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Original article

EMDR as a treatment for improving attachment status in adults and children

L'EMDR : un traitement possible pour améliorer la relation d'attachement chez les adultes et les enfants

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ABSTRACT

Introduction. – The purpose of the article is to examine the current literature regarding evidence for positive change in attachment status following Eye Movement Desensitization and Reprocessing (EMDR) therapy and to describe how an integrative EMDR and family therapy team model was implemented to improve attachment and symptoms in a child with a history of relational loss and trauma.
Literature. – The EMDR method is briefly described along with the theoretical model that guides the EMDR approach. As well, an overview of attachment theory is provided and its implication for conceptualizing symptoms related to a history of relational trauma. Finally, a literature review is provided regarding current preliminary evidence that EMDR can improve attachment status in children and adults.
Clinical findings. – A case study is described in which an EMDR and family therapy integrative model improved attachment status and symptoms in a child with a history attachment trauma.
Conclusion. – The case study and literature review provide preliminary evidence that EMDR may be a promising therapy in the treatment of disorders related to attachment trauma.
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Mots clés :
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RÉSUMÉ

Introduction. – Le but de cet article est d'examiner la littérature scientifique qui envisage la thérapie Eye Movement Desensitization and Reprocessing (EMDR) comme une réponse à la prise en charge des troubles de l'attachement consécutifs à des traumatismes. L'EMDR s'inscrit fondamentalement comme une approche intégrative susceptible de répondre aux nécessités d'une prise en charge en termes de thérapie familiale.
Littérature. – La thérapie EMDR est brièvement décrite, ainsi que le modèle théorique sur lequel elle s'appuie. Sont également présentées certaines approches relatives aux théories de l'attachement, ainsi que leurs implications dans le processus de traumatisation. Enfin, une revue de la littérature apporte des preuves préliminaires montrant que l'EMDR améliore les problématiques d'attachement des enfants, mais aussi des adultes.
Résultats cliniques. – Une étude de cas est présentée dans laquelle l'intégration de l'EMDR à la thérapie familiale a amélioré la situation d'un enfant qui souffrait de troubles de l'attachement et de traumatisme.
Conclusion. – L'étude de cas et la revue de la littérature apportent des premiers éléments de preuve indiquant que l'EMDR est un traitement prometteur dans le traitement des problématiques qui mettent en lien les traumatismes et les troubles de l'attachement.
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1. Introduction

Purpose: The purpose of this paper is first to provide an overview of the challenges for the diagnosis and treatment of symptoms related to early relational trauma and poor quality attachments. Secondly, a literature review is provided regarding the effect of Eye Movement Desensitization and Reprocessing (EMDR) on

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attachment problems in adults and children. Finally, a child case study is described in which reactive attachment disorder (RAD) behaviors and trauma symptoms related to early neglect, abuse, and caregiver changes are improved through an integrative EMDR and family therapy team model. The single case design has been identified as an appropriate method for describing novel treatment approaches to challenging populations and for calling attention to difficult treatment issues (Drotar, 2009; Drotar, La Greca, Lemanek, & Kazak, 1995; Rapoff & Stark, 2008).

2. Eye Movement Desensitization and Reprocessing (EMDR) and the Adaptive Information Processing (AIP) model

EMDR is a therapeutic approach first developed by Francine Shapiro (2001) to reduce symptoms associated with post-traumatic stress disorder (PTSD). The therapist applies bilateral stimulation through lateral eye movements, ear tones, or taps on the hands while the client simultaneously accesses the stored traumatic memory through image, cognitions, affect, and sensation. A specific eight-step protocol moves the client through case conceptualization and preparation, desensitization and reprocessing of the traumatic memory, closure, and follow-up. Multiple outcome studies have shown EMDR to be an effective method for treating PTSD (American Psychiatric Association, 2004; Department of Veterans Affairs and Department of Defense, 2004).

Since the EMDR approach was first utilized clinically, clinicians have reported improvements following EMDR that extend beyond overt symptoms of PTSD. For example, EMDR proved to be more successful than pharmacotherapy in achieving sustained improvement in PTSD and depressive symptoms for trauma survivors (van der Kolk et al., 2007). EMDR has been shown to improve affect regulation and to change personality characteristics (Brown & Shapiro, 2006), to decrease phantom limb pain (Schneider, Hofmann, & Shapiro, 2008), to decrease pain and somatic complaints (Grant & Threlfo, 2002; Gupta & Gupta, 2002), and to improve depression in adolescents (Bae, Kim, & Park, 2008).

