation to change may have influenced the findings. Therapist factors, such as expertise and variability in the application of EMDR, may have confounded results (Maxfield & Hyer, 2002). Although EMDR therapy comprises well-defined stages and therapists are supervised by a consultant EMDR therapist, it is not clear to what extent therapy varied across clients and how different techniques (e.g., resource installation) and methods from other therapeutic modalities may have influenced clients' attachment styles. Maxfield & Hyer's (2002) meta-analysis demonstrated the importance of fidelity to the EMDR Standard Protocol, which they found was strongly related to treatment efficacy.

The variation in the number of EMDR sessions received in the current study is likely to have influenced changes in attachment security. It is also feasible that therapists' own attachment styles affected the therapeutic relationship (Steel et al., 2018). Tyrrell et al. (1999) found that therapists who had opposite attachment strategies with their clients tended to achieve more favorable outcomes. Future research should seek to enhance methodological rigor by further assessing treatment fidelity and therapists'

attachment styles to help discern true treatment effects (Maxfield & Hyer, 2002).

Caution should be exercised given the unreliability of the secure and preoccupied subscales of the RSQ, suggesting that these variables may not be a true representation of secure and preoccupied attachments in the general population. Further, self-report measures are limited to consciously accessible information about relationships and are subject to just one perspective on what is essentially a relational concept. Similarly, despite steps taken to reduce reporting biases on the therapeutic alliance measures, clients and therapists may not have felt able to be entirely honest about their perspective of the therapeutic relationship. Finally, the largely White British sample limits the extent to which findings can be generalized to other more diverse populations.

Strengths

This is the first study to explore changes in attachment style in participants presenting with both PTSD and CPTSD, accounting for the influence of the therapeutic alliance from both clients' and therapists' perspectives. This study contributes to the evidence base for EMDR therapy, providing promising findings with regards to its potential to increase attachment security and reduce PTSD and CPTSD symptom in relatively few numbers of sessions.

Future Directions

This area of research is still in its infancy, particularly with regards to EMDR therapy. Studies that have demonstrated a change in attachment security have not yet established the role of the therapeutic alliance, specifically, whether it plays a part in facilitating a change in attachment security above and beyond treatment effects. Further research is required to determine whether interventions such as EMDR have the capacity to change attachment styles and whether this effect is sustained. Including attachment-related memories in the target selection of EMDR in large-scale studies may help in this pursuit. It would also be interesting exploring to what extent improved attachment security may also influence an individual's capacity to effectively reprocess traumatic memories.

Conclusions

This study contributes to a small number of existing studies exploring changes in attachment security during therapy. While the conclusions that can be drawn from the study are limited, it raises the

possibility that EMDR therapy, in addition to reducing PTSD and CPTSD symptoms, has the potential to improve attachment security. This study offers interesting findings that highlight important areas for further research.

References

Anderson, C. L., & Alexander, P. C. (1996). The relationship between attachment and dissociation in adult survivors of incest. *Psychiatry*, *59*(3), 240–254. https://doi.org/10.1080/00332747.1996.11024765

American Psychiatric Association. (1994). *Diagnostic and statistical manual of mental disorders* (4th ed.).

Barazzone, N., Santos, I., McGowan, J., & Donaghay-Spire, E. (2019). The links between adult attachment and post-traumatic stress: A systematic review. *Psychology and Psychotherapy: Theory, Research and Practice, 92*(1), 131–147. https://doi.org/10.1111/papt.12181

Bartholomew, K. (1990). Avoidance of intimacy: An attachment perspective. *Journal of Social and Personal Relationships, 7*(2), 147–178. https://doi.org/10.1177/0265407590072001

Berthelot, N., Ensink, K., Bernazzani, O., Normandin, L., Luyten, P., & Fonagy, P. (2015). Intergenerational transmission of attachment in abused and neglected mothers: The role of trauma-specific reflective functioning. *Infant Mental Health Journal, 36*(2), 200–212. https://doi.org/10.1002/imhj.21499

