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ATTACHMENT, TRAUMA, AND PTSD

Section A:

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Summary of the portfolio

Section A: The Links Between Attachment, Trauma, and PTSD: A Systematic Review

Section A is a systematic review of evidence demonstrating the links between attachment, trauma, and PTSD in adults. It also explored the processes underlying these relationships. Although findings were mixed, the review highlighted an important link between attachment and PTSD. Attachment was shown to have moderating and mediating influences on the relationship between trauma and PTSD, which varied according to the type of trauma, and how PTSD was reported across the different attachment styles. Cognitive factors, coping behaviours, and emotional processes were factors underlying the relationships between attachment and trauma, although research in these areas is still in its infancy. Methodological rigour varied across studies. Clinical and research implications are also discussed.

Section B: EMDR Therapy and Change in Attachment: A Preliminary Study

Section B reports the findings of a preliminary study investigating change in attachment during EMDR therapy for individuals presenting with PTSD and Complex PTSD. It also investigated the role of the therapeutic alliance, and how this related to change in attachment. A significant decrease in PTSD symptoms was observed. On average, attachment security increased, and attachment insecurity decreased; however, these changes were not statistically significant. Some links between change in attachment and change in PTSD were found, although no links between the therapeutic alliance and attachment change were observed. Findings were considered inconclusive due to methodological limitations. Clinical implications and ideas for future research are considered.

Section C: Supporting information

Section C is an appendix of supporting material. This includes: the search strategy methodology for Section A, a table outlining the studies included in Section A, measures and information administered as part of the research study, and submission guidelines of the journal for which Section B is intended.

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Major Research Project

Natalie Barazzone BA (Hons), MSc

Section A

The Links Between Attachment, Trauma, and PTSD:

A Systematic Review

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Abstract

Background: The theory of attachment has informed our understanding of survival and well-being throughout the lifespan. There is a growing interest in the relationship between attachment and Post-Traumatic Stress Disorder (PTSD). Emerging evidence suggests important links between attachment and PTSD, yet current theoretical and clinical understandings of PTSD and attachment remain relatively disparate.

Aims: The current systematic review aimed to synthesise, describe and critique evidence demonstrating the links between attachment, trauma and PTSD in adults. It also aimed to explore the processes underlying this relationship.

Method: Searches were conducted on PsychINFO, the Cochrane Library, Medline, and Google Scholar to identify empirical studies focusing on PTSD in adults.

Findings: Twenty papers were identified. Although findings were mixed, the review suggests that there is an important link between attachment and PTSD. Attachment was shown to have moderating and mediating influences on the relationship between trauma and PTSD, which varied according to the type of trauma, and how PTSD was reported across the different attachment styles. Cognitive factors, coping behaviours, and emotional processes were factors underlying the relationships between attachment and trauma, although research in these areas is in its infancy. Methodological rigour varied across studies. Clinical and research implications are discussed.

Key words: Attachment, Trauma, PTSD, Adults

The Links Between Attachment, Trauma, and PTSD

Attachment Theory

Attachment theory describes the interaction between an infant and their caregiving environment, whereby proximity to the caregiver provides a secure base from which exploration in the world can be negotiated (Bowlby, 1988). Attachment relationships are fundamentally important for our survival and well-being (Bowlby, 1969, 1973; Gilbert, 1989). It is believed that there are inbuilt biological systems that motivate us to seek out attachment relationships (Bowlby, 1977). Early relationship patterns are internalised and influence associated expectations, attitudes, and beliefs towards future experiences, as well as the capacity to regulate emotions (Bowlby, 1979).

Bowlby (1988) proposed the notion of ‘internal working models’ (IWMs) to encapsulate this phenomenon. The concept of an IWM is based on the idea that infants’ expectations develop from experiences of themselves and others in relationships. When attachment figures are perceived as available and responsive, a sense of security is embodied. Perceived unavailability may lead to attachment insecurity resulting in attachment strategies to manage distress (Mikulincer, Shaver, & Horesh, 2006).

Ainsworth, Blehar, Waters, and Wall (1978) discovered that differences in IWMs can be categorised into different attachment styles: specifically individuals who are ‘securely’, ‘ambivalently’, or ‘avoidantly’ attached. A ‘disorganised’ attachment category was later proposed by Main and Solomon (1986). Securely attached infants tend to have parents who are emotionally available and responsive to their child’s needs. Parents of avoidant infants tend to be unavailable and rejecting of a child’s proximity-seeking behaviour, whereas parents of ambivalent infants tend to be inconsistent in attending to their child’s need. A disorganised attachment is associated with unpredictable and disturbing parenting (Hesse, 1999).

Bartholomew and colleagues developed an understanding of adult attachment in romantic relationships. They proposed that attachment can be viewed in terms of models of the self and others based on a dimension of dependency and avoidance (Bartholomew, 1990, Bartholomew, Cobb, & Poole, 1997; Fraley & Shaver, 2000; Griffin & Bartholomew, 1994). Bartholomew (1990) put forward a four-category, two-dimensional model, consisting of secure, dismissing, preoccupied, and fearful attachments. These sit along two dimensions, which have since been re-conceptualised by Brennan, Clark, and Shaver (1998) as: 1) the degree of anxiety and 2) the degree of avoidance (see Figure 1). Attachment anxiety refers to a fear of rejection in relationships, whereas attachment avoidance refers to a fear and evasion of closeness and intimacy. Attachment strategies reflect these dimensions, consisting of either insistent proximity seeking or avoidance in relationships (Mikulincer et al, 2006).

	Positive Model-of-Self (Low anxiety)	Negative Model-of-Self (High anxiety)
Positive Model-of-Other (Low Avoidance)	<p style="text-align: center;">SECURE</p> <p style="text-align: center;">Comfortable within intimacy & autonomy and trust in relationships</p>	<p style="text-align: center;">PREOCCUPIED</p> <p style="text-align: center;">Anxious and ambivalent in relationships</p> <p style="text-align: center;"><i>(Also known as 'anxious-ambivalent' attachment)</i></p>
Negative Model-of-Other (High Avoidance)	<p style="text-align: center;">DISMISSING</p> <p style="text-align: center;">Dismissing of intimacy Exhibit a distorted sense of self-reliance</p> <p style="text-align: center;"><i>(Also known as 'avoidant' attachment)</i></p>	<p style="text-align: center;">FEARFUL</p> <p style="text-align: center;">Fearful of intimacy Exhibits avoidance but may also seek proximity in relationships.</p> <p style="text-align: center;"><i>(Also known as 'disorganised' attachment)</i></p>

Figure 1. Four-category model of attachment (Bartholomew, 1990; Brennan et al., 1998)

Attachment theory has become an increasingly important framework for understanding relationships and psychological distress in both clinical practice and research. Bowlby (1979) suggested that insecure attachments increase vulnerability for poor psychological health, which has been substantiated by a large body of research (Cozzarelli, Karafa, Collins, & Tagler, 2003). More recently, there has been increasing interest in how attachment may influence the development of Post-Traumatic Stress Disorder (PTSD, de Zulueta, 2006). Mikulincer et al., (2006) argued: “the mental health implications of attachment-system functioning are highly pertinent to understanding a person’s psychological reactions to traumatic events” (p. 8).

Post-traumatic Stress Disorder (PTSD)

PTSD can result from exposure to or threat of: death, actual or serious injury, or sexual violence (directly or indirectly). It is characterised by intrusions, avoidance, negative alterations in cognitions, mood, arousal, and reactivity following a traumatic event (American Psychiatric Association; APA, 2013).

While a clearly defined disorder, the underlying mechanisms of PTSD are less clear. Information-processing principles have been incorporated into behavioural and cognitive models, viewing PTSD in terms of unprocessed trauma memories (Brewin & Holmes, 2003; Ehlers and Clark, 2000; Foa & Rothbaum, 1998). Treatments for PTSD recommended by National Institute of Clinical Excellence (NICE, 2005) include Trauma-focused Cognitive Behavioural Therapy (CBT) and Eye Movement Desensitisation and Reprocessing (EMDR) therapy, both of which are based on an information-processing model. Whilst these interventions account for early relational experiences, they do not refer to attachment theory in either case conceptualisation or treatment protocols.

Theoretical links between attachment and PTSD

There is developing interest in how an individual's attachment style may play a role in precipitating, perpetuating, and protecting against PTSD (Bonanno, 2004). Mikulincer et al. (2006) maintain that trauma activates the attachment system, leading an individual to seek out an external or internalised attachment figure for protection. They suggested that differences in attachment strategies determine PTSD severity, and influence how it is experienced and expressed; specifically, frequency of intrusions and avoidance symptoms.

Interpersonal difficulty is diagnostic feature of PTSD (APA, 2013). Often, the ability to trust and be close to others tends to be compromised in individuals suffering from PTSD (Mills & Turnball, 2004; Okey, McWhirter, & Delaney, 2000). The concept of attachment is likely an important consideration in assessing the quality of relationships, the ability to draw on or effectively use social support, as well as the tendency to withdraw from relationships (Bartholomew, 1990).

A secure attachment is believed to increase resilience and protect individuals from the negative effects of trauma (Bonanno, 2004). An insecure attachment may increase vulnerability and reduce individuals' capacity to adapt to trauma (O' Connor & Elklit, 2008). For example, insistent proximity-seeking attempts displayed in anxiously attached individuals may impair emotion regulation required to manage trauma. Avoidant strategies, associated with a distorted sense of self-reliance and the suppression of emotions, may result in distress being unresolved (Mikulincer et al., 2006).

If attachment plays an important role in understanding PTSD, the mechanisms underlying this relationship also need to be understood. Cognition is believed to be an important feature of both attachment and PTSD (Ehlers & Clark, 2000). It is possible that traumatic events disrupt

individuals' IWMs or 'schemas' about the world, the self, and others (Dekel, Solomon, Elklit, & Ginzburg, 2004). Individuals are thought to develop the ability to regulate the intensity and duration of emotion within the context of a secure attachment with a primary caregiver (Bowlby, 1979). This helps develop strategies for coping, eliciting help from others, and effectively tuning into internal signals (Carlson & Sroufe, 1995). If this process is disrupted, individuals' can become vulnerable to stress and psychological difficulty in later life (Cicchetti & White, 1990). Finally, coping behaviours, which tend to be either problem- or emotion-focused (Lazarus, 1993), may also affect the relationship between attachment and PTSD. Evidence suggests that high levels of emotional coping style and low levels of problem-focused or rational coping style is associated with poor adjustment (Gil, 2005).

Review Aims

This paper aimed to synthesise studies examining the relationship between attachment and trauma. The findings were discussed in relation to theoretical links and are critiqued; outlining implications for clinical practice and future research. Whilst neurobiological research demonstrating the physiological underpinnings of attachment and trauma is important (van der Kolk, 1996; Schore, 2001, 2010), inclusion of these issues was outside the scope of this review.

This review represents an introductory report contributing to the development of a unifying theory of attachment and trauma. It specifically sought to address the following:

1. What does current evidence tell us about the relationship between attachment and PTSD?
2. Can a secure attachment protect individuals from developing PTSD following trauma?
3. What are the possible mechanisms underlying the relationship between attachment and PTSD?

Methodology

Literature Search Strategy

Electronic searches were conducted on PsycINFO, Medline, and the Cochrane Library databases, and on Google Scholar, from inception to March 2014 (Appendix A). A thesaurus facility was used to check other terms associated with these topics. No additional terms were found. Search terms were entered and combined to identify relevant literature. These included a) 'attachment'; b) 'trauma'; c) 'posttraumatic stress'; or d) 'PTSD'. Titles and abstracts of relevant studies were examined to refine the papers, consistent with the review questions. Searches were limited to peer reviewed journals and papers published in English. Reference lists of relevant articles were manually searched.

The following exclusion criteria applied during the selection stage:

- a) Studies with a predominant focus on disorders other than PTSD
- b) Treatment studies
- c) Secondary PTSD

The exclusion criteria were applied on the basis of the enormity of available literature in this field. The 'limits' facility was also used to restrict studies to the relevant ages group (18 years and above).

Search Results

Twenty studies met the inclusion criteria; 14 were cross-sectional studies and six were case-control studies (Appendix B). Sixteen studies examined the extent to which PTSD and attachment were related. Seven of these studies, in addition to two novel studies, explored the factors underlying the relationships between attachment and PTSD symptoms. These included:

cognition, emotional processes, and coping behaviours. All papers included were observational studies. The quality of these studies was assessed according to a checklist outlined by Mann (2003; Appendix C).

Literature Review

Part 1 of this review explored and critiqued the evidence of the relationship between attachment and trauma to elucidate whether a) a secure attachment may protect against PTSD; b) an insecure attachment may increase vulnerability to develop PTSD. Papers were organised by trauma type.

Part 2 of this review explored and critiqued studies that sought to identify mechanisms underlying the relationship between attachment and trauma. Studies were organised by factors relating to: cognitions, coping behaviours, and emotional processes. A general critique is provided in the discussion.

Part 1: To What Extent are Attachment and PTSD Related?

Childhood abuse. In a study of 112 women ($M = 37$ years, range = 19-64 years) who had experienced intra-familial abuse, it was reported that attachment styles predicted just one facet of PTSD: avoidance of memories of the abuse, although the individual contributions of different attachment styles was not clear (Alexander, 1993). Characteristics of sexual abuse during childhood (e.g. age of onset, type of abuse) were better predictors of PTSD symptoms than insecure attachment, but insecure attachment was a significant predictor of PTSD.

Attachment was a better predictor of personality characteristics than PTSD symptoms, highlighting the importance of personality traits in managing trauma. The small sample in this study may have meant that there was insufficient power to detect a significant relationship

between attachment and other PTSD symptoms. The study was limited to the female experience of intra-familial abuse; therefore, findings may not be generalisable to other experiences of abuse and trauma in a male population. Nonetheless, this progressive study offered an important insight into the relationships between Childhood Sexual Abuse (CSA), attachment, PTSD, and personality variables.

Roche, Runtz and Hunter (1999) found that attachment style mediated the relationship between CSA and PTSD symptoms in adulthood, indicating that attachment may be an underlying causal mechanism of PTSD (Baron & Kenny, 1989). CSA did not predict symptoms of PTSD when attachment was controlled for in the analyses. The independent contributions of the different attachment styles were not accounted for in the regression model; therefore, it is not possible to say if there were any differences between attachment styles. 27.6% of participants reported having experienced intra-familial CSA or extra-familial CSA. Attachment anxiety, measured by the Relationship Scales Questionnaire (Griffin & Bartholomew, 1994) was found to best predict the severity of PTSD symptoms ($p = .001$). While benefiting from a large sample, the generalisability of the findings may be limited by the exclusively female student sample ($N = 307$, $M = 22$ years, $SD = 6.5$). A student population has greater access to support networks than a clinical population, which may have decreased the likelihood of developing PTSD.

Aspelmeier, Elliot, and Smith (2007) explored the relationship between CSA and symptoms of PTSD in a large sample of female college undergraduates ($N = 324$, $M = 18.26$ years, $SD = .62$). They compared students who had experienced CSA with a group who had not. Attachment was measured using the Relationship Questionnaire (RQ; Bartholomew & Horowitz, 1991) and the Inventory of Parent and Peer Attachment (Armsden & Greenberg, 1987). CSA accounted for 13% of the variance in PTSD symptoms, of which 10% was accounted for by

attachment style with a medium effect size (Cohen, 1992). More participants with a CSA history reported insecure attachment styles than participants from the non-CSA group. A secure attachment in a current relationship was associated with fewer symptoms of trauma. Inconsistent with previous findings (Fraley, Fazzari, Bonanno, & Dekel, 2006), a dismissing attachment style was unrelated to PTSD symptoms. The authors tentatively suggest that a reluctance to express emotions may explain this. This study suggests that secure attachment may be buffer against negative CSA outcomes; although, it is not possible to determine the direction of causation. It is possible that individuals were able to develop a secure attachment when CSA outcomes were less negative.

Stovall-McClough and Cloitre (2006) explored the prevalence of fearful attachments in relation to CSA and PTSD in an ethnically diverse sample of 60 women ($M = 36.10$ years, $SD = 10.36$) who reported histories of physical and sexual abuse. A variety of symptoms and attachment profiles were compared in women with and without PTSD. The Adult Attachment Interview (AAI; George, Kaplan & Main, 1985) revealed that more than 50% were classified with an 'unresolved' (fearful) attachment style and were 7.5 times more likely to warrant a PTSD diagnosis, compared to those with a dismissing or secure attachment regardless of education and age. A preoccupied attachment style did not predict the likelihood of PTSD. Unresolved attachment predicted PTSD avoidant symptoms but not intrusive or arousal symptoms. This suggests that fearful attachment plays a role in avoiding trauma-related information, and may perpetuate PTSD (Ehlers & Clark, 2000). However, is not possible to generalise these findings to males and other types of interpersonal trauma or non-interpersonal trauma.

O'Connor and Elklit's (2008) findings highlighted the protective nature of secure attachment. A sample of 328 students ($M = 29.3$ years, $SD = 11.63$) demonstrated that secure

attachment was significantly associated with low levels of current and lifetime PTSD symptoms. The results indicated a linear relationship across attachment styles. Secure attachment was associated with lowest PTSD symptoms, followed by preoccupied attachment and dismissive attachment. Fearful attachment was associated with the highest PTSD symptoms. The large sample size in this study lends credibility and robustness to the findings; however, the cross-sectional design makes it impossible to establish the direction of causality.