Clinicians also have reported symptom relief following EMDR treatment of distressing experiences that would be considered too "ordinary" to be defined as traumatic, such as teasing by a classmate or criticism from a parent. The level of distress attached to any frightening, embarrassing, or hurtful experience is subjective and tainted by related previous life experiences. The goal of EMDR, then, is not narrowly defined to improvement of PTSD symptoms, but overall improvement in life functioning.

Shapiro's Adaptive Information Processing (AIP) model (Shapiro, 2007) posits why the EMDR approach is not limited to the treatment of post-traumatic stress symptoms and how it may effectively move clients toward healthier functioning overall. According to the model, all human beings possess a natural information processing system that continually processes through any and all emotions experienced during day-to-day events. The model hypothesizes that this natural information processing system becomes overwhelmed and shuts down regarding events that are highly distressing, and that the remaining unmetabolized memory is automatically stored within a neural network along with the associated mal-adaptive affect, sensations, images, and beliefs. Distressing events may include small "t" trauma experiences of humiliation or rejection, as well as big "T" trauma which is experienced as life threatening. The AIP model asserts that any current reminder, conscious or unconscious, can activate the unprocessed material, creating a dysfunctional response to the situation at hand. EMDR jump-starts the client's natural information processing system while targeting the early experiences and the stored mal-adaptive information. The bilateral stimulation facilitates new associations, linking the negative material to other, more adaptive material in the brain through spontaneous insights and emotional shifts. There are now over a dozen randomized, controlled studies examining the underlying mechanisms at work during memory reprocessing with bilateral stimulation. Research has demonstrated that the eye movements facilitate retrieval of memories and increase attentional flexibility during recall. Furthermore, eye movements have been shown to reduce emotional intensity and vividness of the images during recall of disturbing memories (Gunter & Bodner, 2008; van den Hout et al., 2011; van den Hout, Muris, Salemink, & Kindt, 2001). Overall, the EMDR therapist utilizes a three-pronged approach, addressing early memories associated with current unhealthy beliefs and related dysfunctional responses, then addressing the current triggers, and then reinforcing an image of a future adaptive emotional and behavioral response.

3. Attachment theory and implications for conceptualizing attachment-related disorders

The AIP model has much in common with the Internal Working Model (IWM) of Bowlby, an English psychoanalyst who founded attachment theory. Bowlby strayed from the approaches of his analytic colleagues and used methods of scientific observation with young children to develop his theory of attachment and the IWM (Bowlby, 1973,1988,1989). Like Shapiro's AIP model, Bowlby's IWM asserts that early experiences drive perceptions and responses later in life. Bowlby viewed the child's early experiences with his attachment figures as immensely powerful in determining the child's IWM, that is, his core beliefs about himself, others, and the world. He considered the infant's attachment to its mother as primary, driven by the infant's innate fear of annihilation and his dependence upon the proximity of the attachment figure for survival. Attachment security is associated with an alleviation of the child's innate fears of abandonment and positive expectations as he moves out into the wider world of relationships. Bowlby observed that the stability of the relationship between a child and his primary caregiver in the earliest months and years of life is directly related to the child's sense of security in the world and on his later relationship functioning.

Ainsworth (1967,1982), a student of Bowlby's, observed mothers with their infants and discovered basic differences in the quality of the attachment relationship when she compared the mother-infant dyads. Ainsworth recognized that the mother's sensitivity and responsiveness to the child's cues determined the type of attachment to the mother — secure versus anxious/insecure. The children with secure attachment sought comfort from their mothers, and they were not disappointed, as their mothers were sensitively responsive to their needs, whereas the children with anxious attachment, resistant/ambivalent subtype, had adapted to inconsistent responsiveness in their mothers by exhibiting demanding, angry, and clinging/controlling behaviors. The children with anxious attachment, avoidant subtype, adapted to their parent's discomfort with intense emotions by shutting down any outward show of emotion despite internal feelings of distress. In later studies, a small percentage of children were deemed to have a disorganized attachment (Main & Solomon, 1986), and these children were additionally designated either secure, anxious resistant/ambivalent, or anxious avoidant. Disorganized children were observed to be fearful and anxious around their mothers while simultaneously seeking closeness. The mothers were observed to be suffering from some type of unresolved childhood abuse or unresolved loss, and their own emotional dysregulation led to either overt or more subtle behaviors that were somehow frightening to their children. Child maltreatment is highly associated with attachment insecurity and with attachment disorganization; for example,

in one study, 82% of maltreated children were found to have a disorganized attachment (Carlson, Cicchetti, Barnett, & Braunwald, 1989).