Blake, D. D., Weathers, F. W., Nagy, L. M., Kaloupek, D. G., Gusman, F. D., Charney, D. S., & Keane, T. M. (1995). The development of a clinician-administered PTSD scale. *Journal of Traumatic Stress, 8*(1), 75–90. https://doi.org/10.1002/jts.2490080106

Bowlby, J. (1977). The making and breaking of affectional bonds: I. Aetiology and psychopathology in the light of attachment theory. *The British Journal of Psychiatry, 130*(3), 201–210. https://doi.org/10.1192/bjp.130.3.201

Bowlby, J. (1988). *A secure base: Parent-child attachment and healthy human development*. Basic Books.

Brennan, K. A., Clark, C. L., & Shaver, P. R. (1998). Self-report measurement of adult attachment. Attachment theory and close relationships. In J. A. Simpson & W. S. Rholes (Eds.), *Attachment theory and close relationships* (pp. 46–76). Guilford Press.

Briere, J. (1992). *Child abuse trauma: Theory and treatment of the lasting effects* (Vol. 2). SAGE Publications.

Brown, S., & Shapiro, F. (2006). EMDR in the treatment of borderline personality disorder. *Clinical Case Studies, 5*(5), 403–420. https://doi.org/10.1177/1534650104271773

Civilotti, C., Cussino, M., Callerame, C., Fernandez, I., & Zaccagnino, M. (2019). Changing the adult state of mind with respect to attachment: An exploratory study of the role of EMDR psychotherapy. *Journal of EMDR Practice and Research, 13*(3), 176–186. https://doi.org/10.1891/1933-3196.13.3.176

Cohen, J. (1992). A power primer. *Psychological Bulletin, 112*(1), 155–159. https://doi.org/10.1037/0033-2909.112.1.155

Compare, A., Maxwell, H., Brugnera, A., Zarbo, C., Dalle Grave, R., & Tasca, G. A. (2018). Change in attachment dimensions and reflective functioning following emotionally focused group therapy for binge eating disorder. *International Journal of Group Psychotherapy*, *68*(3), 385–406. https://doi.org/10.1080/00207284.2018.1429928

Creamer, M., Bell, R., & Failla, S. (2003). Psychometric properties of the impact of event scale – revised. *Behaviour Research and Therapy, 41*(12), 1489–1496. https://doi.org/10.1016/j.brat.2003.07.010

Cumming, G. (2014). The new statistics: Why and how. *Psychological Science*, *25*(1), 7–29. https://doi.org/10.1177/0956797613504966

De Jongh, A., Bicanic, I., Matthijssen, S., Amann, B. L., Hofmann, A., Farrell, D., Lee, C. W., & Maxfield, L. (2019). The current status of EMDR therapy involving the treatment of complex posttraumatic stress disorder. *Journal of EMDR Practice and Research, 13*(4), 284–290 https://doi.org/10.1891/1933-3196.13.4.284

Diamond, D., Stovall–McClough, C., Clarkin, J. F., & Levy, K. N. (2003). Patient-therapist attachment in the treatment of borderline personality disorder. *Bulletin of the Menninger Clinic, 67*(3), 227–259. https://doi.org/10.1521/bumc.67.3.227.23433

Dieperink, M., Leskela, J., Thuras, P., & Engdahl, B. (2001). Attachment style classification and posttraumatic stress disorder in former prisoners of war. *American Journal of Orthopsychiatry, 71*(3), 374–378. https://doi.org/10.1037/0002-9432.71.3.374

Division of Clinical Psychology. (2011). *Good practice guidelines on the use of psychological formulation*. The British Psychological Society.

Eames, V., & Roth, A. (2000). Patient attachment orientation and the early working alliance-A study of patient and therapist reports of alliance quality and ruptures. *Psychotherapy Research*, *10*(4), 421–434. https://doi.org/10.1093/ptr/10.4.421

Faul, F., Erdfelder, E., Lang, A. G., & Buchner, A. (2007). G*Power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences. *Behavior Research Methods, 39*(2), 175–191. https://doi.org/10.3758/BF03193146

Field, A. (2005). *Discovering statistics with SPSS* (2nd ed.). SAGE Publications.