Sandberg (2010) investigated the relationship of attachment styles to: victimisation, PTSD, and dissociation. In the sample of college women (N = 199), it was demonstrated that secure attachment was negatively correlated with PTSD. Consistent with Aspelmeier et al.'s (2006) findings, there was no correlation between dismissing attachment and PTSD. Contrary to Stovall-McClough and Cloitre's (2006) findings, preoccupied attachment was positively correlated with PTSD. Attachment did not mediate the relationship between trauma and PTSD as found in Roche et al.'s (1999) study. However, analyses revealed a moderating effect of attachment on the relationship between trauma and PTSD, accounting for 20% of the variance. This study employed an ethnically diverse sample, increasing the generalisability of the findings. However, the RQ measure of attachment is arguably over-simplistic; it is a categorical measure and does not account for the level of interpersonal dependency, or avoidance associated with attachment style.

Muller, Thornback, and Bedi (2012) examined the mediating role of attachment between CSA and PTSD symptoms among 803 university students (87% female). This was the first study to assess different types of abuse both simultaneously and independently. This is important since, attachment may not mediate the affects of trauma and PTSD symptoms for all types of trauma. Analyses demonstrated that insecure attachment partially mediated the relationships between

childhood psychological abuse, physical abuse, exposure to family violence, and PTSD symptoms. When different types of trauma were entered into a multiple regression model, the effects of physical abuse and exposure to family violence on attachment were not significant, suggesting that the psychological component of abuse had the most profound effect on individuals' attachment system. Effect sizes were small to medium, which may have been due to the non-clinical sample. Nonetheless, the large sample increased the robustness of the findings.

Combat-related trauma. Mikulincer, Florian, and Weller (1993) examined the responses of 140 undergraduates (96 women, 44 men, 20 – 37 years) exposed to Iraqi missile attacks on Israel during the Gulf War, in relation to attachment styles, severity of PTSD symptoms, and their area of residence (dangerous vs. less dangerous). Self-report data revealed that individuals with an ambivalent (preoccupied) attachment reported higher levels of: emotion-focused coping, depression, and anxiety, in addition to the most severe PTSD symptoms. Avoidant (dismissing) individuals appeared to express distress through higher somatisation and avoidance-related PTSD symptoms. Consistent with theoretical conceptualisation of dismissing attachment, the authors suggested that these participants may have suppressed their emotional distress and instead expressed it through physical ailments. These effects found were more pronounced for those individuals who were exposed to more danger.

Solomon, Ginzburg, Mikulincer, Neria, and Ohry (1998) explored the relationship between attachment style and the psychological well-being amongst 164 ex-Prisoners of War (PoW) and 184 matched controls (non-PoW). PoW veterans with insecure attachment styles reported more severe PTSD symptoms than those with a secure attachment style. Those with an ambivalent (preoccupied) attachment reported more severe PTSD symptoms than those with an avoidant (dismissing) attachment style. Veterans with a secure attachment style demonstrated

the best adjustment. Interestingly, attachment style did not predict PTSD symptoms for non-POWs, which may support the theory that attachment-behaviours tend to be activated by extreme stress (Mikulincer et al., 2006). It is also consistent with the finding that psychological trauma is more closely related to insecure attachment (Muller et al., 2012). Since this study relied on self-report and memory of events occurring 18 years after the war, the data may be subject to recall error and biases. It is also possible that additional traumatic life events during these 18 years (which was not assessed) may have had a bearing on the psychological well-being of participants. Nevertheless, the matched comparison group enriches and strengthens the findings.

Dieperink, Leskela, Thuras, and Engdahl (2001) examined the relationship between attachment style, severity of trauma, and PTSD symptoms amongst 107 veterans who had been prisoners of war ($M = 75.4$ years, $SD = 3.5$). They found that 65% of the veterans had an insecure attachment style and 42% of this proportion met the criteria for PTSD. Of those who reported a secure attachment, 10.8% met the criteria for PTSD. Consistent with Sandberg's (2010) findings, attachment insecurity was the strongest predictor for PTSD, independent of trauma severity; accounting for 21.4% of the variance. This study did not distinguish between the different types of insecure attachment, which may have yielded different findings in terms of protective and vulnerability factors.

Kanninen, Punamäki, and Qouta (2003) challenged the view that a secure attachment is a protective factor for developing PTSD. A study of 176 Palestinian, male, former political prisoners ($M = 29.6$ years, $SD = 5.7$), revealed that following exposure to interpersonal torture, those with secure attachments were more vulnerable to developing PTSD symptoms than 'preoccupied' men. Attachment was measured using the AAI (George et al., 1985). Results were independently coded to increase inter-rater reliability; however, since this measure has not been

validated in Middle Eastern samples, or in the Arabic language, we must interpret findings with caution.

Zakin, Solomon, and Neria (2003) compared attachment in Israeli male PoW veterans ($n = 164$) to a control group of non-PoW veterans ($n = 189$). Secure attachment style and the personality trait 'hardiness' were associated with fewer PTSD symptoms in both PoW and non-PoW. Hardiness, defined as: commitment (to the task), control (over problems) and viewing changes as challenges and opportunity for growth (Kobasa & Maddi, 1977), predicted a greater amount of variance in PTSD symptoms than attachment for both groups. Neither attachment nor hardiness was a significant moderating factor in the relationship between trauma and PTSD. It is important to consider the retrospective nature of the data, which were collected almost 20 years after the war. The content of the measure of attachment used was unclear. The measure of PTSD was based on the DSM-III-R criteria (APA, 1987); therefore analyses may yield different findings using the updated conceptualisation of PTSD (APA, 2013).

Mikulincer, Ein-Dor, Solomon, and Shaver (2011) examined attachment insecurity in Israeli veterans, at 2 different time points across a 17-year period. They compared a total of 156 PoW veterans ($M = 57.91$ years, $SD = 3.52$) with a matched-control group of non-PoW veterans ($n = 163$, $M = 57.89$ years, $SD = 3.57$). Ex-PoWs demonstrated greater attachment insecurity than non-PoWs at 18, 30 and 35 years after the war. Attachment anxiety and avoidance increased for PoW veterans over the 17-year period, whereas it decreased for non-PoWs. Both PoW and non-PoW veterans who had higher levels of PTSD symptoms at 18, 30, and 35 years after the war tended to report greater attachment insecurity. It is likely that being held captive involved interpersonal trauma, which may have damaged individuals' trust in the motives of others (Kanninen et al., 2003) and consequently impacted on their attachment. This study

provides a unique longitudinal perspective, demonstrating how attachment style can change over time. It also benefits from a matched control group. The authors acknowledge that decreases in insecurity for the control group could be age-related, since individuals tend to become more secure in their attachment over time (Zhang & Labouvie-Vief, 2004).

Escolas et al. (2012)'s findings were consistent with O'Connor and Elklit's (2008) study indicating a linear relationship between PTSD and attachment amongst military personnel (N = 561): securely attached individuals reported the least PTSD symptoms, followed by dismissing, preoccupied and fearful, who reported the most. Differences between attachments were all significant apart from between dismissing and preoccupied. Sixty percent of personnel were classified as insecurely attached. The authors claimed that securely attached military personnel experience less stress due to using social coping mechanisms and seeking help, although this was not substantiated.

Terrorist attack. Fraley et al. (2006) investigated differences in attachment and psychological adjustment of witnesses of the 9/11 World Trade Centre attacks. This paper explored the long-term psychological impact of the attack. Forty-five participants (M = 39 years, SD = 10) who had either witnessed, or been involved in the attack, completed a measure of attachment (RSQ) and PTSD, 7 and 18 months after the incident. Views of participants' psychological adjustment prior to and following the incident were also sought from friends and relatives. No main effects of attachment on PTSD symptoms were found. Preoccupied and dismissing individuals reported the highest level of PTSD symptoms, both before and after the incident; whereas, fearful individuals reported comparatively lower PTSD symptoms. Securely attached individuals reported the least PTSD symptoms. This was corroborated by accounts from friends and family, who reported greater adjustment post-incident for secure individuals.

The authors suggested that this may be indicative of post-traumatic growth; the ability to use the challenging experience to form other strengths (Linley & Joseph, 2004). Friends and relatives of individuals with preoccupied and fearful attachments were reported by others to be poorly adjusted following the attacks, whereas friends of those with dismissing attachments reported no change. This is consistent with the view that dismissing individuals hide their distress (Mikulincer & Shaver, 2007).

Fraley et al. (2006) did not rely on self-report measures, but rather drew information from multiple perspectives. It was the first study to assess participants' level of adjustment prior to the trauma, albeit subject to memory biases. Limitations include the relatively small sample size and the timing of data collection, which may not have been sensitive to delayed symptom responses. The authors did not report the significance levels for the changes in PTSD symptoms, and it was not possible to determine the extent of symptom decrease across the different attachment styles.

Multiple traumas. Sandberg, Suess, and Heaton (2010), in a sample of 224 ethnically diverse women ($M = 21.73$ years, $SD = 5.89$), sought to establish whether attachment mediated the relationship between trauma and PTSD. A wide range of traumatic life events was examined, including: natural disasters, military combat and interpersonal traumas. Both attachment anxiety and avoidance correlated positively with PTSD. Attachment anxiety mediated the relationship between intimate partner violence and adult sexual victimisation, and PTSD symptoms. This highlights the importance of distinguishing between different traumas. It also suggests that attachment may be an underlying causal factor for PTSD. The analyses conducted appear to be thorough and clearly reported, although do not establish causality. Although the study used a relatively large sample, recruiting from college settings may limit the

generalisability of findings to clinical populations. Further, attachment anxiety was only a partial mediating factor. Other variables, such as emotion regulation, cognitions, and coping behaviours may also influence this relationship.

Summary of part 1. The following is a summary of the key findings of the studies examining the relationship between attachment and trauma:

- Depending on the type of trauma and study, attachment appears to have moderating or mediating effects on the relationship between trauma and PTSD.
- An insecure attachment can increase vulnerability for developing PTSD following trauma.
- A secure attachment appears to protect individuals from the negative effects of trauma and may increase the likelihood of post-traumatic growth following trauma
- Interpersonal, psychological trauma is more associated with insecure attachments than non-interpersonal trauma
- Insecure attachment is more likely to predict PTSD symptoms in individuals who have experienced trauma during childhood
- There are important differences in experience and reporting of PTSD symptoms between insecure-dismissing and insecure-anxious attachments
- In the case of severe interpersonal trauma, a secure attachment may increase likelihood of PTSD
- Other factors, such as personality and characteristics of trauma, may play a role in the relationship between attachment and trauma
- There are inconsistencies between findings which might be due to individual differences and the complexity of the relationship between attachment, trauma, and PTSD

Part 2: Underlying Processes

Cognition. Muller, Sicoli, and Lemieux (2000) explored links between attachment and PTSD in 68 men and women ($M = 33$ years), who had experienced either physical and/or sexual abuse. Correlational and regression analyses revealed that negative self-views and preoccupied and fearful attachments were most closely related to PTSD symptoms. The authors acknowledge that it was not possible to determine whether negative self-views were influenced by PTSD or attachment. Negative views of others were unrelated to PTSD symptoms. This is consistent with the finding that dismissing attachment is unrelated to PTSD in some studies (Aspelmeier et al., 2007), given that dismissing attachment is most associated with negative views of others. It is not possible to generalise these findings to other types of trauma, although the findings emphasise the importance of cognition in the development of PTSD for those individuals who have experienced childhood abuse.

O'Connor and Elklit (2008) found that secure attachment was closely associated with high levels of past and present social support and perceived benevolence of the world. Dismissing attachment was associated with low levels of support and least faith in world benevolence. Fearful attachment was associated with low levels of past and present perceived support, but not associated with world benevolence. Preoccupied attachment was unrelated to perceived world benevolence and support. It is possible that there are simultaneous influences of attachment and trauma on belief systems, which may affect the ability to effectively process trauma-related information. This may contribute to our understanding of why people falsely experience internal and external stimuli as on-going threats (Ehlers & Clark, 2000). However, this study did not assess participants' emotional well-being, which is likely to have influenced their beliefs about the world and their perceived level of support.

Lim, Adams and Lilly (2012) found that amongst undergraduates who had experienced at least one trauma ($N = 616$, $M = 19.64$ years, $SD = 3.09$), insecurely attached individuals tended to experience low self-worth. Those with low self-worth tended to have more severe PTSD symptoms. Further analyses demonstrated that self-worth mediated the relationship between attachment anxiety and PTSD for those who experienced interpersonal trauma, but not for non-interpersonal trauma. It is possible that low self-worth affects individuals' capacity to cope with and manage difficult emotions associated with PTSD (Tuval-Mashiach et al., 2004). Self-worth may also increase individuals' capacity to tolerate adversity in the face of trauma and views on being worthy of social support. While this study benefited from a large, ethnically diverse sample, the cross-sectional design limits the ability to determine the direction of causality.

Lilly and Lim (2013) explored the relationships between attachment, cognition and PTSD symptoms. Their sample comprised undergraduates ($n = 290$, $M = 19.77$ years, $SD = 3.61$, 60% female), who had experienced interpersonal trauma, and a group of survivors of intimate partner violence from the community ($n = 40$, $M = 29.57$ years, $SD = 9.95$). Self-report measures assessing PTSD, beliefs about the meaningfulness and benevolence of the world, self-worth, and attachment, revealed that those from the intimate partner violence group reported significantly more relationship and mental health difficulties than the undergraduate sample. Correlational analyses revealed that anxious and ambivalent (preoccupied) attachment styles were associated with negative assumptions about the world for the undergraduate group. This study further supports evidence to suggest that the relationship between attachment and trauma is complex and likely to be influenced by cognitions. However, it is not possible to infer causality from this study; and it is unclear whether low self-worth is associated with the profile of an insecure attachment rather than a consequence of trauma.

Emotion and emotion regulation processes. Solomon et al. (1998) found that different emotional responses amongst ex-PoWs were associated with the different attachment styles. Avoidant (dismissing) veterans experienced increased feelings of helplessness than secure and ambivalent (preoccupied) veterans. Ambivalent (preoccupied) veterans tended to feel increased levels of abandonment by army authorities compared to secure veterans. Ambivalent veterans reported greater suffering than both secure and avoidant persons, suggesting a greater focus on negative emotions. However, significance levels for these effects were not reported, limiting the interpretations that can be made.

Lilly and Lim (2013) found that female survivors of intimate partner violence with an anxious attachment were more likely to experience difficulties in emotion regulation. Symptoms of PTSD were predicted by greater difficulty in regulating emotion in both groups; however, in the case of the survivors of intimate violence, anxious attachment predicted PTSD. This reinforces the view that emotion regulation plays an important role in the relationship between attachment and PTSD.

Coping behaviours. Solomon et al. (1998) found significant differences in coping strategies across attachment styles, with secure PoW veterans adopting an increase in active problem-focused coping styles compared to avoidant and ambivalent veterans. Ambivalent individuals reported feeling less control than avoidant and secure veterans. Significance levels for these effects were not reported, limiting the interpretations that can be made. O'Connor and Elklit (2008) reported preoccupied attachment was associated with a higher level of emotional coping and a lower level of rational coping. A dismissing attachment style was unrelated to coping and previous social support. Coping style may be a critical factor, given that secure individuals reported lowest PTSD symptoms.

Gore-Felton et al. (2013) examined the relationships between attachment and PTSD in an ethnically diverse sample of 94 men and women, who had HIV (21-51 years). They found that insecure attachment and emotion-focused coping were positively associated with greater PTSD symptoms ($p < .05$). Further analyses indicated that avoidant attachment moderated the relationship between emotion-focused coping and PTSD symptoms. For those securely attached, increased emotion-focused coping did not impact PTSD symptom severity. For those with an avoidant attachment style, PTSD symptoms generally remained high, regardless of type of coping strategy used. The authors suggested this was because avoidant individuals are less likely to seek support, and the nature of coping may not affect their functioning. This is supported by previous research (Taylor, Marshal, Mann, & Goldberg, 2012). Due to the nature of analyses, one must be cautious about direction of causality: it is not clear whether attachment and coping were influenced by PTSD symptoms or vice versa. Further, as the authors acknowledge, there may be other influential variables not accounted for in the study.

Discussion

Relationship Between Attachment and Trauma

The evidence suggests that the relationship between attachment and PTSD is complex. This review found that an insecure attachment appears to increase vulnerability for developing PTSD. Depending on the sample, attachment has demonstrated mediating and moderating influences on the relationship between trauma and PTSD (Kanninen et al., 2003; Sandberg, 2010; Stovall-McClough, & Cloitre, 2006). A number of factors appear to influence the extent to which attachment and trauma are associated. First, the type of trauma appears to be important. Interpersonal trauma appears more highly associated with disrupted attachments than non-interpersonal trauma (Lim, Adams, & Lilly, 2012). In some studies, the literature suggests that

individuals with a dismissing attachment fare worse in terms of physical and psychological symptoms of trauma (Kanninen et al., 2003). Other studies demonstrated that dismissing attachment style was unrelated to PTSD (Aspelmeier et al., 2007; Sandberg, 2010). This may be because dismissing individuals tend to under-report distress (Mikuliner & Shaver, 2007). Individuals with preoccupied attachment styles have consistently reported higher levels of PTSD (Fraley et al., 2006; Sandberg, 2010). A fearful attachment style appeared to be most closely associated with PTSD (O'Connor & Elklit, 2008; Stovall-McClough & Cloitre, 2006), with the exception of one study (Fraley et al., 2006).

Secure Attachment as a Protective Factor

A striking finding is the protective nature of secure attachment. All but one of the studies reported an association between a secure attachment style and lower levels of PTSD symptoms. It is not entirely clear as to the mechanisms of the effect of a secure attachment. One hypothesis is that secure individuals may internalise positive experiences of comfort and responsiveness, and can draw on these experiences during times of distress (Zakin et al., 2003). A secure attachment may also provide individuals' with internal resources to make use of support, thereby increasing resilience following trauma. In an interview study, attachment relationships encompassing emotional bonding, patience and empathy were the most frequently mentioned factors for individual recovery from PTSD (Ajdukovic et al., 2013).