By studying the mothers of infants who already had a designated attachment category, Main and Goldwyn (1998) created the Adult Attachment Interview (AAI). More specifically, they developed a set of questions regarding childhood experiences, along with a standardized coding system that identified adult attachment categories corresponding to the infant categories: secure (mothers of secure children), preoccupied (mothers of resistant/ambivalent children), dismissive (mothers of avoidant children), and disorganized/unresolved with respect to childhood abuse or a major loss (mothers of disorganized children). The AAI has been shown to be a valid and reliable interview protocol through numerous studies (Bakersman-Kranenburg & Van Ijzendoorn, 1993; Steele, Steele, & Fonagy, 1996). Attachment categories have been shown to transmit intergenerationally, with between 70 to 80% correspondence between mothers' attachment status and the status of their children (van Ijzendoorn, 1992).

Another attachment model, the dynamic maturational model of Crittendon (2008), emphasizes the role of attachment figures in protecting children and helping children learn to self-protect. The theory identifies that dysfunction is created when children are exposed to dangers for which they do not have the maturation to cope and for which they are not provided protection. This model is consistent with attachment theory in its identification of the role of attachment figures in the development of children's perceptions and with the AIP model in recognizing dysfunction as rooted in early experiences of perceived threat.

Limitations to attachment categories: Although attachment categories convey useful information to both researchers and clinicians in terms of understanding the individual's relationship patterns and the generational context in which they developed, attachment categories are not diagnostic terms. Furthermore, an attachment designation does not provide information as to the degree of insecurity versus security, nor does an attachment designation indicate the extent to which interpersonal relationships and emotional states are impacted. Research does indicate that children and adults with insecure attachments are at higher risk for diagnosable emotional and behavioral disorders than securely attached individuals. Individuals with attachment disorganization appear to be at highest risk for psychopathology (Liotti, 1999). It is important to consider an individual's attachment status in the context of the entire known history and current functioning.

4. Attachment-related trauma and diagnosable disorders

RAD of infancy or early childhood is the only attachment-related diagnosis in the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition-Text Revision ([DSM-IV-TR] American Psychiatric Association, 2000). The criteria include a pattern of markedly disturbed and developmentally inappropriate interpersonal behaviors with onset before age five and a history of maltreatment. Two subtypes are identified: an inhibited subtype and a disinhibited subtype as evidenced by indiscriminate sociability. There is no consensus among experts regarding the relationship between the disorganized and insecure attachment patterns and the diagnosis of RAD, or the usefulness of the description of the RAD diagnosis and criteria in the DSM-IV-TR (Zeanah & Boris, 2000). Clinicians most commonly use the RAD diagnosis with maltreated children who have a history of changes in caregivers, often due to removal from the maltreating home, and presentation of extremely challenging behaviors within the current home. Logically, the severity of the behaviors may reflect severe attachment disorganization due to early attachment-related trauma and traumatic loss of caregivers. The RAD diagnosis may be somewhat helpful due to the identification of a history of maltreatment and focus on problems in patterns of relating, but the diagnosis does not capture the overwhelming nature of the child's traumatic attachment experiences and the pervasive effects of the child's trauma on his neurology, perceptions, affect, and behaviors. Until the past decade, the child diagnosed with RAD was most commonly viewed by the treatment community as a child driven by rage and a need to control. This perception became the rationale for unsafe treatments that utilized forced holding of the child as a method of releasing the child's rage and for forced re-birthing; these techniques caused several accidental deaths due to asphyxiation (Boris, 2003).