Fonagy, P., Leigh, T., Steele, M., Steele, H., Kennedy, R., Mattoon, G., Target, M., & Gerber, A. (1996). The relation of attachment status, psychiatric classification, and response to psychotherapy. *Journal of Consulting and Clinical Psychology, 64*(1), 22–31. https://doi.org/10.1037/0022-006X.64.1.22

Fonagy, P., Steele, M., Steele, H., Leigh, T., Kennedy, R., Mattoon, G., & Target, M. (1995). Attachment, the reflective self, and borderline states: The predictive

Journal of EMDR Practice and Research, Volume 17, Number 1, 2023
Eye Movement Desensitization and Reprocessing Therapy and Change in Attachment Security

49

specificity of the Adult Attachment Interview and pathological emotional development. In S. Goldberg & R. Muir (Eds.), *Attachment theory: Social, developmental, and clinical perspectives* (pp. 233–278). Analytic Press.

Fonagy, P., Target, M., & Gergely, G. (2000). Attachment and borderline personality disorder: A theory and some evidence. *Psychiatric Clinics of North America*, *23*(1), 103–122. https://doi.org/10.1016/s0193-953x(05)70146-5

Ford, J. D., & Kidd, P. (1998). Early childhood trauma and disorders of extreme stress as predictors of treatment outcome with chronic posttraumatic stress disorder. *Journal of Traumatic Stress,* *11*(4), 743–761 https://doi.org/10.1023/A:1024497400891

Franz, C. E., Lyons, M. J., Spoon, K. M., Hauger, R. L., Jacobson, K. C., Lohr, J. B., McKenzie, R., Panizzon, M. S., Thompson, W. K., Tsuang, M. T., Vasilopoulos, T., Vuoksimaa, E., Xian, H., & Kremen, W. S. (2014). Post-traumatic stress symptoms and adult attachment: A 24-year longitudinal study. *The American Journal of Geriatric Psychiatry*, *22*(12), 1603–1612. https://doi.org/10.1016/j.jagp.2014.02.003

George, C., Kaplan, N., & Main, M. (1985). *The Adult Attachment Interview. Privileged communication* [Unpublished manuscript]. University of California: Berkeley.

Griffin, D. W., & Bartholomew, K. (1994). Models of the self and other: Fundamental dimensions underlying measures of adult attachment. *Journal of Personality and Social Psychology,* *67*(3), 430–445. https://doi.org/10.1037/0022-3514.67.3.430

Guédeney, N., Fermanian, J., & Bifulco, A. (2010). Construct validation study of the Relationship Scales Questionnaire (RSQ) on an adult sample. *L'Encéphale,* *36*(1), 69–76. https://doi.org/10.1016/j.encep.2008.12.006

Hase, M., Balmaceda, U. M., Ostacoli, L., Liebermann, P., & Hofmann, A. (2017). The AIP model of EMDR therapy and pathogenic memories. *Frontiers in Psychology, 8*, 1578. https://doi.org/10.3389/fpsyg.2017.01578

Horvath, A. O., & Greenberg, L. S. (1986). The development of the working alliance inventory. In L. S. Greenberg & W. M. Pinsof (Eds.), *The psychotherapeutic research process: A research handbook* (pp. 529–556). Guilford Press

Karatzias, T., Murphy, P., Cloitre, M., Bisson, J., Roberts, N., Shevlin, M., Hyland, P., Maercker, A., Ben-Ezra, M., Coventry, P., Mason-Roberts, S.,. Bradley, A., & Hutton, P. (2019). Psychological interventions for ICD-11 complex PTSD symptoms: Systematic review and meta-analysis. *Psychological Medicine*, *49*(11), 1761–1775. https://doi.org/10.1017/S0033291719000436