A secure attachment may not, however, always protect individuals from PTSD. Kanninen et al. (2003) demonstrated that when subjected to severe interpersonal and war and captivity-related trauma, a secure attachment can actually increase individuals' risk of PTSD. Trauma may conflict with previously held beliefs about the world being safe, rendering previous coping strategies ineffective. Individuals' confidence in attachment figures' protection and

availability may also be reduced (Mikulincer et al., 2006). It is important to bear in mind that Kanninen et al.'s (2003) findings may not be generalisable as they are inconsistent with other studies examining similarly extreme traumas (Dieperink et al., 2001; Solomon et al., 1998).

Underlying mechanisms

The relationship between attachment and PTSD may be influenced by cognitive, emotional, and behavioural characteristics. However, research in this area is still in its infancy and, therefore, conclusions are limited. There may be other factors (e.g. personality) that influence the relationship between attachment and PTSD. For example, social support is central to coping with trauma and developing PTSD (Ozer, Best, Lipsey, & Weiss, 2008). Individuals who have an insecure attachment may be less likely to access social support and this may increase their vulnerability to developing PTSD. It is possible that social support is a mediating factor in the relationships between attachment and PTSD.

Cognition. Insecure attachment is characterised by internal working models of others and the world as untrustworthy, unavailable, unresponsive, and dangerous (Bartholomew & Horowitz, 1991). These models tend to reflect similar cognitions associated with PTSD symptoms (APA, 2013). Lilly & Lim (2013) and O'Connor & Elklit (2008) highlighted the importance of perceived support and benevolence of the world, which may impact individuals' ability to process traumatic experiences. Lim et al. (2012) emphasised the role of self-worth, which was found to mediate the relationship between attachment insecurity and PTSD. Muller et al. (2000) demonstrated that a negative view of self, as opposed to a negative view of others, was highly associated with symptoms of PTSD. This is consistent with Bowlby's (1980) proposition that a negative view of the self can have a destructive effect on social and emotional development. It was not clear within these studies whether negative cognitions are a direct result

of the trauma or attachment style, but it is conceivable that trauma experiences can reinforce mistrust in the world or others.

Emotion and emotion regulation processes. This review found evidence to suggest that emotional processes are important in the relationship between attachment and trauma. PTSD has been characterised as a disorder of emotion regulation, which affects individuals' ability to cope with distress (Ehring & Quack, 2010). Since individuals are thought to learn to regulate emotions and self-soothe from their relationship with their attachment figure(s), insecure attachments may, through this mechanism, predispose individuals to PTSD following trauma. Emotion dysregulation may, therefore, be more prevalent for individuals who have experienced interpersonal trauma (Lilly & Lim, 2013). However, it is possible that individuals with a preoccupied attachment are more focused on their emotions and report greater distress (Solomon et al., 1998; O'Connor & Elklit, 2008), whereas individuals with a dismissing attachment may be more likely to under-report or detach themselves from distressing emotions (Mikulincer & Shaver, 2007).

Coping behaviours. Preliminary research has highlighted the diverse patterns in coping responses amongst different attachment styles, with secure individuals assuming a predominantly active problem-focused style, and preoccupied individuals more likely to assume an emotion-focused style. Emotion focused coping is associated with higher levels of PTSD symptoms (Gore-Felton et al., 2013; Mikulincer et al., 1993). This supports Mikulincer et al.'s (2006) proposition that attachment strategies associated with anxious attachments (e.g. high levels of dependency) may impair emotion regulation abilities, resulting in intense distress. An alternative hypothesis is that insecure individuals may have learnt that seeking support is not effective; therefore, they may be less likely to ask for help (Vogel, & Meifen, 2005).

General Critique of Research

The findings of this review should be considered in light of a number of methodological limitations in the studies reviewed. A major flaw in research in this field is the cross-sectional nature of the designs, which make it difficult to determine the direction of causal relationships. An inherent difficulty in researching the impact of trauma is that it is not always possible to ascertain attachment styles and psychiatric morbidity pre-trauma. It is, therefore, unclear to what extent trauma has an impact on attachment styles and vice versa.

The majority of studies rely on self-report measures and retrospective data of traumatic events. This can create additional limitations in terms of how accurately attachment styles are assessed. Memory and reporting biases may also be common. Attachment measures are often based on nuanced models of attachment. For example, the AAI does not measure romantic attachment like the Relationship Scale Questionnaire and the Relationship Questionnaire; rather it assesses an individual's state of mind regarding their attachment in their family. There are also differences in terms of the categorical and continuous nature of measures of attachment. Crittenden (2006) argues against the categorisation of attachment styles, and instead advocates emphasis on a range of attachment strategies. Differences in attachment measures limits the extent to which comparisons can be drawn between studies. Increased uniformity in the conceptualisation and measure of attachment will improve comparability of results.

Studies predominantly focused on singular types of trauma. It was not reported whether individuals assessed as meeting the criteria for CSA met the criteria for other traumatic events, which may have influenced attachment orientations and/or experiences of PTSD. In some cases, PTSD was assessed using measures that are not up-to-date with the current DSM 5 criteria, which provides increased detail describing what constitutes a traumatic event. For example,

criteria associated with intense fear and helplessness in previous additions has since been removed, as are not reliable predictors of the onset of PTSD (APA, 2013). In addition, DSM-IV gives greater credence to the behavioural symptoms of PTSD; therefore, it is possible that studies that use out-of-date criteria lack validity and reliability.

Most of the studies under review are based on Western and Caucasian samples. It is not clear to what extent ethnicity plays a role in the differences amongst attachment style and PTSD. There are also clear gender differences in terms of the type of trauma studied. Men are over-represented for traumas associated with military combat and robbery, while women are over-represented for victimisation in clinical research. This is likely to limit the generalisability of findings.

Clinical Implications

The findings discussed in this review have important implications for the treatment for PTSD. Therapies recommended by NICE (2005) target cognitions, emotion regulation, and physical symptoms of trauma; however, these interventions rarely acknowledge the role of attachment. Regardless of treatment modality, consideration of attachment in formulation of PTSD is likely to inform treatment plans in addition to the interpersonal approach of the therapist. Research has begun to apply attachment theory to the understanding and treatment of PTSD (Pearlman & Courtois, 2005; Sandberg, 2010). It has been suggested that targeting mediating variables, such as individuals' attachment styles within therapy, could help improve the effectiveness of PTSD treatment (Roche et al., 1999). There is increasing evidence to suggest that assessing and accounting for attachment style in therapy may improve the chances of successful treatment (Meyer & Pilkonis, 2002; Muller, Kraftcheck, & McLewin, 2004).

Assessing attachment may also inform how distress, associated with trauma, is expressed. Individuals with a preoccupied attachment style are more likely to experience elevated PTSD symptoms, whereas those with a dismissing attachment style tend to under-report symptoms. Beliefs and perceptions about the availability of social support may also vary amongst different attachment styles (Bartholomew, 1990) depending on the individual's IWMs.

As described by Bowlby (1988), therapists can provide clients with a 'secure base' from which to explore distressing experiences. The therapeutic relationship enables clients to build a sense of safety and trust, to challenge unhelpful beliefs of the self and others, and develop a capacity for secure attachment. This in turn may help the client become better at regulating emotions as well as enabling mentalisation of his or her experiences (Fonagy, Gergely, Jurist, & Target, 2002). This may be particularly important given the links between attachment and PTSD.

Awareness of attachment styles may help inform whether treatment focuses predominantly on emotion regulation or cognitive processes. This review presents evidence to suggest that individuals with a dismissing attachment style may find it difficult to focus on emotional processes. Attachment style may, therefore, influence the likelihood of engagement in therapy (Tasca, Taylor, Ritchie, & Balfour, 2004), and may also influence the therapeutic relationship (Diamond, Stovall-McClough, Clarkin, & Levy, 2003) and outcome of therapy (Fonagy et al., 1996). This in turn has wider service implications; for example, to inform how therapists engage 'dismissing' individuals, who may present with an avoidance of help-seeking behaviours.

Limitations of this Review

There are a number of limitations that should be considered. First, this review only included papers explicitly referring to PTSD symptoms; however, trauma is pervasive and may underpin other diagnoses such as depression and anxiety. It also did not include studies investigating secondary PTSD. There are also inherent difficulties in categorising attachment within the research. Attachment is assessed using concurrent measures of functioning that assume the reliability of retrospective reports of childhood in the classification of attachment. Attachment in adults is thought to be continuous and does not necessarily correspond to attachment in childhood (McConnell & Ellen, 2011). The variability between research designs and study focal points makes it difficult to compare and contrast findings. Additionally, this paper does not review neurological components of the relationship between attachment and PTSD. This review only included peer reviewed papers, and since non-significant results are less likely to be published, there may be a positive bias in effects reported (Scargle, 2000).

Implications for Future Research

There is some evidence to suggest that an insecure attachment style contributes to the onset and maintenance of PTSD (MacDonald et al., 2008; Stovall-McClough & Cloitre, 2006); however, we are still far from identifying and understanding the underlying mechanisms of this relationship. Dieperink and colleagues (2001) emphasise the importance of differentiating symptoms related to trauma from those intrinsic to individuals' attachment style. The next step for research is to establish the extent of related factors, which may vary depending on type and onset of trauma. Research has begun to determine how different attachment styles affect the therapeutic outcome (e.g. Goldman & Anderson, 2007; Tasca et al., 2004). This research should be prioritised in order to inform treatment choices, and optimise treatment outcomes.

It is clear that attachment and PTSD are related, and that this relationship is complex. PTSD treatments should aim to measure participants' attachment, particularly since insecure attachment may increase the risk of developing PTSD, and result in a subsequent relapse following therapy. There are also important implications for measuring functional and interpersonal changes, beyond symptomatology.

This review indicates that attachment style may change as a result of severe trauma, which has important implications for treatment studies. Whilst Solomon et al. (1998) found that trauma had negative effects on attachment; it is possible that treatment may positively influence IWMs. Despite the commonly held belief that attachment styles are relatively stable and enduring across a lifespan (McConnell & Ellen, 2011), there is evidence to suggest that therapy can facilitate a shift from an insecure to a secure attachment style (e.g. Levy et al., 2006; Stovall-McClough & Cloitre, 2003; Travis, Bliwise, Binder, & Horne-Moyer, 2001; Wesselman & Potter, 2009). However, this research is still in its infancy and further research is needed to identify differences across therapeutic modalities, and incorporating client factors.

Further research should explore the overlap between attachment styles and PTSD symptoms, and specifically how attachment and trauma may influence therapeutic outcomes. This may be done by examining clients who have experienced different types of traumas, with differing levels of complexity. Given that a large proportion of the current research uses a student population, further research using clinical samples is warranted.

Conclusion

This review provides a tentative introduction to the relationship between trauma and attachment. Nevertheless, it represents an important start to the development of a more unified

theoretical framework for attachment and PTSD. There is little doubt that attachment and trauma share an important relationship. Therefore, it is surprising that the theoretical frameworks of attachment and PTSD have tended to be relatively disparate. The link between the trauma and symptoms is clearly complex. PTSD symptoms may be driven by the same underlying pathways as: emotion dysregulation, cognition, behaviour, as well as neurobiological factors. However, limited research in this field and inherent design limitations make this area of research a challenging one. Based on evidence so far, replicating studies and overcoming research drawbacks will help further our understanding of the important relationship between attachment and trauma.

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Major Research Project

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Section B

EMDR Therapy and Change in Attachment:

A Preliminary Study

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Abstract

Background: Eye Movement Desensitisation and Reprocessing (EMDR) therapy is a recommended treatment for PTSD. Despite its rapidly growing evidence base, relatively little is known about its treatment effects beyond PTSD symptoms.

Aims: This preliminary study aimed to explore the capacity for EMDR to facilitate a change in attachment security in a clinical sample of adults experiencing symptoms of PTSD and Complex PTSD (CPTSD). It also explored the role of the therapeutic alliance.

Method: A within-subject, repeated-measures design was used. Participants (N = 12) received 10 EMDR sessions on average, as part of their routine care. Self-report measures of attachment, PTSD, CPTSD, and the therapeutic alliance were administered during therapy.

Findings: No significant changes in attachment were observed; however, there was a trend in the expected direction. A significant reduction in PTSD scores was found, in addition to some associations between change in attachment security and change in PTSD and CPTSD symptoms.

Conclusions: This study contributes to the emerging literature on change in attachment; however, the findings should be interpreted with caution due to limitations including the small sample size. Clinical implications and recommendations for future research are discussed.

Key words: EMDR, Attachment, PTSD, Complex PTSD, Adults

EMDR Therapy and Change in Attachment: A Preliminary Study

Attachment theory

Attachment theory provides a framework for understanding individual differences in relationships developed through early interactions with a caregiver (Bowlby, 1969, 1977, 1982). Infants form an attachment to their caregiver(s) on whom they depend to provide safety, nutrients, love, and warmth. Healthy behavioural repertoires between an infant and caregiver enable effective coping skills and safe exploration to develop (Bowlby, 1988). Early relationship patterns are internalised and influence associated expectations, attitudes and beliefs. These mental representations, known as '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 are believed to shape interactions towards future relationships and experiences and contribute to psychological disposition in later life (Bowlby, 1973, 1977, 1980).

The influence of attachment continues throughout the lifespan (Rothbard & Shaver, 1994). The quality of attachment in adulthood has been described in a four-category model proposed by Bartholomew (1990). The four attachment styles: secure, preoccupied, dismissing, and fearful, form part of a dimension of a model of the self and others, which can either be positive or negative (see Figure 1). More recently, these have been referred to as dimensions of anxiety and avoidance (Brennan, Clark, & Shaver, 1998). Secure individuals tend to have higher self-worth (Lim, Adams, & Lilly, 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 (Brennan & Shaver, 1995). Insecure individuals are more likely to experience difficulties in relationships and are more vulnerable to poor psychological health (Mikulincer & Shaver, 2007).

	Positive Model-of-Self (Low anxiety)	Negative Model-of-Self (High anxiety)
Positive Model-of-Other (Low Avoidance)	<p>SECURE</p> <p>Comfortable within intimacy & autonomy and trust in relationships</p>	<p>PREOCCUPIED</p> <p>Strong need for closeness and fear of abandonment</p>
Negative Model-of-Other (High Avoidance)	<p>DISMISSING</p> <p>Dismissing of intimacy Exhibit a distorted sense of self-reliance</p>	<p>FEARFUL</p> <p>Fearful of intimacy Exhibits avoidance but may also seek proximity in relationships.</p>

Figure 1. Four-category model of attachment (Bartholomew, 1990; Brennan et al., 1998).

Clinical Applications of Attachment Theory

The contributions of attachment theory and research are increasingly recognised as important within psychological therapies (Division of Clinical Psychology; DCP, 2011). From a formulation perspective, attachment theory can help understand the quality of clients' relationships with themselves and others, as well as coping and help-seeking behaviours (Bartholomew, 1990). An individual's attachment style has been found to influence both the therapeutic alliance and therapy outcomes (Mikulincer, Shaver, & Berant, 2013): attachment insecurity has been shown to disrupt the therapeutic alliance between client and therapist, whereas attachment security tends to facilitate a stable alliance (Eames & Roth, 2000; Smith, Msetfi, & Golding, 2010). In a meta-analysis, Levy, Ellison, Scott, and Bernecker (2011) found that attachment insecurity was related to more negative therapy outcomes compared to attachment security. According to Mikulincer et al. (2013), this highlights the importance of helping a client gain greater security to achieve more favourable therapeutic outcomes.

Post Traumatic Stress Disorder (PTSD) and Attachment

A developing body of research provides evidence for a relationship between attachment and PTSD (Dieperink, Leskela, Thuras, & Engdahl, 2001; Escolás et al., 2012) and attachment and Complex PTSD (CPTSD; Alexander & Anderson, 1994; Liotti, 2004; Sandberg, 2010).

According to the Diagnostic and Statistical Manual of Mental Disorders Fifth Edition, PTSD comprises three symptoms clusters: a) intrusions, b) avoidance, and c) alterations in cognitions, mood, arousal, and reactivity following a traumatic event (DSM; American Psychiatric Association [APA], 2013). CPTSD is a term used to capture symptoms unaccounted for in a PTSD diagnosis (Resick et al., 2012), often arising from experience of childhood abuse. Notably, many PTSD and CPTSD symptoms are interpersonal in nature (e.g. feelings of detachment and estrangement, avoidance of people who are reminders of the trauma, alterations in relations with others). Interpersonal difficulties are likely to be even more problematic in individuals who have faced interpersonal abuse or neglect (Pearlman & Courtois, 2005)

Research indicates that almost two thirds of individuals with PTSD meet the criteria for an insecure attachment (Dieperink et al., 2001). This figure appears to increase to at least three quarters for individuals who had suffered childhood abuse (Anderson & Alexander, 1996; Liotti, 1995, 1999; Muller, Sicoli, & Lemieux, 2000). It is possible that an insecure attachment may increase vulnerability for developing PTSD following trauma (Dieperink et al., 2001), particularly in the case of individuals who have experienced trauma during childhood (Muller, Thornback, & Bedi, 2012). Some evidence suggests that attachment may even play a causal role in PTSD (Roche, Runtz, & Hunter, 1999). It is also possible that the experience of trauma and PTSD may increase attachment insecurity by destroying an individual's sense of security in relation to themselves and others (Mikulincer, Ein-Dor, Solomon, & Shaver, 2011).

Change in Attachment

The prevalence of insecure attachment observed in individuals with PTSD, together with positive outcomes associated with secure attachment, highlights the importance for therapy to address attachment issues and attempt to improve attachment security. From a psychodynamic perspective, a positive change in attachment status is an important treatment objective (Parish & Eagle, 2003). This has been evidenced in psychodynamically-orientated psychotherapy for Borderline Personality Disorder (BPD; Fonagy et al., 2005; Fonagy et al., 2006), time-limited dynamic therapy for ‘interpersonal difficulties’ (Travis, Binder, Bliwise, & Horne-Moyer, 2001), and Transference-Focused Psychotherapy (TFP) for BPD (Diamond, Stovall-McClough, Clarkin, & Levy, 2003; Levy et al., 2006).