PTSD is a diagnosis equally inadequate as a description for the problems and symptoms of children whose trajectory of development has been acutely altered by a traumatic past. First, in order to appropriately use the diagnosis according to criteria established in the DSM-IV-TR, the child must have experienced a trauma that would be considered life threatening. This does not include the more common traumatic events experienced by children with a history of maltreatment such as emotional rejection, verbal threats, physical and emotional neglect, witnessing of domestic abuse, loss of biological parents, and loss of other important relationships. In many cases, PTSD symptoms such as nightmares and flashbacks are only one small part of severe emotional and behavioral dysfunction in children who have endured relational trauma, and specific PTSD symptoms may not be present at all. The PTSD diagnosis, therefore, is frequently inappropriate, yet early relational trauma precipitates impaired emotional and behavioral dysfunction in affected children.

Because there is no single diagnosis that encompasses the many common symptoms and behaviors observed in children with a history of attachment-related complex trauma, many children are diagnosed with multiple comorbid disorders, including RAD, PTSD, oppositional defiant disorder, conduct disorder, attention deficit hyperactive disorder, depression, and anxiety. van der Kolk (2005) and members of the Complex Trauma Taskforce and the National Child Traumatic Stress Network have sought to create a new diagnosis, "developmental trauma disorder" (DTD). The term highlights the deleterious effect of early relational trauma on development and functioning in the social and emotional arenas. The proposed DTD criteria include a history of adverse interpersonal trauma, emotional dysregulation in response to present-day triggers, an altered belief system, and functional impairment. The DTD diagnosis could help promote more accurate understanding and lead to more effective treatment for children whose functioning has been so broadly impacted by trauma.

The DSM-IV-TR also does not provide an all-encompassing diagnosis for adults affected by severe attachment-related trauma. Attachment disorganization in adults assessed through the AAI is identified by disorientation, poor logic, and extreme behavioral effects related to caregiver abuse or major loss. The term "complex trauma" is not a formal diagnosis, but is often used clinically to help capture the complexity and severity of symptoms in adults suffering from chronic abuse by attachment figures. Like children impacted by relational trauma, survivors of childhood abuse may or may not exhibit overt PTSD symptoms. However, serious relational trauma in early life is frequently associated with anxiety or mood disorders, personality disorders, and/or dissociative disorders, as well as poor emotional and interpersonal functioning. Disorders of Extreme Stress Not Otherwise Specified (DESNOS) has been proposed as an alternative diagnosis for adults who suffer from chronic childhood abuse and symptoms commonly associated with personality disorders (Ford, 1999; Ford & Kidd, 1998). In an inpatient treatment center for traumatized war veterans, patients with DESNOS due to a history of childhood abuse exhibited poor self-regulation, problems of

altered consciousness and attention, poor self-perceptions, unstable relationships, and altered meaning for their lives. Overall, veterans with DESNOS had a significantly less positive outcome in treatment.

5. Changing attachment status with Eye Movement Desensitization and Reprocessing (EMDR): literature review

If EMDR can successfully reprocess mal-adaptively stored distressing memories and create new, adaptive associations in the brain, then targeting early attachment-related memories with EMDR should have a positive impact on the individual's IWM as described by Bowlby. Although an individual's attachment status tends to remain consistent through the lifespan, attachment status can change. Subjects who have achieved a secure designation on the AAI despite a challenging childhood are deemed "earned secure". They are able to tell a coherent narrative about their early life because they have worked through their early experiences in some manner (Hesse, 1999). Improvement of attachment status through EMDR treatment should help adult clients function more adaptively in relationships and respond more sensitively to their children. Indeed, research has shown that mothers with an "earned secure" designation who have overcome a difficult childhood were just as sensitive and positive with their children as "continuously secure" mothers who reported positive childhood experiences, despite being more vulnerable to depression (Pearson, Cohn, Cowan, & Cowan, 1994).

Previous studies: Wesselmann and Potter (2009) presented three case studies utilizing the AAI before and after processing attachment-related memories with 10 to 15 sessions implementing EMDR according to the standard protocol. During the preparation phase, each individual received two sessions of resource development with bilateral stimulation. Resource development focused first on the creation of a "safe place" by enhancing the feelings associated with the image of a safe place with bilateral stimulation as described by Shapiro (2001). Similarly, an image of a "container" that can store the unprocessed traumatic material was reinforced with slow, short sets of bilateral stimulation. Thirdly, bilateral stimulation was used to reinforce feelings of confidence and maturity associated with memories of success and competence. Finally, bilateral stimulation was used to strengthen a sense of "inner safety" and feelings of compassion and protection toward the younger part of self by visualizing a safe place and a protective, nurturing caregiver attending to the younger self within the safe place. EMDR was implemented to reprocess past traumatic events, recent triggering situations, and reinforce templates for adaptive future functioning. Overall, all three clients exhibited positive changes in attachment classification and improved relationship functioning following EMDR treatment.