Karatzias, T., Shevlin, M., Ford, J. D., Fyvie, C., Grandison, G., Hyland, P., & Cloitre, M. (2021). Childhood trauma, attachment orientation, and complex PTSD (CPTSD) symptoms in a clinical sample: Implications for treatment. *Development and Psychopathology, 34*(3), 1192–1197. https://doi.org/10.1017/S0954579420001509

Lambert, M. J., & Barley, D. E. (2001). Research summary on the therapeutic relationship and psychotherapy outcome. *Psychotherapy: Theory, Research, Practice, Training, 38*(4), 357–361. https://doi.org/10.1037/0033-3204.38.4.357

Lawson, D. M., Barnes, A. D., Madkins, J. P., & Francois-Lamonte, B. M. (2006). Changes in male partner abuser attachment styles in group treatment. *Psychotherapy: Theory, Research, Practice, Training, 43*(2), 232–237. https://doi.org/10.1037/0033-3204.43.2.232

Levy, K. N., Meehan, K. B., Kelly, K. M., Reynoso, J. S., Weber, M., Clarkin, J. F., & Kernbert, O. F. (2006). Change in attachment patterns and reflective function in a randomized control trial of transference-focused psychotherapy for borderline personality disorder. *Journal of Consulting and Clinical Psychology, 74*(6), 1027–1040. https://doi.org/10.1037/0022-006X.74.6.1027

Lim, B. H., Adams, L. A., & Lilly, M. M. (2012). Self-worth as a mediator between attachment and post-traumatic stress in interpersonal trauma. *Journal of Interpersonal Violence, 27*(10), 2039–2061. https://doi.org/10.1177/0886260511431440

Liotti, G. (1995). Disorganized/disoriented attachment in the psychotherapy of the dissociative disorders. In S. Goldberg & R. Muir (Eds.), *Attachment theory: Social, developmental, and clinical perspectives* (pp. 343–363). Analytic Press.

Liotti, G. (2004). Trauma, dissociation, and disorganized attachment: Three strands of a single braid. *Psychotherapy: Theory, Research, Practice, Training, 41*(4), 472–486. https://doi.org/10.1037/0033-3204.41.4.472

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. https://doi.org/10.1002/jclp.1127

Mikulincer, M., Florian, V. (1998). The relationship between adult attachment styles and emotional and cognitive reactions to stressful events. In J. A. Simpson, W. S. Rholes (Eds.), *Attachment theory and close relationships* (pp. 143–165). Guilford Press.

Mikulincer, M., & Shaver, P. R. (2007). *Attachment in adulthood: Structure, dynamics, and change.* Guilford Press.

Mikulincer, M., & Shaver, P. R. (2019). Attachment orientations and emotion regulation. *Current Opinion in Psychology*, *25*, 6–10. https://doi.org/10.1016/j.copsyc.2018.02.006

Mikulincer, M., Shaver, P. R., & Berant, E. (2013). An attachment perspective on therapeutic processes and outcomes. *Journal of Personality, 81*(6), 606–616. https://doi.org/10.1111/j.1467-6494.2012.00806.x

Mikulincer, M., Shaver, P. R., & Pereg, D. (2003). Attachment theory and affect regulation: The dynamics, development, and cognitive consequences of attachment-related strategies. *Motivation and Emotion*, *27*(2), 77–102. https://doi.org/10.1023/A:1024515519160

50

Journal of EMDR Practice and Research, Volume 17, Number 1, 2023
Barazzone et al.