Change in attachment style has also been evidenced in other therapeutic modalities even when the intervention is not guided by attachment theory. Tasca, Balfour, Ritchie, and Bissada (2007) compared CBT and psychodynamic-interpersonal therapy and found that attachment insecurity significantly decreased post-intervention for both treatments. Further studies observing positive changes in attachment style include: a combined cognitive behavioural and psychodynamic group therapy for violent behaviour (Lawson, Barnes, Madkins, & Francois-Lamonte; 2006), an inpatient skills-based group for PTSD (Muller & Rosenkranz, 2009); prolonged exposure therapy, and skills training in emotion and interpersonal regulation for BPD and PTSD (Stovall-McClough & Cloitre, 2003). Strauss, Mestel, and Kirchmann (2011) observed a change from an ambivalent (preoccupied) to avoidant (dismissing) attachment in a study of a seven-week psychodynamic inpatient treatment for women with Personality disorders. They interpreted this as positive for women with BPD since it indicated a deactivation of a usually highly activated attachment system (Fonagy, Target, & Gergely, 2000). Similarly, when Levy et al. (2006) compared TFP, Dialectical Behaviour Therapy (DBT), and modified

psychodynamic supportive therapy, only the TFP group demonstrated a significant increase in secure attachment after treatment (see Appendix D for an outline of these studies).

Together, these studies suggest that therapy may contribute to a positive change in attachment in psychodynamic and non-psychodynamic 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 security in attachments. Further, the factors contributing to change are not clear. For example, none of the studies accounted for the role of the therapeutic alliance. The therapeutic alliance is believed to share many of the features of an attachment relationship (Bowlby, 1988). It is possible that a good therapeutic relationship may have a positive influence on insecure clients attachment system in addition to other treatment outcomes (Lambert & Barley, 2001). The effect of psychological treatment on attachment may be complex.

Eye Movement Desensitisation and Reprocessing (EMDR) Therapy

There has been a developing interest in EMDR's capacity to improve attachment security (Wesselman & Potter, 2009). EMDR therapy is a recommended treatment for PTSD (National Institute for Clinical Excellence; NICE, 2005). It is a well-defined eight-phased, three-prong (past, present, and future) treatment protocol used to facilitate reprocessing of traumatic events and adverse life experiences (Shapiro, 2001; van den Hout, Muris, Salemink, & Kindt, 2001). The value of EMDR in alleviating symptoms of PTSD has been demonstrated in over 24 RCT trials, comparing EMDR to wait-list controls, non-specific treatments, and other trauma-focused therapies in adult samples (See Shapiro, 2012, for a review). It also has a developing evidence base for treating Complex PTSD, which has notably received little attention in the treatment literature (see Korn, 2009, for a review).

Despite rapidly growing evidence, relatively little is known about EMDR's treatment effects beyond PTSD symptoms. It is an integrative and comprehensive treatment approach, incorporating features of psychodynamic, cognitive-behaviour, 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 (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).

Whilst a number of studies have demonstrated that attachment styles can change during therapy from different traditions, little is currently known about EMDR's capacity to facilitate change attachment. Wesselman and Potter (2009) presented a case study of three clients demonstrating that 10-15 sessions of EMDR therapy combined with group-based Dialectical Behaviour Therapy (DBT), led to a positive shift in attachment. Attachment was assessed using the Adult Attachment Interview (AAI; George, Kaplan & Main, 1985), and EMDR was used to process attachment-related memories. All three clients, classified with insecure attachments prior to therapy, developed secure attachment following therapy.

Although Wesselman and Potter's study provides a rich account of the therapy and changes in attachment, its design limits the generalisability of the findings. Further, concerns about researcher biases were raised; since, assessment and scoring of the AAI was not independent. The potential influence of the therapeutic alliance was not accounted for, neither were the possible treatment effects of the DBT. Therefore, the conclusions relating to the impact of EMDR therapy on attachment are limited.

The Present Study

This current study aimed to build on Wesselman and Potter's (2009) findings suggesting that EMDR may help improve attachment security. The study sought to explore the associations between attachment style and PTSD / CPTSD symptoms and whether change in attachment may be influenced by symptom severity. In light of the expected influential effect of the therapeutic alliance on attachment styles and therapy outcome, this study considered its influence on attachment change and PTSD symptoms, which to date has been missing from the research literature.

It was hypothesised that:

- a) Following EMDR therapy, there will be a positive change in attachment security
- b) Positive changes in attachment over the course of treatment will be associated with a decrease in PTSD and CPTSD
- c) The quality of the therapeutic alliance will be associated with positive change in attachment security

Method

Design

This study adopted a within-subject, repeated-measures design to establish whether EMDR therapy facilitated an increase in attachment security. Measures of attachment and PTSD were administered by EMDR therapists at baseline, session eight, and in multiples of eight sessions until the end of therapy. A measure of the therapeutic alliance was administered by EMDR therapists every three sessions. The frequency of administration was based on previous robust studies (e.g. Lindgren, Barber, & Sandahl, 2008). The post therapy measures were administered at the penultimate session. In order 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 report to what extent the therapy strictly followed the EMDR approach, or was informed by other therapeutic models or techniques.

Measures

Attachment style. The Relationship Scales Questionnaire (RSQ; Griffin & Bartholomew, 1994) is a self-report measure of attachment (Appendix E). It is a widely used measure that is less resource intensive than other attachment measures (e.g. the AAI). The items are an amalgamation of attachment measures (Bartholomew and Horowitz, 1991; Collin & Read, 1990; Hazen and Shaver, 1987). Items are based on four prototypes of attachment: 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’. Due to the limitations in relying on four-group typology, these 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: 5 items, $\alpha = .40$; preoccupied: 4 items $\alpha = .32$; dismissing: 5 items, $\alpha = .63$; fearful: 4 items, $\alpha = .77$. When reliability analyses were conducted on a combination of baseline, T2 and T3 scores Cronbachs similarly ranged from unacceptable to good: secure: 5 items, $\alpha = .27$; preoccupied: 4 items $\alpha = .34$; dismissing: 5 items, $\alpha = .72$; fearful: 4 items, $\alpha = .78$. 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 (Guédénéy, Fermanian, & Bifulco, 2010; Ravitz, Maunder, Hunter, Sthankiya, & Lancee, 2010).

Therapeutic alliance. The Working Alliance Inventory-Shortened version (WAI-S; Tracey & Kokotovic, 1989) consists of two parallel self-report measures, one completed by the client and one by the therapist (Appendix F). It comprised 12 items with 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 centred 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 (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; $\alpha = .96$) and WAI-S (therapist version; $\alpha = .94$) at baseline (session 3 for this measure).

PTSD. The 22-item Impact of Event Scale - Revised (IES-R; Weiss, & Marmar, 1997) assessed the presence and severity of PTSD (Appendix G). This is a well-established measure, based on the DSM-IV criteria of PTSD (APA, 1994). It is also typically used in mental health services for clients with PTSD (IAPT Data Handbook, 2011). 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”). Clients were asked to rate each item in terms of frequency of occurrence over the past seven 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 totalled. The correlation between the IES-R and the PTSD Checklist has shown to be high (.84; Creamer, Bell, & Failla, 2003). Based on baseline scores, the measure

demonstrated good internal consistency ($\alpha = .87$). A clinical cut-off score of ≥ 33 was applied, recommend by Creamer et al. (2003).

The type of traumatic experiences to which clients were exposed was assessed using the Life Events Checklist (LEC; Blake et al., 1995; Appendix H). The LEC 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, accident). The current study recorded total number of experienced, witnessed, and learned about life events. In a clinical sample of combat veterans, the LEC has shown to be positively correlated with measures of psychological distress and PTSD symptoms (Gray, Litz, Hsu, & Lombardo, 2004).

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 Complex PTSD, also known as Disorders of Extreme Stress Not Otherwise Specified (DESNOS). The SIDES-SR is currently the only validated measure to assess DESNOS (Appendix I). 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) somatisation (“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: i) whether they have experienced the symptom in their lifetime; and ii) the severity of experience in the past month. The presence of Complex PTSD was

indicated by the occurrence of at least one significant subscale. Severity of Complex PTSD was indicated by the sum of the significant subscale scores. The SIDES-SR demonstrated acceptable internal consistency for this sample ($\alpha = .63$) as indicated by baseline measures. It has also demonstrated good construct validity (Zlotnick & Pearlstein, 1997).

Participants

Clients aged 18 years and above who had been referred for EMDR therapy for PTSD were recruited from community mental health teams in primary and secondary care in two NHS Trusts. This included: two Improving Access to Psychological Therapies (IAPT) services, and six secondary care teams in Assessment and Treatment Services (ATS). A power analysis, calculated using G*Power, yielded a total sample size of 27 participants to obtain a medium effect size ($d = 0.5$) in one-tailed paired samples t-test (Faul, Erdfelder, Lang, & Buchner, 2007).

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 / CPTSD were not the primary focus of therapy were excluded.

Out of 17 participants referred to the study to date, all were eligible according to inclusion criteria. A total of 17 clients gave informed consent to participate and two participants dropped out of treatment before completing measures: One participant changed to CBT therapy and the other dropped out of therapy altogether. Due to the preliminary nature of the study and the time limits on data collection, some participants' data were collected prior to therapy completion. Similarly, due to external time pressures, participants who had not completed T2 measures were excluded from the analyses ($n = 5$). This meant that the assumptions of the power calculation were not met.

Ethical Considerations

A service-user advisory group was consulted during the early stages of the study design. Ethical approval was granted by an Independent Research Ethics Committee (Appendix J) and NHS Research and Development departments (Appendix K). At all times during the research process, the British Psychological Society's Code of Ethics and Conduct (BPS, 2009) were adhered to.

Procedure

Recruitment was carried out in two NHS Trusts from April 2013. Due to unmet assumptions in the power calculation, recruitment is expected to continue until August 2014. Information about the study was presented to EMDR therapists during routine supervision groups and therapists were invited to disseminate participant information sheets to clients who met the inclusion criteria. Clients who expressed an interest in participating in the study were contacted by the author within a week. Therapists and clients who agreed to take part completed consent form (see Appendix L for all recruitment materials).

Therapists received questionnaire packs each with its own unique identifying number to maintain confidentiality. This contained questionnaires organised in order of timing of administration to simplify the procedure and reduce risk of error. It also contained a guidance document, detailing information about questionnaire administration (Appendix M). Therapists were requested not to read through any data that was not part of routine care, to avoid confounding results (Appendix N). Clients were provided with an envelope to conceal responses for the WAI-S. EMDR therapy was delivered according to the eight-phased protocol (see Appendix O). Following therapy completion, the author removed any personally identifiable information from measures.

A prize-draw was offered to clients and therapists as an incentive to participate. This together with a full debrief and summary, will be sent to participants and therapists following the study completion (Appendix P).

Results

Analyses

Analyses were conducted using IBM SPSS version 22.0, in four stages corresponding to the hypotheses. The results are based on participants who had either completed therapy or who had completed T2 measures (session 8).

Treatment of the data. Normality was assessed according to values of skewness and kurtosis and examining histograms for all variables. Two variables were found to have significant levels of kurtosis and skewness (values \geq +/-2; Lewis-Beck, Bryman, & Liao, 2004): fearful attachment had kurtosis of 2.35 (SE = 1.23), and the WAI-S (client version) had skewness of -.25 (SE = .66) and kurtosis of 5.92 (SE = 1.28). The Kolmogorov-Smirnov test was non-significant for all variables indicating that the distribution of the sample did not significantly differ from that of a normal distribution.

Bootstrapping, which does not rely on assumptions of normality was applied during analyses. It also offers accurate inferences when a sample size is small (Mooney & Duval, 1993). Data were analysed parametrically, using paired-sample t-tests. Effect sizes were calculated using Cohen's d (small= 0.2, medium= 0.5, large= 0.8; Cohen, 1992). To allow greater precision in the estimation of change, 95% Confidence Intervals (CI) were also reported (Cumming, 2014).

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 whether a) they remained in therapy and b) for those who completed therapy, how many sessions they received overall. For participants who remained in therapy following the study, it is possible that their T3 scores may have been the same as their T2 scores.

Descriptive Statistics

Participants. The final sample had a mean age of 42.27 (SD = 12.81, range 23-61 years). Eleven participants identified themselves as White British, and one as 'White Other'. Six participants were recruited from primary care and six from secondary care. Seven out of 12 participants reported a history of childhood abuse as defined by Briere (1992) (i.e. physical, sexual, emotional, neglect, witnessing DV). The most common type of trauma reported as the target for EMDR therapy was sexual assault (n = 6), followed by physical assault (n = 3) and serious accident (n = 2). Table 1 outlines the demographics for the twelve participants who remained in therapy and from whom data were collected.

The small sample size was considered to be due to changes in local service organisations leading to therapists being perhaps less willing to assimilate the perceived additional burden of research participation. Further, most of the EMDR therapists were newly trained and may have lacked confidence to participate.

There were some missing data from participant 3, who did not complete SIDES-SR at T1 or T2, nor the WAI-S (client and therapist versions). Participant 2 did not complete the LES or

WAI-S at session six, and participant 4 did not complete WAI-S at session 6. Nevertheless, their scores on completed measures were included in the analyses.

Table 1.

Participant demographics

Participant no.	Age	Gender (M / F)	No. of sessions attended	Therapy completed	Presence of childhood abuse	Trauma
1	49	F	13	Y	N	Sexual assault
2	43	M	9	Y	Y	Serious accident
3	60	M	12	Y	N	Serious accident
4	51	F	18	Y	Y	Sexual assault
5	53	M	9	N	Y	Physical assault
6	46	M	8	N	Y	Physical assault
7	23	F	8	Y	Y	Sexual assault
8	25	F	8	N	Y	Physical assault
9	23	F	8	N	Y	Sexual assault
10	61	M	15	N	Y	Terrorist-related trauma & Bereavement
11	48	F	8	N	Y	Sexual assault
12	44	F	12	N	N	Sexual assault

Eleven therapists (2 males, 9 females), comprising qualified Clinical / Counselling 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. Therapists rated themselves as either ‘competent’ (n = 8), ‘highly experienced’ (n = 1), or ‘novice’ (n = 2). Therapists reported using EMDR either ‘sometimes’ (n = 2) or ‘often’ (n = 9). The number of years therapists had practiced EMDR ranged from one to ten years (M = 3.72, SD = 3.29).

PTSD. Due to the self-report nature of the IES-R, it was not possible to provide a definitive diagnosis of PTSD; however, all but one of the participants' IES-R scores were higher than the clinical cut-off (33) at baseline, suggesting that they met the criteria for a PTSD diagnosis (Creamer et al., 2003). Eight (66.67%) participants reported symptoms of CPTSD at baseline, as indicated by at least one significant subscale of the SIDES-SR.

Attachment. Participant's attachment style at baseline is shown in Figure 2. Participants were categorised in terms of attachment style according to their highest rating on the RSQ scales. Fearful was the most common attachment style ($n = 9$). Two participants were categorised with a dismissing attachment style and one participant had a secure attachment. No participants were classified as having a preoccupied attachment. Participants categorised with a fearful attachment reported the highest level of PTSD with a mean of 50.22 ($n = 9$, $SE = 5.24$), followed by dismissing attachment ($n = 2$, $M = 45.00$, $SE = 11.10$). The participant categorised with a secure attachment reported the lowest PTSD symptoms ($IES-R = 38.00$, $SE = 15.70$).

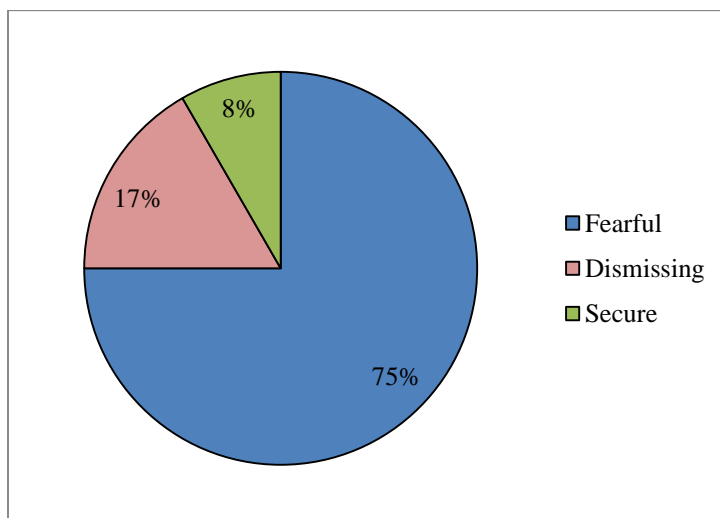


Figure 2. Pie chart illustrating the proportion of insecure and secure attachments in this sample

Therapy. The mean number of therapy sessions received was 10.27 (SD = 3.12). Five out of eleven therapists reported having drawn from other models (e.g. Cognitive Analytic Therapy, Psychodynamic, & Cognitive Behavioural Therapy).

EMDR and PTSD Symptom Decrease. Although change in PTSD scores following EMDR was not the focus of the present study, it was of clinical relevance to note that PTSD symptoms significantly reduced from T1 (M = 48.33, SD = 14.71) to T2 (M = 33.17, SD = 23.31): $t(11) = 3.47, p = .005, d = .72$. There was also a significant decrease in scores from T1 to T3 (M = 33.5, SD = 23.54): $t(11) = 3.39, p = .006, d = .73$. This change is depicted in Figure 3. Table 2 and 3 outline the coefficients.