A case study series by Potter, Davidson, and Wesselmann (in press) offered preliminary evidence of phase-based treatment for three clients with a history of complex trauma. Phase One, 12 months of weekly dialectical behavior therapy skills-training classes and individual therapy, resulted in improvement on several objective measures for affect and behavior regulation and psychiatric symptomatology. Phase Two, 18 sessions of EMDR, resulted in continued improvement in behaviors and symptoms on the objective measures, as well as positive change in attachment status according to scores on the AAI.

Madrid (2007) described a method of utilizing EMDR to repair maternal-infant bonding failures. The method focuses on addressing the failure of the mother to develop normal, instinctual feelings of love and connection to the infant, which then leads to poor attunement and failure to respond sensitively to the child's cues. The absence of loving feelings in the mother is transmitted to the child who feels insecure and unloved. The child subsequently demonstrates behavioral problems, which in turn, accentuates the negative feelings in the mother. Madrid hypothesizes that events that separate the mother from the child either physically or emotionally around the time of the birth are the original cause for the failure to bond; these events could include illness in the mother or child, financial stress, relationship stress, or a traumatic pregnancy and/or birth (Klaus et al., 1972; Kennell & Klaus, 1998; Madrid & Pennington, 2000; Pennington, 1991). Madrid discussed a case in which the mother of a five-year-old girl reported feeling only negative emotions regarding her experience of being a mother. Early negative bonding experiences (NBE) were identified, including a difficult pregnancy, a very painful delivery, and medical complications post-delivery. The EMDR standard protocol was utilized to desensitize and reprocess the mother's NBE. The mother was then guided to visualize a positive pregnancy and birth along with bilateral stimulation to strengthen the positive emotions. Additional EMDR was utilized when the visualization became "stuck". In follow-up appointments, the therapist adhered to the standard EMDR three-pronged approach by reprocessing current triggers and developing positive future templates. The mother in the case study reported only positive feelings toward her daughter in subsequent appointments, and her daughter exhibited more cooperation and affection toward her mother.

In another application of EMDR, Moses (2007) described a method in which EMDR was utilized conjointly with couples to create a healthier attachment relationship. During the history-taking, the therapist helps the couple identify current relationship issues and patterns, as well as related early life attachment injuries. Prior to introducing EMDR, the therapist assesses each individual's readiness for EMDR, determines each individual's commitment to therapy, and identifies whether or not conjoint EMDR would pose any type of risk to either individual. During each EMDR session, one or the other partner becomes the "working partner", utilizing EMDR to reprocess a current relationship trigger or a past memory related to the client's negative beliefs, patterns, and reactions in the current relationship. The other partner is instructed to sit comfortably nearby as a silent but compassionate witness to the work and to share his or her emotional response afterwards. The partners "take turns" supporting one another during EMDR. Following EMDR, the therapist helps the couple deepen their understanding of how each of them was impacted by early life events and sets boundaries regarding discussions in between sessions. Two cases were presented by Moses, illustrating the change in perceptions as EMDR was used to reprocess early life attachment injuries. The dramatic emotional impact and deepening of empathy and sensitivity possible through witnessing the partner's work was highlighted.

As well, a case study presented by Taylor (2002) examined qualitative treatment effects of EMDR therapy for a child diagnosed with RAD and concurrent supportive counseling and education for the parents. The parents reported an almost immediate improvement in attitude, and the child described more positive feelings toward his family and school, and displayed more honesty. Regarding the therapy, the child stated, "It opened a window for me". A 12-month follow-up assessment demonstrated continued positive effects. In another case study presentation, Pocock (2010) outlined the use of Crittendon's Dynamic Maturational Model to assess an adolescent male's adaptations to attachment insecurity. EMDR was implemented to reprocess distressing events between the client and his parents resulting in improved functioning in the adolescent.

Torres (2011) described the use of EMDR to eliminate PTSD and improve attachment to their mothers in 28 children exposed to domestic abuse. Ongoing research with children placed outside the biological home due to abuse, neglect, or orphanage care shows improvement in behaviors and attachment following treatment for

24 weeks or more using an integrative EMDR and family therapy approach (Attachment and Trauma Center of Nebraska, 2011).