Muller, R. T., & Rosenkranz, S. E. (2009). Attachment and treatment response among adults in inpatient treatment for posttraumatic stress disorder. *Psychotherapy: Theory, Research, Practice, Training*, *46*(1), 82–96. https://doi.org//10.1037/a0015137

Muller, R. T., Sicoli, L. A., & Lemieux, K. E. (2000). Relationship between attachment style and posttraumatic stress symptomatology among adults who report the experience of childhood abuse. *Journal of Traumatic Stress, 13*(2), 321–332. https://doi.org//10.1023/A:1007752719557

Muller, R. T., Thornback, K., & Bedi, R. (2012). Attachment as a mediator between childhood maltreatment and adult symptomatology. *Journal of Family Violence*, *27*(3), 243–255. https://doi.org//10.1007/s10896-012-9417-5

Navarro-Gil, M., Lopez-del-Hoyo, Y., Modrego-Alarcón, M., Montero-Marin, J., Van Gordon, W., Shonin, E., & Garcia-Campayo, J. (2018). Effects of attachment-based compassion therapy (ABCT) on self-compassion and attachment style in healthy people. *Mindfulness*, *11*(1), 51–62. https://doi.org//10.1007/s12671-018-0896-1

Obegi, J. H., & Berant, E. (Eds.). (2009). *Attachment theory and research in clinical work with adults.* Guilford Press.

Parish, M., & Eagle, M. N. (2003). Attachment to the therapist. *Psychoanalytic Psychology*, *20*(2), 271–286. https://doi.org//10.1037/0736-9735.20.2.271

Parnell, L. (2013). *Attachment-focused EMDR: Healing relational trauma.* W. W. Norton & Company.

Rosenthal, R., & Rubin, D. B. (2003). requivalent: A simple effect size indicator. *Psychological Methods, 8*(4), 492–496. https://doi.org//10.1037/1082-989X.8.4.492

Sandberg, D. A. (2010). Adult attachment as a predictor of posttraumatic stress and dissociation. *Journal of Trauma & Dissociation, 11*(3), 293–307. https://doi.org//10.1080/15299731003780937

Schubert, S., & Lee, C. W. (2009). Adult PTSD and its treatment with EMDR: A review of controversies, evidence, and theoretical knowledge. *Journal of EMDR Practice and Research*, *3*(3), 117–132. http://dx.doi.org/10.1891/1933-3196.3.3.117

Shapiro, F. (2001). *Eye movement desensitization and reprocessing (EMDR) therapy: Basic principles, protocols, and procedures* (3rd ed.). Guilford Press.

Shapiro, F. (2007). EMDR, adaptive information processing, and case conceptualization. *Journal of EMDR Practice and Research, 1*(2), 68–87. https://doi.org//10.1891/1933-3196.1.2.68

Simard, V., Moss, E., & Pascuzzo, K. (2011). Early maladaptive schemas and child and adult attachment: A 15-year longitudinal study. *Psychology and Psychotherapy: Theory, Research and Practice, 84*(4), 349–366. https://doi.org//10.1111/j.2044-8341.2010.02009.x

Steel, C., Macdonald, J., & Schroder, T. (2018). A systematic review of the effect of therapists' internalized models of relationships on the quality of the therapeutic relationship. *Journal of Clinical Psychology*, *74*(1), 5–42. https://doi.org//10.1002/jclp.22484

Stovall-McClough, K. C., & Cloitre, M. (2003). Reorganization of unresolved childhood traumatic memories following exposure therapy. *Annals of the New York Academy of Sciences*, *1008*(1), 297–299. https://doi.org//10.1196/annals.1301.036

Strauß, B., Altmann, U., Manes, S., Tholl, A., Koranyi, S., Nolte, T., Beutel, M. E., Wiltink, J., Herpertz, S., Hiller, W., Hoyer, J., Joraschky, P., Nolting, B., Ritter, V., Stangier, U., Willutzki, U., Salzer, S., Leibing, E., Leichsenring, F., & Kirchmann, H. (2018). Changes of attachment characteristics during psychotherapy of patients with social anxiety disorder: Results from the SOPHO-Net trial. *PLoS ONE 13*(3), e0192802. https://doi.org/10.1371/journal.pone.0192802