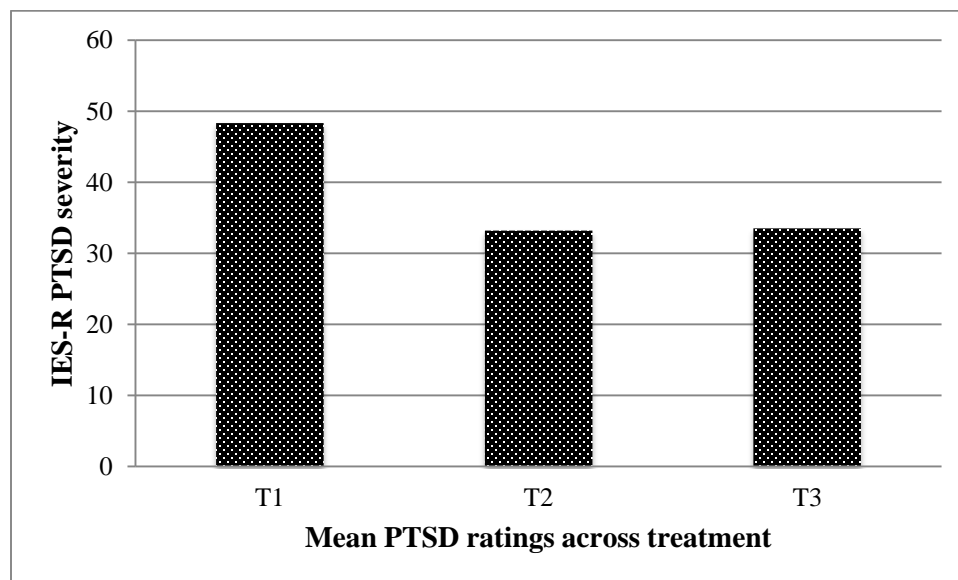


Figure 3. Mean PTSD scores at T1, T2, and T3 as indicated by IES-R

There were no significant changes in CPTSD symptoms over therapy (see Table 2 and 3); however, the mean number of significant subscales on SIDES-SR reduced from T1 (M = 1.82, SD = 1.47) to T2 (M = 1.27, SD = 1.10) and increased marginally at T3 (M = 1.45 SD = 1.21). The total score (the sum of the significant subscales scores) from the SIDES-SR reduced from

T1 (M = 2.38, SD = 2.11) to T2 (M = 1.74, SD = 1.64), and decreased further at T3 (M = 1.68, SD = 1.62). These changes were non-significant.

Table 2.

PTSD and CPTSD scores derived from IES-R and SIDES-SR administered at T1 and T2 (N = 12)

	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)
IES-R	48.33 (14.71)	33.17 (23.31)	3.47* (11)	5.54, 24.79	.72
SIDES-SR (significant subscales)	1.82 (1.47)	1.27 (1.10)	1.32 (10)	-.37, 1.46	.39
SIDES-SR (total score)	2.38 (2.11)	1.74 (1.64)	1.71 (10)	-.59, 1.89	.48

^a 1 tailed

^b ES = [(t*2) / (sqrt(df))]

* Significant at p = .005

Note. Bootstrap results are based on 1000 bootstrap samples

Table 3.

PTSD and CPTSD scores derived from IES-R and SIDES-SR administered at T1 and T3^c (N = 12)

	Baseline (T1)	(T3)	Paired samples t-test (df) ^a		
	Mean (SD)	Mean (SD)	t (df)	CI (x, y)	Effect size ^b (d value)
IES-R	48.33 (14.71)	33.5 (23.54)	3.39* (11)	5.19, 24.48	.73
SIDES-SR (significant subscales)	1.82 (1.47)	1.45 (1.21)	.89 (10)	-.55, 1.28	.27
SIDES-SR (total score)	2.38 (2.11)	1.68 (1.62)	1.04 (10)	-.81, 2.22	.31

^a 1 tailed

^b ES = [(t*2) / (sqrt(df))]

* Significant at p = .006

^c Some participants completed therapy at session 8 (n = 5). Therefore, their post therapy scores were the same as session 8 scores

Note. Bootstrap results are based on 1000 bootstrap samples

Main Analysis

Hypothesis 1. It was hypothesised that there would be positive changes in attachment security following EMDR therapy. This study was interested in attachment styles as continuous variables rather than categorical. As such, participants' scores on each attachment subscale (secure, preoccupied, dismissing, and fearful) were examined for changes.

None of the differences in attachment security and insecurity were statistically significant. The mean scores indicated a trend in the hypothesised direction but with a small effect size. This is illustrated in Figure 4. Tables 4 and 5 provide the means, t-statistics, and standard deviations for the variables across time.

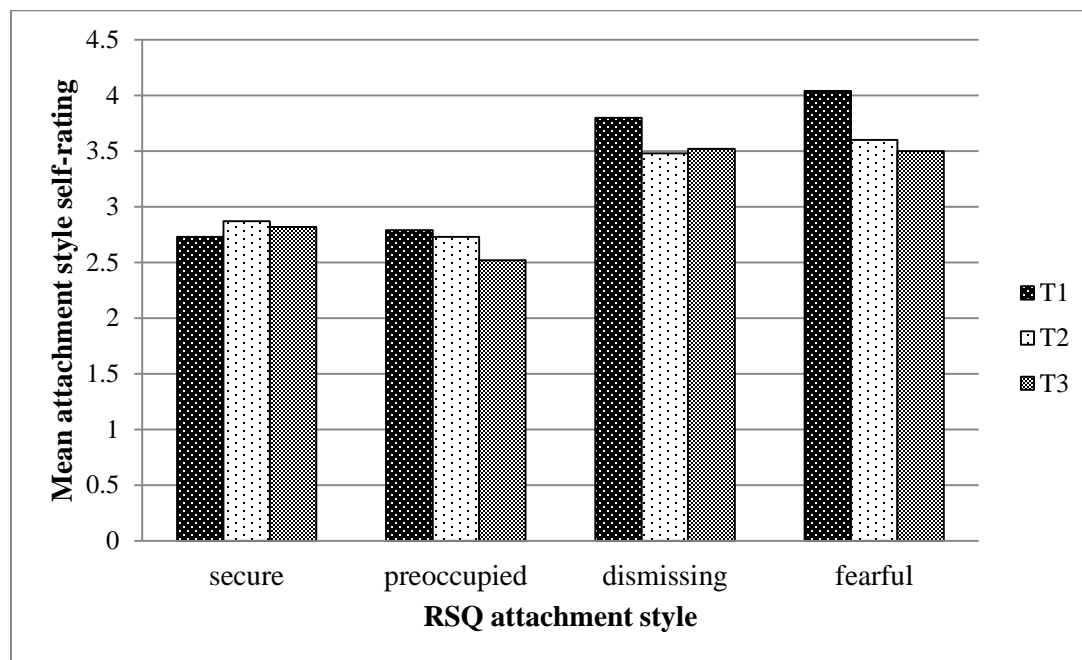


Figure 4. Mean attachment style ratings across time points

Underlying dimensions of attachment anxiety and avoidance were also calculated. On average, participants reported greater attachment anxiety and less attachment avoidance over time; although, these changes were statistically non-significant. When assessing attachment

styles categorically, three participants' attachment styles changed from insecure to secure at T3. Two of these participants had completed therapy, while one remained in therapy. One participant who completed therapy, shifted from secure to preoccupied.

Table 4.

Scores for RSQ attachment classifications and dimensions, administered at T1 and T2 (N = 12)

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)
Secure	2.73 (.42)	2.87 (.67)	-.74 (11)	-.53, .27	.22
Preoccupied	2.79 (.65)	2.73 (.69)	.31 (11)	-.38, .51	.09
Dismissing	3.80 (.72)	3.48 (.82)	1.76 (11)	-.08, .71	.47
Fearful	4.04 (.84)	3.60 (.79)	1.78 (11)	-.10, .98	.47
Anxiety (model of self)	-.14 (1.22)	.02 (1.30)	-.53 (11)	-.80, .49	.16
Avoidance (model of other)	-2.23 (1.98)	-1.49 (2.18)	-1.55 (11)	-1.78, .31	.42

^a 1 tailed

^b $[(t*2) / (\text{sqrt}(df))]$

Note. Bootstrap results are based on 1000 bootstrap samples

Table 5.

Scores for RSQ attachment classifications and dimensions, administered at T1 and T3^c (N = 12)

RSQ subscale	Baseline (T1)	Final (T3)	Paired samples t-test (df) ^a		
	Mean (SD)	Mean (SD)	t (df)	CI (x, y)	Effect size ^b (d value)
Secure	2.73 (.42)	2.82 (.76)	-.40 (11)	-.54, .37	.12
Preoccupied	2.79 (.65)	2.52 (.47)	1.62 (11)	-.10, .64	.44
Dismissing	3.8 (.72)	3.52 (.83)	1.60 (11)	-.08, .71	.44
Fearful	4.04 (.84)	3.50 (.83)	1.50 (11)	-.25, .98	.41
Anxiety (model of self)	-.14 (1.22)	.15 (1.09)	-.88 (11)	-.99, .42	.26
Avoidance (model of other)	-2.23 (1.98)	-1.20 (3.07)	-1.19 (11)	-2.84, .85	.34

^a 1 tailed^b $ES = [(t^2) / (df)]$ ^c Some participants completed therapy at session 8. Therefore, their post therapy scores were the same as session 8 scores

Note. Bootstrap results are based on 1000 bootstrap samples

Overall, the non-significant nature of the results and the small effect sizes indicate that findings do not support the study's hypothesis that there would be an increase in attachment security and a decrease in attachment insecurity. Nevertheless, the preliminary nature of the findings, and the observation that the means are in the hypothesised direction would suggest it was unwise to accept the null hypothesis. Further analyses were therefore conducted to test out hypotheses 2 and 3.

Hypothesis 2. Positive changes in attachment over the course of treatment were expected to be associated with a decrease in PTSD and CPTSD symptoms. Attachment security and PTSD / CPTSD 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, non-parametric analyses using Spearman's correlations were conducted between PTSD / CPTSD and attachment styles. This is also a more conservative analysis.

Correlation coefficients are presented in Table 6. The findings were mixed: Secure attachment was significantly negatively correlated with CPTSD, indicating that as participants reported greater attachment security, they reported fewer symptoms of CPTSD [$r(11) = -.55, p < .05$]. There was no significant correlation between an increase in security and PTSD scores. Unexpectedly, change in attachment anxiety was significantly negatively correlated with CPTSD symptoms [$r(11) = -.53, p < .05$]. Similarly, attachment avoidance was also significantly negatively correlated with CPTSD symptoms [$r(11) = -.75, p < .01$ and $r(11) = -.73, p < .01$]. This suggests that as anxiety and avoidance decreased over time, PTSD and CPTSD scores increased. It is unclear why this occurred. It was possible that as some participants had not completed therapy, their traumas may have been activated which led to an increase in symptoms.

Table 6.

Correlation coefficients for change attachment styles and change PTSD symptoms^a (N = 12)

	Secure	Dismissing	Fearful	Preoccupied	Anxiety	Avoidance
PTSD: IES-R:	-.33 (-.74, .40)	.50 (-.02, .87)	.22 (-.66, .90)	.46 (-.12, .77)	-.31 (-.72, .51)	-.29 (-.77, .39)
CPTSD: SIDES-SR (significant subscales)	-.51(-.87, .10)	.27 (-.64, .91)	.42 (-.15, .80)	-.15 (-.75, .65)	-.51 (-.87, .27)	-.75** (-.96, -.27)
CPTSD: SIDES-SR (total score)	-.55* (-.86, -.01)	.29 (-.71, .90)	.41 (-.08, .74)	-.15(-.78, .60)	-.53*(-.92, -.12)	-.73** (-.97, -.24)

^a 1 tailed

** correlation is significant at the 0.01 level (1-tailed)

* correlation is significant at the 0.05 level (1-tailed)

Note. Bootstrap results are based on 1000 bootstrap samples

Hypothesis 3. It was hypothesised that strength of the therapeutic alliance would be associated with a positive change in attachment security. Change in attachment was computed by subtracting T1 from T3 scores. These were correlated with client and therapist ratings of the therapeutic alliance. Correlation coefficients are outlined in Table 5. While a significant positive correlation was found between fearful attachment and the clients' ratings [$r(11) = .56, p < .05$], therapists' ratings of the therapeutic alliance were not, suggesting that better quality therapeutic alliance is associated with greater decrease in attachment insecurity over time.

Table 7.

Correlation coefficients for alliance strength and change in attachment styles^a (N = 12)

	Secure	Dismissing	Fearful	Preoccupied	Anxiety	Avoidance
WAI-S (client)	.16 (-.44, .72)	.49 (-.20, .85)	.56* (-.10, -.94)	.17 (-.63, .83)	-.24(-.78, .63)	.17 (-.72, .95)
WAI-S (therapist)	.50 (-.08, .27)	-.29 (-.87, .54)	.08 (-.54, .62)	-.33 (-.76, .34)	.22 (-.46, .81)	.39 (-.13, .77)

^a 1 tailed

* correlation is significant at the 0.05 level (1-tailed)

Note. Bootstrap results are based on 1000 bootstrap samples. PTSD scores were based on T3 scores and WAI-S ratings were based on session 6.

The average client ratings of the therapeutic alliance remained relatively consistent across therapy at session 3 (M = 75.56, SD = 12.26), session 6 (74.22, SD = 9.77), and T3 (M = 75.00, SD = 11.39). Therapists' ratings were lower than clients' ratings at session 3 (M= 67.33, SD = 8.00), session 6 (M = 68.22, SD = 9.42), and T3 (M = 68.33, SD = 11.39). Although the WAI-S does not provide cutoffs for what constitutes a 'good' therapeutic alliance, the highest possible

score is 84 and the lowest is 12. The scores in the current sample are therefore indicative of good therapeutic alliances.

Discussion

This preliminary study examined changes in attachment during EMDR therapy for clients presenting with symptoms of PTSD and CPTSD. It also examined the role of the therapeutic alliance in change in attachment.

Ninety-two percent of the current sample were categorised as having insecure attachment, and 75% had a fearful attachment style. The level of insecurity is comparable to or greater than other clinical samples (e.g. Lawson et al., 2006; Travis et al., 2001; Stovall-McClough & Cloitre, 2003), including samples of individuals who have experienced childhood sexual abuse (Anderson & Alexander, 1996; Muller et al., 2000). The level of reported PTSD was comparable to previous studies (e.g. Muller & Rosenkranz, 2009; Stovall-McClough & Cloitre). Due to lack of measurement of CPTSD in previous samples, it is not known how the level of CPTSD in current sample compares to other clinical samples.

Change in Attachment

The study was interested in establishing whether self-reported attachment security or insecurity could change over sessions of EMDR. Preliminary findings indicated no significant differences in attachment security over time; however, there was a trend in the hypothesised direction across all attachment styles. This finding is important given the relatively small number of sessions during which change occurred, in addition to the positive implications associated with increased attachment security (Tangney, Baumeister, & Boone, 2004). Nevertheless, it should be considered that these changes could have been due to chance.

A number of reasons may explain why this study did not observe significant changes in attachment styles. First, the limited number of therapy sessions may have been insufficient for eliciting meaningful changes in attachment. While some studies demonstrated a change in attachment during time-limited therapy (Muller & Rosenkranz, 2009; Tasca et al., 2007), most demonstrated a significant change after at least 16 sessions (e.g. Travis et al., 2001; Stovall-McClough & Cloitre, 2003). Since just over half of participants in the current study had not yet completed therapy, they had perhaps not reached a point whereby significant change had occurred. In a review, Hanson, Lambert, and Forman (2002) concluded that a minimum of 12 sessions of psychological therapy was required for clinical meaningful change. Similarly, the therapeutic alliance may not have been able to develop sufficiently to rework attachment difficulties as suggested by Saakvitne, Gamble, Pearlman, and Lev (2000).

Second, since over half of participants presented with symptoms of CPTSD, the complexity of this sample may have affected the propensity for change in limited time. Individuals with CPTSD also tend to experience greater difficulty in relationships, regulating emotions, and general functionality (van der Kolk, Roth, Pelcovitz, Sunday, & Spinazzola, 2005). They are subsequently likely to require more extensive therapy (Courtois, 2008). Moreover, CPTSD has shown to predict poor treatment outcomes (Ford & Kidd, 1998).

Third, the findings may also have been influenced by the fact that three quarters of the sample had a fearful attachment at the start of therapy. Reis and Grenyer (2004) found that higher levels of fearful attachment impeded progress during therapy. Fourth, the lack of change in attachment security may have been because therapy was focused specifically on improving symptoms of PTSD, as opposed to attachment security. Psychiatric symptoms may be more amenable to change than underlying structures such as IWMs. Fifth, given the unreliability of

the secure and preoccupied subscales of the RSQ in this study, it is possible that this measure lacked sensitivity to detect change. Finally, the sample size may have limited the power needed to test the hypotheses. The effect sizes were small, which suggests that a lack of significant findings may have been due to the small sample size.

Change in PTSD

Significant changes in PTSD symptoms were found after eight sessions, with a medium effect size. This is consistent with other larger-scale studies, demonstrating that EMDR can facilitate relatively rapid changes in PTSD (Shapiro, 2012). This finding is particularly encouraging given the high level of reported childhood abuse, which has shown to impact on treatment outcomes (Ford & Kidd, 1998). Nevertheless, the lack of follow-up measures made it impossible to ascertain whether these therapeutic gains were maintained. PTSD symptom improvement after eight sessions for participants who were largely fearful in their attachment is inconsistent with previous findings that fearful clients may require lengthy treatment before their symptoms improve (Reis & Grenyer, 2004).

Attachment and PTSD

Consistent with Muller and Rosenkranz's (2009) findings, this study provided tentative evidence for a relationship between positive changes in attachment and a decrease in PTSD and CPTSD symptoms. These results are consistent with previous research demonstrating the association between secure attachment and psychological well-being (Dieperink et al., 2001, Zakin Solomon, & Neria, 2003). However, since the changes in attachment may have been due to chance, the conclusions that can be extrapolated from these findings are limited. Furthermore, findings also suggest that a decrease in PTSD symptoms can occur regardless of change in attachment. This is inconsistent with the notion that PTSD and attachment share a close

relationship (Mikulincer, Shaver, & Horesh; 2006). Moreover, given the small sample size, sample r may not be an accurate representation of the population r . The correlations may have occurred by chance, particularly since multiple correlations were carried out which increases the chance of Type I errors (Field, 2005). This relationship may also have been influenced by a number of extraneous variables, including therapist expertise, the number of EMDR sessions received, whether or not therapy had been completed, and the PTSD severity. The analyses could not sufficiently account for these potentially confounding variables. Further, caution should be exercised given the unreliability of the secure and preoccupied subscales of the RSQ. These variables may not be a true representation of secure and preoccupied attachments in the general population.

The Therapeutic Alliance and Change in Attachment

Although findings partially supported the hypothesis that a higher quality therapeutic relationship was associated with positive change in attachment, this was only true in the case of fearful attachment. It was not possible to fully ascertain whether changes in attachment and the therapeutic alliance were related in this study given that significant changes in attachment were not found. Furthermore, there may have been insufficient sessions to examine the development and maintenance in the therapeutic alliance. It is also important to note that self-report measures such as the WAI-S are vulnerable to reporting biases. Despite steps taken to maintain confidentiality, clients and therapists may not have felt able to be entirely honest about their perspective of the therapeutic relationship.

Clinical implications

The study observed high levels of insecure attachments in this clinical sample. Given the negative associations between insecure attachment and general well-being and functioning

(Mikulincer & Florian, 1998) this finding highlights the importance of taking attachment insecurity into account during therapy. Whilst PTSD symptoms may change during short-term therapy, attachment insecurity may require longer to change.

Although no evidence for the relationship between attachment security and the therapeutic alliance was found, previous research suggests that attachment security may be an important factor in forming and developing therapeutic relationships (Smith, Mtsefi, Golding, 2010). In light of the non-significant change in attachment and the observed trend towards security, individuals may require a greater number of sessions to make any significant changes in attachment security or a different kind of therapy if attachment style is the intended outcome.

Limitations

Limitations in this study to consider include the small sample size, which increased the chance of Type I and Type II errors. It also limited the extent to which analyses could 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 their own attachment may also have had an impact. Tyrrell, Dozier, Teagues, and Fallot (1999) found that therapists who had opposite attachment strategies to their clients tended to achieve more favourable outcomes. Factors specific to the therapy also may have also been important. Although EMDR therapy comprises well-defined stages, it is not clear to what extent therapy varied across clients and how different techniques (e.g. resource installation) may have influenced clients' attachment styles. Equally, it is not clear how techniques from other therapeutic modalities were used by some therapists influenced change.

In addition to the reliability issues within two of the RSQ subscales, the sole use of self-report measures is likely to be vulnerable to report biases. Self-report measures are limited to consciously accessible information about relationships. They are subject to just one perspective on what is essentially a relational concept. Conversely, completing the RSQ anonymously may have been less intrusive than the AAI for example, thereby encouraging openness. Finally, the largely White British sample limits the extent to which findings can be generalised to other more diverse populations.

Strengths

This is the first study to explore change in attachment in participants presenting with both PTSD and CPTSD, accounting for the influence of the therapeutic alliance from both clients' and therapists' perspectives. While not able to demonstrate a significant change in attachment, a trend in the hypothesised direction was observed. This is encouraging bearing in mind the limited number of EMDR sessions received. It was also encouraging to find that PTSD symptoms significantly reduced, contributing to the evidence base for EMDR.

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 have not yet established the role of the therapeutic alliance; specifically, whether it plays a part in facilitating change in attachment security above and beyond treatment. If the therapeutic relationship is not the only factor in facilitating changes in attachment, research is required to establish whether interventions such as EMDR have the capacity to change attachment styles, and if so, the number of treatment sessions required to bring about change. It would also be important to explore other variables such as relationship stability and interpersonal functioning, including how they relate to change in

attachment security. This could be addressed using qualitative methods. Larger scale and randomised controlled studies are also required to evaluate change in attachment security in adults with PTSD and CPTSD. Notably, more reliable measures and follow-up measures are required to ascertain whether changes are maintained. Tasca et al. (2001) suggested that time to adjust to new relational experiences may be necessary before an individual can move towards great attachment security.

Conclusions

This preliminary study contributes to a small number of existing studies exploring change in attachment and change in symptoms. A significant decrease in PTSD symptoms after eight sessions was found, which is promising given the level of attachment insecurity and the high proportion of participants reporting CPTSD symptoms. No significant changes in attachment were found; however, a trend towards positive change in attachment security was observed. Some significant relationships between attachment and changes in PTSD were found, although the findings are inconclusive given the reliability issues in the measure of attachment. Further, the small sample size limits the conclusions that can be drawn. Nevertheless, this research has highlighted some important areas for further research in the exciting field of EMDR therapy, attachment, and PTSD and CPTSD.

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Major Research Project

Natalie Barazzone BA (Hons), MSc

Section C

Appendices

A: Literature Search Process

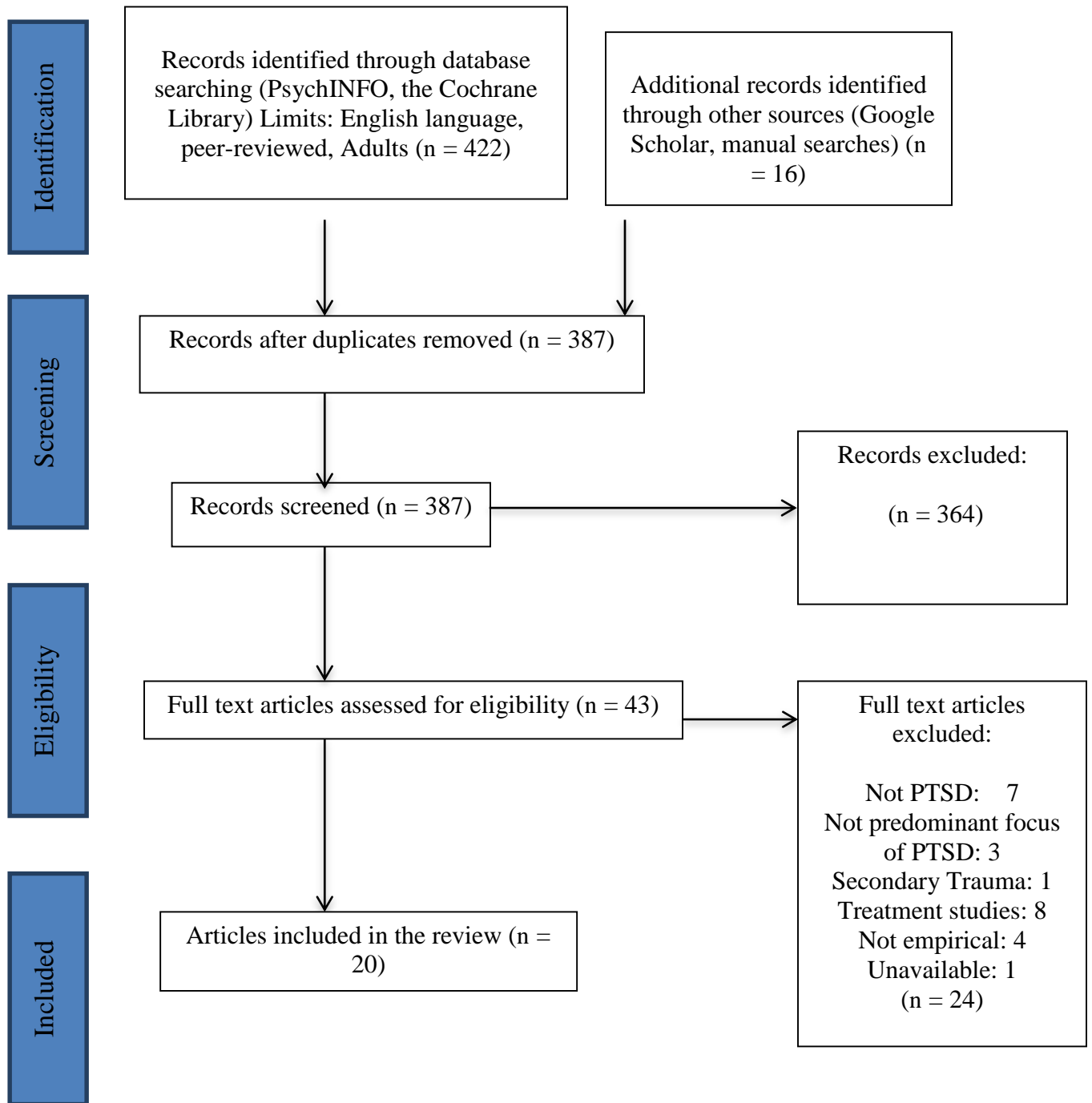


Figure A1. PRISMA diagram for MBI literature search

B. Studies Included in the Literature Review

Table B1.

Studies included in the literature review ordered by date

	Study (author & title)	Sample (size, type, age)	Design	Attachment and Trauma Measures	Summary of findings
1	Gore-Felton et al. (2013) Attachment style and coping in relation to posttraumatic stress disorder symptoms among adults living with HIV/AIDS	HIV positive adults (N = 94, age range 21-51 years)	Cross-sectional	PTSD Checklist-Civilian version (PCL-C), Trauma History Questionnaire (THQ), Adult Romantic Attachment	Avoidant attachment and emotion-focused coping were positively and significantly associated with greater PTSD symptomatology. Coping styles moderated the relationship between attachment and PTSD.
2	Lilly & Lim (2013) Shared pathogenesis of posttrauma pathologies: Attachment, emotion regulation, and cognitions.	University students (n = 290, 60% female) & women from the community (N = 114)	Case-control	Experiences in Close Relationships Scale-Revised, Traumatic Life Events Questionnaire, Posttraumatic Stress Diagnostic scale, World Assumptions scale, somatization (SOM) subscale of the Symptom Checklist 90 – Revised, Difficulties in Emotion Regulation Scale	Emotion dysregulation was strongly associated with PTSD symptoms and somatisation in both samples. Cognitions accounted for unique variance in predicting symptoms of depression and somatisation in both samples. Findings indicated difficulty in regulating emotions consistently predicted mental health in survivors of interpersonal trauma, followed by cognitions regarding the world, self, and others.
3	Escolas et al. (2012) The Impact of Attachment Style on Posttraumatic Stress Disorder Symptoms in Postdeployed Military	Military personnel (N = 561)	Cross-sectional	Relationship Questionnaire, Experiences in Close Relationships Scale-Revised, PTSD checklist–military	Attachment style was significantly related to reported PTSD symptoms. Sixty percent of personnel were classified as insecurely attached. Securely attached individuals reported the least PTSD symptoms, followed by dismissing, preoccupied and fearful, who reported the most. Higher attachment anxiety and avoidance was also associated higher levels of PTSD symptoms

	Members				
4	<p>Lim, Adams, & Lilly (2012)</p> <p>Self-worth as a mediator between attachment and posttraumatic stress in interpersonal trauma.</p>	<p>University students (N = 616, m = 19.64 years, SD = 3.09)</p>	<p>Cross-sectional</p>	<p>Experiences in Close Relationships-Revised Inventory (ECR-R). Posttraumatic Stress Diagnostic Scale (PDS)</p>	<p>Findings indicated a mediating effect of self-worth in the relationship between attachment and PTSD. Insecure attachment was related to PTSD symptoms via a reduced sense of self-worth in interpersonal trauma (IPT) survivors but not in non-IPT survivors.</p>
5	<p>Muller, Thornback, & Bedi (2012)</p> <p>Attachment as a mediator between childhood maltreatment and adult symptomatology</p>	<p>University students (N = 803)</p>	<p>Cross-sectional</p>	<p>Relationship Questionnaire (RQ), Relationship Scales Questionnaire (RSQ), Trauma Symptom Checklist-40 (TSC-40), Record of Maltreatment Experiences, Self-Report (ROME)</p>	<p>Attachment mediated the relationship between different types of childhood abuse (i.e. psychological abuse, physical abuse, and exposure to family violence) and PTSD symptoms. When all three types of abuse were considered simultaneously, attachment only mediated the relationships between psychological abuse and symptoms.</p>
6	<p>Mikulincer, Ein-Dor, Solomon & Shaver (2011)</p> <p>Trajectories of attachment insecurities over a 17-year period: a latent growth curve analysis of the impact of war captivity and posttraumatic stress disorder</p>	<p>Combat veterans - PoW: (n = between 120 and 156, M = 57.91, SD = 3.52) and non-PoW: (n = between 106 and 163, M = 57.89, SD = 3.57)</p>	<p>Case-control</p>	<p>Attachment measure was 10-item scale developed by Mikulincer et al. (1990), based on Hazan and Shaver's (1987) descriptions of avoidant and anxious attachment styles and drawing on items from Experiences in Close Relationships measure (ECR), and Brennan et al.'s avoidance subscale.</p> <p>PTSD Inventory</p>	<p>Ex-PoWs were less secure with respect to attachment than the controls at the initial assessment, and although the controls experienced a decline in attachment insecurity over the 17-year period, the anxiety and avoidance scores of the ex-PoWs increased over time. We also found that PTSD was associated with higher attachment insecurity scores at each time point, beyond the effect of war captivity. implications of the findings for both attachment theory and the psychological effects of trauma are discussed.</p>

7	Sandberg (2010) Adult attachment as a predictor of posttraumatic stress and dissociation	Female university students (N = 199)	Cross-sectional	Childhood sexual victimization items based on questions from Ginkelhor (1979), Sexual Experiences Survey, Family Experiences Questionnaire, Relationship Questionnaire, PTSD Checklist (PCL-C)	Victimization/ abuse was unrelated to attachment. Attachment was not a significant mediator of PTSD; however, dismissing attachment moderated the link between victimization/abuse and posttraumatic stress.
8	Sandberg, Suess, & Heaton, (2010) Attachment anxiety as a mediator of the relationship between interpersonal trauma and posttraumatic symptomatology among college women.	Female university students (N = 224, M = 21.73, SD = 5.89)	Cross-sectional	Experiences in Close Relationships Inventory (ECR), PTSD Checklist (PCL-C), Traumatic Life Events Questionnaire (TLEQ)	Findings indicated that attachment anxiety partially mediated the link between intimate partner violence and posttraumatic symptomatology, as well as the link between adolescent or adult sexual victimisation and posttraumatic symptomatology. Attachment avoidance, although associated with posttraumatic stress, did not mediate the relationship between traumatic life events and PTSD symptoms.
9	O'Connor, & Elklit, (2008) Attachment styles, traumatic events, and PTSD: A cross-sectional investigation of adult attachment and trauma.	University students (N = 328, M = 29.3, SD = 11.63)	Cross-sectional	Harvard Trauma Questionnaire, Revised Adult Attachment Scale, Trauma Symptom Checklist (TSC)	Attachment styles were associated with number of PTSD symptoms, negative affectivity, somatization, emotional coping, attributions, and social support. The distribution of attachment styles in relation to PTSD symptoms could be conceived as uni-dimensional.
10	Aspelmeier, Elliott, & Smith, (2007) Childhood sexual abuse, attachment, and	Female university students (n = 324, M =	Case Control	Sexual Experiences Questionnaire (SEQ), The Trauma Symptom Inventory (TSI), The	History of child sexual abuse was consistently associated with higher levels of trauma-related symptoms and lower levels of attachment security. Attachment security was consistently associated with trauma-related symptoms. In peer

	trauma symptoms in college females: The moderating role of attachment.	18.26, SD = .62)		Relationship Questionnaire (RQ), The Inventory of Parent and Peer Attachment (IPPA)	relationships, the strength of the relationships between attachment measures and trauma symptoms were greater for CSA survivors than for non-abused participants. The opposite pattern of results was found for attachment in parental and close-adult relationships. Attachment security in peer and parent relationships may protect against the negative effects of CSA. Some support was found for the conceptualisation of attachment as a moderator of the relationship between CSA and trauma-related symptoms.
11	Fraley, Fazzari, Bonanno, & Dekel (2006) Attachment and psychological adaptation in high exposure survivors of the September 11 th attack on the World Trade Center	Community sample (N = 45, M = 39, SD = 10)	Cross-sectional	The PTSD Symptom Scale, Self-Report version (PSS-SR), RSQ.	Individuals with secure attachments exhibited fewer PTSD symptoms compared to insecurely attached individuals following exposure to September 11 th Attack on the World Trade Centre. Ratings provided by friends and relatives of survivors indicated better adjustment amongst securely attached individuals. Those with dismissing attachments reported high levels of PTSD, but were rated by their friends and relatives as neither better or worse with regards to adjustment following the attacks.
12	Stovall-McClough & Cloitre (2006) Unresolved Attachment, PTSD, and Dissociation in Women With Childhood Abuse Histories	Females who had experienced CSA (N = 60, M = 36.10, SD = 10.36)	Cross-sectional. Comparison study (abuse related vs non abuse related PTSD)	Adult Attachment Interview (AAI), Clinician Administered Posttraumatic Scale for DSM-IV (CAPS), Trauma Symptom Inventory (Dissociation subscale)	Unresolved trauma carried a 7.5-fold increase in the likelihood of being diagnosed with PTSD and was most strongly associated with PTSD avoidant symptoms rather than dissociative symptoms.
13	Kanninen, Punamäki, & Qouta (2003) Personality and	Palestinian male former political	Cross-sectional	Applied AAI. Harvard Trauma Questionnaire (HTQ) (translated)	Insecure attachment patterns (both dismissing and preoccupied) were associated with an increased level of intrusive symptoms, whereas a secure attachment style was

	trauma: Adult attachment and posttraumatic distress among former political prisoners.	prisoners (N = 176, M = 29.6, SD = 5.7)			no. When exposed to low level or no physical torture and maltreatment, no differences were found among attachment patterns, suggesting that the activation of attachment-specific responses occurs only when exposed to severe physical trauma.
14	Zakin, Solomon, & Neria (2003) Hardiness, attachment style, and long term psychological distress among Israeli POWs and combat veterans	Veterans: PoW (N = 164) non-PoW (189) Mean age during the war: 22 years	Case-control	SCL-90, PTSD Inventory based on the DSM-III-R criteria, an attachment Instrument was developed based on Hazan and Shaver's (1987) descriptions of how people typically feel in close relationships (Mikulincer et al., 1990) was used	Secure attachment style was associated with less PTSD symptoms. Both combat veterans and ex-POWs with greater hardiness and a secure attachment style demonstrated a reduced vulnerability to PTSD and the associated symptoms of depression, anxiety and somatization. Attachment made a smaller contribution than hardiness to the variance in the distress symptoms.
15	Dieperink, Leskela, Thuras, & Engdahl (2001). Attachment Style Classification and Posttraumatic Stress Disorder in Former Prisoners of War	Former prisoner of war veterans (N = 107, M = 75.4, SD = 3.5)	Cross-sectional	Relationship Questionnaire (RQ), Experiences in Close Relationships Questionnaire (ECR), PTSD Checklist Military Version (PCL-M)	Veterans with secure attachment styles scored significantly lower on measures of PTSD than veterans with insecure styles. Attachment style was a stronger predictor of PTSD symptom intensity than was trauma severity.