Tasca, G., Balfour, L., Ritchie, K., & Bissada, H. (2007). Change in attachment anxiety is associated with improved depression among women with binge eating disorder. *Psychotherapy: Theory, Research, Practice, Training, 44*(4), 423–433. https://doi.org//10.1037/0033-3204.44.4.423

Taylor, P., Rietzschel, J., Danquah, A., & Berry, K. (2015). Changes in attachment representations during psychological therapy. *Psychotherapy Research, 25*(2), 222–238. https://doi.org/10.1080/10503307.2014.886791

Tracey, T. J., & Kokotovic, A. M. (1989). Factor structure of the working alliance inventory. *Psychological Assessment: A Journal of Consulting and Clinical Psychology, 1*(3), 207–210. https://doi.org//10.1037/1040-3590.1.3.207

Travis, L. A., Bliwise, N. G., Binder, J. L., & Horne-Moyer, H. L. (2001). Changes in clients' attachment styles over the course of time-limited dynamic psychotherapy. *Psychotherapy: Theory, Research, Practice, Training, 38*(2), 149. https://doi.org/10.1037/0033-3204.38.2.149

Tyrrell, C. L., Dozier, M., Teague, G. B., & Fallot, R. D. (1999). Effective treatment relationships for persons with serious psychiatric disorders: The importance of attachment states of mind. *Journal of Consulting and Clinical Psychology*, *67*(5), 725–733. https://doi.org//10.1037/0022-006X.67.5.725

Van den Hout, M., Muris, P., Salemink, E., & Kindt, M. (2001). Autobiographical memories become less vivid and emotional after eye movements. *British Journal of Clinical Psychology*, *40*(2), 121–130. https://doi.org//10.1348/014466501163571

Van der Kolk, B. A. (1996). *Structured interview for disorders of extreme distress–self-report* [SIDES-SR] [Unpublished manuscript].

Weiss, D., & Marmar, C. (1997). Impact of event scale-revised. In J. P. Wilson & T. M. Keane (Eds.), *Assessing psychological trauma and PTSD: A practitioner's handbook* (pp. 399–411). Guilford Press.

Wesselmann, D., Davidson, M., Armstrong, S., Schwietzer, C., Bruckner, D., & Potter, A. E. (2012). EMDR as a treatment for improving attachment status in adults and children. *European Review of Applied Psychology, 62*(4), 223–230. https://doi:10.1016/j.erap.2012.08.008

Wesselmann, D., & Potter, A. E. (2009). Change in adult attachment status following treatment with EMDR: Three case studies. *Journal of EMDR Practice and Research, 3*(3), 178–191. https://doi:10.1891/1933-3196.3.3.178

Wilson, G., Farrell, D., Barron, I., Hutchins, J., Whybrow, D., & Kiernan, M. D. (2018). The use of eye-movement desensitization reprocessing (EMDR) therapy in treating post-traumatic stress disorder—a systematic narrative review. *Frontiers in Psychology, 9*, 923. https://doi.org//10.3389/fpsyg.2018.00923

Woodhouse, S., Ayers, S., & Field, A. P. (2015). The relationship between adult attachment style and post-traumatic stress symptoms: A meta-analysis. *Journal of Anxiety Disorders, 35,* 103–117. https://doi.org//10.1016/j.janxdis.2015.07.002

Zaccagnino, M., Cussino, M., Callerame, C., Civilotti, C., & Fernandez, I. (2017). Anorexia nervosa and EMDR: A clinical case. *Journal of EMDR Practice and Research, 11,* 43–53. http://dx.doi.org/10.1891/1933-3196.11.1.43

Zlotnick, C., & Pearlstein, T. (1997). Validation of the structured interview for disorder of extreme stress. *Comprehensive Psychiatry, 38*(4), 243–247. https://doi.org/10.1016/S0010-440X(97)90033-X

Correspondence regarding this article should be directed to Natalie A. Barazzone, Salomons Institute for Applied Psychology, 1 Meadow Road, Tunbridge Wells, TN1 2YG, UK. Email: nbarazzone@gmail.com