16	<p>Muller, Sicoli, & Lemieux (2000)</p> <p>Relationship Between Attachment Style and Posttraumatic Stress Symptomatology Among Adults Who Report the Experience of Childhood Abuse</p>	<p>Community sample of adults who had experienced CSA (N = 68, M = 33)</p>	<p>Cross-sectional</p>	<p>RSQ (Griffith & Bartholomew, 1994). PTSD symptom checklist (Southwick et al., 1993).</p>	<p>Individuals with fearful and preoccupied attachment styles had the highest level of PTSD. Having a negative view of self was most highly associated with posttraumatic stress symptoms, followed by a history of physical abuse. Having negative views of others was unrelated to PTSD symptoms.</p>
17	<p>Roche, Runtz & Hunter (1999)</p> <p>Adult Attachment</p> <p>A mediator between child sexual abuse and later psychological adjustment</p>	<p>Female university students (N = 307, M = 22, SD = 6.5)</p>	<p>Cross-sectional</p>	<p>Relationship Questionnaire, Trauma Symptom Inventory</p>	<p>Having a history of child sexual abuse predicted both psychological adjustment and adult attachment style. Adult attachment style predicted psychological adjustment. It also mediated the link between child sexual abuse and later psychological adjustment.</p>
18	<p>Solomon, Ginzburg, Mikulincer, Neria, & Ohry (1998)</p> <p>Complex trauma of war captivity: a prospective study of attachment and post-traumatic stress disorder</p>	<p>Veterans: PoW (n = 164) & non-PoW (n = 184)</p>	<p>Case-control</p>	<p>PTSD Inventory, Impact of Event Scale (IES), Symptom Checklist 90 (SCL-90). The attachment measure was developed by Mikulincer and his colleagues (Mikulincer and Erev, 1991; Mikulincer et al., 1990) based on the descriptions by Hazan and Shavers (1987) of how people typically feel</p>	<p>Ex-POWs exhibited more PTSD symptoms than non-POWs at both Time 1 and Time 2. PTSD symptoms increased among ex-POWs from Time 1 to Time 2. Both attachment anxiety and attachment avoidance increased with time among ex-POWs, whereas they decreased slightly or remained stable among non-POWs. Increases in attachment anxiety and avoidance were positively associated with the increase in PTSD symptoms among both groups. Further analyses indicated that early PTSD symptoms predicted later attachment better than early attachment predicted later PTSD symptoms.</p>

				in close relationships	
19	Alexander (1993) The differential effects of abuse characteristics and attachment in the prediction of long-term effects of sexual abuse	Incest survivors (N = 112, M = 37)	Cross-sectional	Impact of Events Scale, Relationship Questionnaire (RQ), Symptom Checklist (SCL-10)	Sexual abuse characteristics predicted Depression, intrusive thoughts, and avoidance of memories of abuse. Attachment, particularly insecure attachment, predicted avoidance of memories of abuse.
20	Mikulincer, Florian, & Weller (1993) Attachment styles, coping strategies, and posttraumatic psychological distress: The impact of the Gulf war in Israel	Undergraduate students (N = 140) divided into two groups of 60 according to most dangerous area and least dangerous areas lived	Case-control	Symptom Checklist (SCL-90), Impact of Events Scale, Two attachment measures were developed by Mikulincer et al. (1990) based on the descriptions by Hazan and Shavers (1987) of how people typically feel in close relationships	Individuals with ambivalent attachment styles reported greater distress compared to those with a secure attachment. Avoidantly attached individuals reported higher levels of somatisation, hostility, and trauma-related avoidance compared to securely attached individuals. Whereas secure individuals used more support-seeking strategies to cope with the trauma, ambivalent individuals used more emotion-focused strategies and avoidant individuals used more distancing strategies.

C: Study Quality Checklist

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D: Published Studies Investigating Change in Attachment in Adults Following Treatment

Table D1. Studies examining change in attachment in adults during psychological therapy						
Study (Design)	N	Presenting symptoms	Attachment measure	Therapy type	No of sessions	Outcome
Travis et al. (2001)	84	Interpersonal difficulties	Bartholomew Attachment Rating Scale	Time-limited dynamic therapy	Approx. 21	24% of insecure clients reported secure attachment
Levy et al., (2006).	90	BPD	AAI	TFP vs. DBT & SPT	1 year treatment	Increase in secure attachment for TFP group
Diamond et al. (1999)	20	BPD	AAI	TFP	Up to 1 year	Increase in attachment security in 2 out of 20 patients
Stovall-McClough & Cloitre (2003)	18	PTSD	AAI	ST vs. PE	16	Decrease in unresolved attachment and increase in secure attachment in both groups but significantly more in the exposure treatment group.
McBride et al. (2006)	56	Depression	RSQ	CBT vs. IPT	16-20	In both treatment groups, attachment anxiety decreased but attachment avoidance did not.
Muller & Rosenkranz (2009)	101	PTSD	RSQ	Inpatient program for PTSD	6 weeks of daily groups	Increase in secure attachment in treatment group, which was maintained at a 6-month follow-up
Wesselman & Potter (2009)	3	Interpersonal difficulties	AAI	EMDR	10-15	All three case studies earned secure attachments following therapy
Strauss et al. (2011)	40	BPD or Avoidant PD	IRA	Psychodynamic & Person-centred inpatient group program	7 weeks	No significant increase in attachment security. Observed increases on avoidance dimensions
Lawson et al. (2006)	33	Violent men	AAS	Integrated CBT and psychodynamic group therapy	17 weeks	Significant increase in secure attachment reported

Tasca et al. (2007)	66	Binge eating disorder	ASQ	Group CBT vs. Group Psychodynamic IP	16 sessions	Significant positive changes in all attachment insecurity scales, and no difference between groups
Fonagy et al. (1996)	-	BPD	AAI	Psychodynamic psychotherapy	-	Significant increase in reported secure attachments

Note. RSQ = Relationship Scales Questionnaire, AAS = Adult Attachment Scale, ASQ = Attachment Style Questionnaire, IRA = Interpersonal Relations Assessment, AAI = Adult Attachment Interview, PTSD = Posttraumatic Stress Disorder, PD = Personality Disorder, BPD = Borderline Personality Disorder, CBT = Cognitive Behavioural Therapy, DBT = Dialectical Behaviour Therapy, EMDR = Eye Movement Desensitisation and Reprocessing therapy, IPT = Interpersonal Therapy, PE = Prolonged Exposure, SPT = Supportive Psychotherapy, TFP = Transference Focused Psychotherapy, ST = Skills Training

E: Relationships Scales Questionnaire (RSQ)

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F: Working Alliance Inventory – Short Form (Client and Therapist Versions)

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G: Impact of Events Scale-Revised (IES-R)

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H: Life Events Checklist (LEC)

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I: SIDES-SR and Scoring Sheets

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J: NHS Research Ethics Committee Approval Letter

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K: R&D Approval letters for NHS Trust 1 & 2.

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L: Recruitment Materials**Eye Movement Desensitisation and Reprocessing (EMDR) therapy:
Relationship Style and the Therapeutic Alliance'**THERAPIST INFORMATION SHEET

My name is Natalie Barazzone and I am a trainee clinical psychologist at Canterbury Christ Church University. I would like to invite you to take part in a research study. This study is student research and is a part fulfilment of a doctorate in clinical psychology. Before you decide whether or not you would like to take part, it is important that you understand why the research is being done and what it would involve for you. Please take time to read the following information carefully. Talk to others about the study if you wish.

What is the purpose of the study?

Clients' attachment styles (i.e. ways of relating to significant others) may be associated with how one copes with trauma. Generally, clients with secure attachment styles present with less severe symptoms and better psychological, social and occupational functioning more broadly.

It has been suggested that, in addition to improving symptoms of PTSD, EMDR therapy may lead to a change in clients' attachment style, for example, from insecure attachment to a more secure attachment style.

We hope to find out if clients' attachment styles change over the course of EMDR therapy. We also wish to find out about the therapeutic alliance between clients and therapists over the course of therapy, given that clients attachment styles can influence the quality of the relationship with the therapist.

This study is affiliated with ██████████ NHS Foundation Trust (SPFT) and Canterbury Christ Church University (CCCU), under the direction of Natalie Barazzone (Trainee Clinical Psychologist, CCCU), Dr Ines Santos (SPFT), Maeve Crowley (SPFT), and Dr John McGowan (CCCU).

How will I be involved?

If you agree to take part, we will send you a pack of questionnaires to administer to your client.

Questionnaires will have to be administered at the beginning, every eight sessions and at the end of therapy. The questionnaires aim to assess your client's relationship style (also known as 'attachment style') and PTSD symptoms. This should take no longer than 30 minutes to complete in total.

Also, we will ask you and your client to complete a short questionnaire during therapy (every 3 sessions starting from session number 3). This questionnaire asks about your working relationship with your client. This should take approximately 5 minutes to complete. Your client will complete the same questionnaire about their working relationship with you. This information will be kept confidential and will only be viewed by myself (Natalie Barazzone).

Finally, after you have completed therapy, we will ask you to complete a short questionnaire which asks about your EMDR training (e.g. level of training) and the EMDR therapy you offered to your client (e.g. the number of sessions you completed with your client).

What happens to clients who take part?

1. In summary, clients will be asked to complete questionnaires assessing their attachment style and symptoms of PTSD at the start of therapy, every eight sessions and at the end of therapy.
2. Clients will also be required to complete a short questionnaire over the course of therapy (every 3 sessions) about their relationship with the therapist

Who is eligible?

We are currently recruiting people from mental health services in [REDACTED] NHS Foundation Trust who meet the following criteria:

- (a) Have experienced a traumatic event
- (b) Are due to receive Eye Movement Desensitization and Reprocessing (EMDR) therapy.
- (c) Are age 18+
- (d) Can speak and read English

Overall, we are hoping to recruit a minimum of 24 clients but the more participants we have the more valid our findings will be.

How do I refer my clients?

If you are interested in being involved, or would like further information, please contact Natalie Barazzone, Trainee Clinical Psychologist by email: n.barazzone231@canterbury.ac.uk

What are the benefits of taking part?

You will be entered into a prize draw with the chance of winning a Debenhams voucher with the value of £25. This is a pioneering study and you will be contributing to the growing EMDR research literature, therefore we value your participation hugely!

Confidentiality

We will ensure to keep all the information collected about you and your client strictly confidential. Clients who choose to take part will be allocated a number which will be used to identify all the data collected. Only researchers involved in the study will have access to this data.

The research team will have a duty of care to break confidentiality should we become concerned that your client is a harm to themselves or others, if they are being harmed by another, or that management procedures are not to an adequate standard. However, we would hope to discuss this with you and your client first.

Participants have the right to check the accuracy of data held about them and correct any errors. The data will be stored for 10 years and then disposed of securely.

The procedures for handling, processing, storage and destruction of their data are compliant with the Data Protection Act 1998.

What will happen to the results of the research study?

When the study is completed, we will write-up the results for publication in academic journals and the results may be presented at scientific conferences. We will also produce a newsletter summarising the findings of the study which we will send to you. You will not be identified in any report or publication.

Who has reviewed the study?

All research in the NHS is looked at by independent group of people, called a Research Ethics Committee, to protect your interests. This study has been reviewed and given favourable opinion by the Camberwell St Giles Research Ethics Committee in London.

What if there is a problem?

If you have a concern about any aspect of this study you can email me on n.barazzone231@canterbury.ac.uk. Alternatively, you may contact Dr Ines Santos (01273 240126), Maeve Crowley (01273 621984), or Paul Camic, Research Director at Canterbury Christ Church University (01892507773).

Eye Movement Desensitisation and Reprocessing (EMDR) therapy: Relationship Styles and the Therapeutic Alliance

PARTICIPANT INFORMATION SHEET

My name is Natalie Barazzone and I am a trainee clinical psychologist at Canterbury Christ Church University. I would like to invite you to take part in a research study. This study is student research and is a part fulfilment of a doctorate in clinical psychology. Before you decide whether or not you would like to take part, it is important that you understand why the research is being done and what it would involve for you. Please take time to read the following information carefully. Talk to others about the study if you wish.

- *Part 1 tells you the purpose of this study and what will happen to you if you take part.*
- *Part 2 gives you more detailed information about the conduct of the study).*

Part 1

What is the purpose of the study?

There is some research to indicate that the quality of our relationship to our caregivers in early life, and how we relate to others currently may affect how we cope with difficult or traumatic experiences. There is evidence to suggest that people who suffer from Posttraumatic Stress Disorder (PTSD) may feel insecure in relationships with others, and may therefore experience difficulties in relationships.

It has been suggested that, in addition to improving symptoms of PTSD, Eye Movement Desensitisation and Reprocessing (EMDR) therapy may lead to a positive change in the way we relate to others, such as partners, friends and family. Also, it has also been suggested that how people get on with their therapist is important: people who relate well to their therapist are likely to benefit more from therapy.

We hope to find out more about your trauma symptoms and your ways of relating to others, and how these may change over the course of therapy. Research such as this is important given that our 'relationship styles' are associated with ways of coping and day to day functioning.

Why have I been invited?

We are inviting you to take part in this study as you have been referred to receive EMDR therapy to help address your symptoms of trauma. It is also possible that, if you have symptoms of trauma, you may also experience an insecure way of relating to others.

We would like to invite clients who

- (a) Have experienced a traumatic event
- (b) Are due to receive EMDR therapy.
- (c) Are age 18+
- (d) Speak and read English

Overall, we are hoping to recruit a minimum of 24 clients.

Do I have to take part?

It is up to you to decide to join the study. If you agree to take part, I will then ask you to sign a consent form. You are free to withdraw at any time, without giving a reason. This would not affect the standard of care you receive either now, or in the future.

What will happen to me if I take part?

We will invite you to complete a few questionnaires upon starting therapy, over the course of therapy, and upon completing therapy. Your therapist will go through the questionnaires with you. Completing the questionnaires before and after therapy should take no more than 30 minutes, and can be completed in one meeting. Whenever possible, this can be done as part of a clinical session so that another trip is not necessary. Questionnaires given by your therapist throughout therapy for this study will take approximately 5 minutes to complete.

Following completing the first set of questionnaires, I will look at the information you provide to find out if you are eligible to take part in this study. Following this, I will contact you to let you know if you are eligible or not. I will aim to contact you within a week of completing the questionnaires.

If you meet the criteria, and wish to take part, I will analyse your responses in the questionnaires along with other participants' responses. This will be to find out if your 'relationship style' and trauma symptoms have changed over the course of therapy. None of the responses you provide will contain personally identifiable information. This is to maintain confidentiality.

We will also request some information from your therapist, for example, about how many therapy sessions you receive and the type of trauma you have experienced. However, we will NOT request any details about what you have discussed or will discuss during therapy.

Expenses and payments

Travel expenses for up to £10 can be reimbursed. You will also be entered into a prize draw with the chance of winning one of two £25 Debenhams vouchers.

What will I have to do?

You will meet with your therapist to complete a few different questionnaires. This would usually take place at the same time as your therapy session.

What are the possible disadvantages and risks of taking part

Some of the questionnaires may be uncomfortable and may even cause some distress. For example, there are questions that ask about self-harming behaviours and about difficulties in relationships.

What are the possible benefits of taking part?

We cannot promise the study will help you but we hope the information we get from this study will help improve the treatment of people with similar difficulties.

If you enter into the prize draw, you will have the chance of winning a Debenhams voucher with a value of £25.

What if there is a problem?

Any complaint about the way you have been dealt with during the study or any possible harm you might suffer will be addressed. The detailed information on this is given in Part 2.

Will my taking part in the study be kept confidential?

Yes. We will follow ethical and legal practice and all information about you will be handled in confidence. The details are included in Part 2.

This completes part 1. *If the information in Part 1 has interested you and you are considering*

participation, please read the additional information in Part 2 before making any decision.

Part 2 of the information sheet

What will happen if I don't want to carry on with the study?

The decision about whether to take part in the study is entirely your own. You can decide not to take part or withdraw from the study at any time, without having to give a reason. Your decision will not affect your care in any way, now or in the future.

If you do decide to withdraw, we will keep the data we have already collected from you, but you will not have to take part further in the study. You may request for the information you provided to be destroyed at any time prior to the project submission (It may not be possible for data to be removed once the project has been submitted).

What if there is a problem?

If you have a concern about any aspect of this study you can leave a message for me on a 24-hour voicemail phone line at 03330117070. Please say that the message is for me [Natalie Barazzone] and leave a contact number so that I can get back to you. Alternatively, you may contact Paul Camic, Research Director at Canterbury Christ Church University (01892507773).

Complaints

If you are unhappy and wish to complain formally, you can do this through via Patient Advice and Liaison Services (PALS) (contact no: 01323 446042).

Will my taking part in this study be kept confidential?

We will ensure to keep all the information collected about you strictly confidential. At the beginning of the study, you will be allocated a number which will be used to identify all information we keep about you. We will keep your name and address in a separate place so that it will not be possible to identify any data stored about you. Any information we gather will be collected directly from you or your therapist. Only researchers involved in the study will have access to this data.

The research team will have a duty of care to break confidentiality should we become concerned that you are a danger to yourself or others, if you are being harmed by another, or that your care is not meeting an adequate standard. However, we would hope to discuss this with you and your therapist first.

Participants have the right to check the accuracy of data held about them and correct any errors. The data will be stored for 10 years and then disposed of securely.

The procedures for handling, processing, storage and destruction of their data are compliant with the Data Protection Act 1998.

What will happen to the results of the research study?

When the study is completed, we will write-up the results for publication in academic journals and the results may be presented at scientific conferences. We will also produce a newsletter summarising the findings of the study which we will send to you. You will not be identified in any report or publication.

Who is organising and funding the research?

This study is organised collaboratively by Canterbury Christ Church University and [REDACTED] NHS Foundation Trust. It is funded by Canterbury Christ Church University.

Who has reviewed the study?

All research in the NHS is looked at by independent group of people, called a Research Ethics Committee, to protect your interests. This study has been reviewed and given favourable opinion by the Camberwell St Giles Research Ethics Committee in London.

Further information and contact details**1. General information about research:**

If you have any general questions relating to research, you can leave me a message on a 24-hour voicemail phone line on 03330117070. Please say that the message is for me [Natalie Barazzone] and leave a contact number so that I can get back to you.

2. Specific information about this research project: If you would like to speak to me and find out more about the study or have questions about it answered, you can leave a message for me on a 24-hour voicemail phone line at 03330117070. Please say that the message is for me [Natalie Barazzone] and leave a contact number so that I can get back to you.

3. Advice as to whether you should participate: You can speak to a member of the research team. You may also wish to discuss this with your health care professional.

4. If you are unhappy with the study: you may contact Dr Ines Santos (01273 240126), Maeve Crowley (01273 621984), or Canterbury Christ Church University Research Director, Paul Camic (01892507773)

Centre Number:
Study Number:
Participant Identification Number for this study:

CLIENT CONSENT FORM

EMDR Therapy: Relationship Styles and the Therapeutic Alliance

Name of Researchers: Natalie Barazzone, Dr Ines Santos, Maeve Crowley, Dr John McGowan

Please initial box

- 1. I confirm that I have read and understand the information sheet dated.....
(version.....) for the above study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily.
- 2. I understand that my participation is voluntary and that I am free to withdraw at any time without giving any reason, without my medical care or legal rights being affected.
- 3. I understand that relevant sections of my medical notes and data collected during the study may be looked at individuals from [REDACTED] NHS Foundation Trust where it is relevant to my taking part in this research. I give permission for these individuals to have access to my records.
- 4. I agree to take part in the above study.

Name of Participant _____ Date _____

Signature _____

Name of Person taking consent _____ Date _____

Signature _____

Centre Number:
Study Number:
Participant Identification Number for this study:

THERAPIST CONSENT FORM

EMDR Therapy: Relationship Styles and the Therapeutic Alliance

Name of Researchers: Natalie Barazzone, Dr Ines Santos, Maeve Crowley, Dr John McGowan

Please initial box

5. I confirm that I have read and understand the information sheet dated.....
(version.....) for the above study. I have had the opportunity to consider the
information, ask questions and have had these answered satisfactorily.

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without giving any reason, without my medical care or legal rights being affected.

7. I understand that relevant sections of my medical notes and data collected during the
study may be looked at individuals from

8. [REDACTED] NHS Foundation Trust where it is relevant to my taking part in this
research. I give permission for these individuals to have access to my records.

9. I agree to take part in the above study.

Name of Participant _____ Date _____

Signature _____

Name of Person taking consent _____ Date _____

Signature _____

Dear [CLIENTS NAME]

You have been offered a course of psychological therapy, known as Eye Movement Desensitisation and Reprocessing (EMDR) therapy. We are doing a research project aimed at improving our understanding of the benefits EMDR therapy.

We are inviting you to take part in this research. It involves completing questionnaires alongside receiving therapy. We are keen to improve the standards of care; therefore we would really appreciate you taking part.

I have enclosed some information about the study and what participation would involve. I will contact within the next week to find out if you are interested in taking part, and to answer any questions or queries.

I look forward to speaking with you.

Yours sincerely,

Natalie Barazzone

Trainee Clinical Psychologist / Chief Investigator

M: Guidance for EMDR Therapists**Guidance for EMDR Therapists**

Thank you for participating in this study. This pack provides guidance for when and how to administer questionnaires to your clients who have also agreed to participate in this study.

**** Please read this carefully:** it is important that you follow the guidance closely ******

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4. When to administer questionnaires.....	p. 4
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1. General guidance*

- The questionnaires have been selected to assess the type and complexity of trauma, the client's attachment style, and the quality of the therapeutic relationship between the client and the therapist.
- Some of the questionnaires you'll administer (e.g. IES-R) are routine measures so feel free to use the results clinically as you normally would.
- However, we would ask that you **do not** look at the answers for the measures that you would not routinely use (i.e. The Structured Interview for Disorders of Extreme Stress & the Relationship Scales Questionnaire). This research aims to study routine EMDR therapy, therefore; looking at the data from these questionnaires could influence the results.
- Please administer the questionnaires in the order specified.

* For further information about the study, please refer to the therapist information leaflet

2. Outline of questionnaires

Trauma & Attachment Style Questionnaires (completed by clients):

Administer session 1, and every 8 sessions (e.g. session 8, 16) & at the PENULTIMATE session. This excludes the LES which only needs to be administered at session 1.

1. Life Events Checklist (LES: session 1 only)
2. Impact of Events Scale – Revised
3. Structured Interview for Disorders of Extreme Stress: Self-Report
4. Relationship Scales Questionnaire

Therapeutic Relationship Measure (to be completed by clients and therapists):

At session 3 and every 3 sessions (e.g. session 3, 6, 9...) and the penultimate session

- Working alliance Inventory: Client & Therapist version

Therapist Post EMDR Questionnaire (for therapists)

Complete this short questionnaire after completing EMDR therapy with your client

Information about questionnaires

- **Relationship Scales Questionnaire (RSQ):** The RSQ is a 30-item self-report scale designed to assess adult attachment style. Participants are asked to rate the degree to which they experience each statement on a 5-point frequency scale.
- **Life Events Checklist (LEC):** The LEC is a brief, 17-item self-report measure designed to screen for potentially traumatic events in a person's lifetime. The LEC assesses exposure to 16 events known to potentially result in PTSD or distress and includes one item assessing any other extraordinarily stressful events not captured in the first 16 items.

- **Impact of Events Scale-Revised (IES-R):** The IES-R is a 22 item self-report measure which assesses subjective distress caused by traumatic events
- **Structured Interview for Disorders of Extreme Stress-Self-Report (SIDES-SR):** The SIDES-SR is a 48-item self-report measure that assesses baseline severity of complex post-traumatic stress responses and the extent to which baseline response severity and response change over time.
- **Working Alliance Inventory - Short (WAI-S, for clients and therapists):** The WAI-S is a 12 item measure of the therapeutic alliance. It assesses three aspects of the therapeutic relationship: (a) agreement on the tasks of therapy, (b) agreement on the goals of therapy, and (c) development of an affective bond. There are separate versions for clients and therapists
- **Therapist Post EMDR Questionnaire:** This qualitative questionnaire was devised by the research investigators of this study. It aims to gather information on therapist expertise in addition to some basic information about the therapy offered to your client.

4. When to administer the questionnaires

Session 1:

1. Life Events Checklist
2. Impact of Events Scale – Revised
3. Structured Interview for Disorders of Extreme Stress – Self-Report
4. Relationship Scales Questionnaire

Session 3:

- Working Alliance Inventory (Client & Therapist version)

Session 6:

- Working Alliance Inventory (Client & Therapist version)

Session 8:

1. Impact of Events Scale – Revised
2. Structured Interview for Disorders of Extreme Stress – Self-Report
3. Relationship Scales Questionnaire

Session 9:

- Working Alliance Inventory (Client & Therapist version)

Session 12:

- Working Alliance Inventory (Client & Therapist version)

Session 15:

- Working Alliance Inventory (Client & Therapist version)

Session 16:

1. Impact of Events Scale – Revised
2. Structured Interview for Disorders of Extreme Stress – Self-Report
3. Relationship Scales Questionnaire

Session 18:

- Working Alliance Inventory (Client & Therapist version)

Session 21:

- Working Alliance Inventory (Client & Therapist version)

Session 24:

1. Working Alliance Inventory (Client & Therapist version)
2. Impact of Events Scale – Revised
3. Structured Interview for Disorders of Extreme Stress – Self-Report
4. Relationship Scales Questionnaire

Session 27:

- Working Alliance Inventory (Client & Therapist version)

Session 30:

Working Alliance Inventory (Client & Therapist version)

NB. PLEASE ADMINISTER THE TRAUMA, ATTACHMENT STYLE QUESTIONNAIRES & THE THERAPEUTIC RELATIONSHIP MEASURE DURING **THE PENULTIMATE SESSION**.

IF THERAPY CONTINUES BEYOND 30 SESSIONS, PLEASE CONTINUE ADMINISTERING MEASURES IN DURING THE SESSIONS IN THE ORDER AS SPECIFIED.

5. What to do when your client has completed the questionnaires

Please keep all questionnaires in the envelope provided in a safe place. Once your client has completed therapy and you have completed the post EMDR therapy questionnaire, please send all the questionnaires to the following address. If you would rather send each questionnaire as and when the client's complete them, feel free to do so.

Dr Ines Santos
FAO: Natalie Barazzone
1st Floor Hove Poly Clinic
Mill View Hospital Site
Nevill Avenue
Hove
BN3 7HY

6. Frequently Asked Questions

- **What should I do if my client does not wish to continue completing the questionnaires or wishes to withdraw from the study?**

Clients may become tired of completing the questionnaires. Assure them that it is their right to withdraw from the study, and that this will not impact on their care, however; you may wish to explore the reasons why they wish to stop completing the questionnaires. You may also wish to find out if there's anything we can do to make it easier for them to complete the questionnaires and continue participating in the study.

- **What should I do if my client has left some questions blank?**

Please encourage your client to complete all the questions. If there are important reasons why your client has been unable to complete the questions, please make a note of this and inform Natalie Barazzone.

- **Who looks at the results?**

Natalie Barazzone will have access to the results and any data will be anonymised. Other researchers in the research team (i.e. Ines Santos, Maeve Crowley & John McGowan) may have access to the results, however; they will only have access to anonymised data

- **Will the questionnaires lead my client to feel distressed?**

Client will be aware of the types of questions that will be asked of them (this is discussed with clients when they consent to participating in the study). Some of the questions ask about sensitive issues, however, it is not expected that these questions will lead to any distress that is greater than questions that would normally be asked during routine EMDR therapy. If a client reports or appears distressed, please allow time for listening support as you would do in your routine clinical practice. Ines Santos and Maeve Crowley are available to consult with if you have any concerns about your client.

N: Cover letter to Therapists

[DATE]

Dear [THERAPIST NAME]

I have enclosed a questionnaire pack containing measures for up to [X] sessions.

Things to draw your attention to:

- Each questionnaire is labelled in the top right hand corner. This is to identify the participant number, and the session number. Please follow the order specified and return the questionnaires to the relevant plastic pockets
- Please encourage clients to answer all the questions in each questionnaire
- For the Impact of Events Scale – please could you ask your client to complete this in relation to one trauma (i.e. the worst trauma)
- It is important to read through the therapist guidance document. This hopefully will explain most of what you need to know
- The final plastic pocket in each pack contains the questionnaires for the penultimate session.
- Please refrain from reading completed questionnaires as this may confound the results
- Any questions or concerns, please feel free to contact me at any time. I will aim to keep in touch with you throughout.

Once again, a big thank you from Ines, Maeve, and myself for taking part.

Best wishes,

Natalie

O. EMDR Eight-Phased Treatment Protocol

The eight phases of EMDR therapy are described below (also see Appendix P for EMDR prompt sheet):

1. The Client History Phase involves determining the suitability of EMDR therapy for the client and his/her difficulty. The therapist explores target memories for future EMDR reprocessing.
2. During The Preparation Phase, the client is prepared for EMDR reprocessing. The therapist establishes a therapeutic relationship ‘good enough’ to foster a sense of safety. The client is taught self-soothing techniques to manage emotion. For some clients, particularly those presenting with Complex PTSD, sufficient time must be allowed to enable stabilisation
3. During the Assessment Phase, the therapist identifies components of the target memory and establishes a baseline response. Components include: beliefs associated with the memory, an image or other sensory experience that best represents it, emotions, and physical sensations in the body. The client is also asked to identify an alternative positive belief to begin stimulating a connection between the experience as it is currently held within the adaptive memory network(s).
4. During the Desensitisation Phase the memory is activated while the therapist provides alternating bilateral stimulation (visual, auditory, or tactile). In between sets of bilateral stimulation, the client is invited to describe what they notice. These may be new insights, associations, information, and emotional, sensory, somatic or behavioural shifts. Processing continues until the target memory is no longer disturbing (may take several sessions).
5. In the Installation Phase any new positive beliefs related to the target memory are

explored and installed by alternating bilateral stimulation.

6. During the Body Scan Phase the client is asked to hold in mind both the target event and the positive belief and to mentally scan the body. If the client reports any bodily sensations, the therapist continues bilateral stimulation until the client reports only neutral or positive sensations.
7. The therapist uses the Closure Phase during sessions when any unprocessed, upsetting memories have been activated. Stabilisation techniques may also be used.
8. In the Re-evaluation Phase the therapist assesses the outcome of previous reprocessing of targets looking for and targeting new material, triggers, anticipated future challenges, and systemic issues. If any residual or new targets are present, these are targeted and phases three to eight are repeated.

P: Summary of Study to be Disseminated Following Study Completion

Dear [PARTICIPANT'S NAME]

You recently took part in a study that was interested in finding out more about the benefits of Eye Movement Desensitisation and Reprocessing (EMDR) therapy for treating Post-Traumatic Stress Disorder (PTSD). It specifically aimed to investigate whether EMDR therapy could lead to positive changes in the way individuals relate to others, such as partners, friends and family.

The study involved completing some questionnaires during therapy. The information you provided was analysed together with other participants' information. This information remained anonymous. I am writing to inform you of the results of the study.

On average, individuals reported experiencing a significant reduction in PTSD symptoms following approximately ten EMDR sessions. Individuals also reported feeling more secure in their relationships; however, this could have been due to chance. There were some associations between the amount of change in how secure people felt in relationships, and the amount of change in their PTSD symptoms. However, this also could have been due to chance. In this study, the relationship with the therapist did not appear to affect how much individuals felt secure in their relationships.

Whilst some of these findings may be important, it is also important to take into account that a small number of people participated in the study. This means that the findings may have been different if there were a greater number of people. It will be necessary for further research to be undertaken to find out if EMDR therapy can help to improve the quality of individuals' relationships in addition to improving PTSD symptoms.

Thank you very much for participating in this study and contributing to some valuable findings. Your participation is very much appreciated. It is hoped that the results will be published in a scientific journal in order to contribute to the wider literature on EMDR therapy.

Yours sincerely,

Natalie Barazzone

Research Investigator and Trainee Clinical Psychologist

Dear [THERAPIST'S NAME]

You and your client recently took part in a study that was interested in finding out more about the benefits of Eye Movement Desensitisation and Reprocessing (EMDR) therapy for treating Post-Traumatic Stress Disorder (PTSD). It specifically aimed to investigate whether EMDR therapy could lead to positive changes in clients' attachment styles.

You and your client completed some questionnaires during therapy. The information provided was analysed together with other participant's information. This information remained anonymous. I am writing to inform you of the results of the study.

On average, clients reported experiencing a significant reduction in PTSD symptoms following approximately ten EMDR sessions. Clients also reported greater attachment security; however, this could have been due to chance. There were some associations between the amount of change in attachment security, and the amount of change in their PTSD symptoms. However, this also could have been due to chance. In this study, the therapeutic alliance did not appear to affect likelihood of change in attachment.

Whilst some of these findings may be important, it is also important to take into account that the study had a small sample size. This means that the findings may have been different with a larger sample. It will be necessary for further research to be undertaken to find out if EMDR therapy can help to improve the quality of individual's attachment styles in addition to improving PTSD symptoms.

Thank you very much for participating in this study and contributing to some valuable findings. Your participation is very much appreciated. It is hoped that the results will be published in a scientific journal in order to contribute to the wider literature on EMDR therapy.

Yours sincerely,

Natalie Barazzone

Research Investigator and Trainee Clinical Psychologist

Q: R&D approval of Non-Substantial Amendment from NHS Trust 1.

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R: R&D Approval of Non-Substantial Amendment from NHS Trust 2.

[THIS HAS BEEN REMOVED FROM THE ELECTRONIC COPY]

S. Progress Report Sent to Ethics Committee

[THIS HAS BEEN REMOVED FROM THE ELECTRONIC COPY]

T: End of Study Declaration to be sent to Ethics Committee

[THIS HAS BEEN REMOVED FROM THE ELECTRONIC COPY]

U: Notes to Publisher - Journal of Traumatic Stress

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