6. Case study examining changing childhood attachment status with Eye Movement Desensitization and Reprocessing (EMDR)

The following case study examines the effect of treatment through a program integrating EMDR with family therapy for children with a history of attachment-related trauma and a diagnosis of RAD (Attachment and Trauma Center of Nebraska, 2011; Wesselmann, in press; Wesselmann, Schweitzer, & Armstrong, in press; Wesselmann & Shapiro, in press). The treatment program includes four components:

- session with a family therapist one time per week (decreases in frequency following symptom improvement);
- session with an EMDR therapist one time per week (decreases in frequency following symptom improvement);
- parenting/caregiver class consisting of five weeks, two hours per class;
- peer consultation one time per week between the EMDR and family therapists.

7. Child case: Ann

7.1. History

Ann was a 12-year-old Caucasian female who was referred to therapy by her psychiatrist. Ann lived with adoptive parents and two older teenage brothers. Ann had been placed with her adoptive parents at age five.

Ann had been removed from her biological home at 18 months of age due to severe neglect. She was the youngest of eight biological siblings and during the first 18 months of life, Ann was primarily cared for by her older siblings. Reports showed that when the children were removed, the home was inadequately maintained and cleaned with no food available. The children relied on garbage cans in the neighborhood for food. Ann's biological mother reportedly was selling drugs out of the basement of the home.

At 18 months of age, Ann was placed with a maternal aunt and uncle, but she was removed from the relative placement and then moved from foster home to foster home, resulting in seven different foster placements before the age of five. In one of the foster homes, Ann was forced to sleep in the bathtub because she regularly wet the bed and also was forced to spend long periods of time sitting on her hands.

7.2. Symptoms and diagnosis

Ann was diagnosed with RAD, ADHD, and Adjustment Disorder. At the start of treatment, Ann's adoptive parents described symptoms that included severe anxiety, long crying episodes, isolating herself, nighttime enuresis, lying, defiance and controlling behaviors, poor hygiene, and lack of remorse for wrongdoing. Ann lacked closeness with her adoptive parents or others, as she was unaffectionate and mistrusting. She appeared sad and depressed, and described herself as "weird", "stupid", and "different". Ann refused to communicate even everyday school information to her adoptive mother. Additionally, Ann refused food served at mealtime, and often stole strange food items (e.g., a box of cake mix, a tub of frosting, a tub of whipped cream, a box of ice cream bars, and a bag of uncooked spaghetti), each of which she consumed at one sitting. Ann had very poor focus and concentration and was severely disorganized. She frequently failed to turn in school assignments.

When Ann's adoptive parents brought her for the initial session, they were feeling extremely defeated and exhausted. Ann's adoptive mother had been attempting to change Ann's behaviors through angry reactions and by exerting extreme control over Ann's activities.

8. The therapy process

8.1. History-taking

Both the family therapist and the EMDR therapist conducted the history-taking, at which time they collaborated to identify Ann's early traumas, current symptoms and behaviors, and desired changes. The therapists began comparing Ann's trauma history with her behaviors and developing general hypotheses regarding the negative beliefs driving Ann's current behaviors.

8.2. Family therapy

According to the EMDR integrative team model (Attachment and Trauma Center of Nebraska, 2011; Wesselmann et al., in press), a family therapist works collaboratively with an EMDR therapist by assisting the parents/caregivers in becoming more emotionally supportive to the child, allowing the child to safely address traumatic memories when he begins EMDR desensitization and reprocessing. The family therapist also helps prepare the child through teaching emotion regulation skills and by helping the child verbalize his story and identify his emotions, triggers, and negative beliefs.

Initially, Ann's family therapist implemented psycho-education with the family to help them understand Ann's behaviors as driven by anxiety rooted in earlier trauma — a conceptualization of Ann's behaviors consistent with the AIP model. The parent class was offered to Ann's adoptive parents, but they failed to attend due to schedule conflicts. Communication was improved through an exercise in which Ann and her adoptive mother were coached to take turns expressing feelings regarding a concern. When one spoke, the other listened and paraphrased what was said, and then the speaker verified the accuracy of what was heard. Ann's adoptive parents were also encouraged to provide more reassurance to Ann regarding their love for her. They were assisted in responding to Ann's behaviors with a calm approach that conveyed attunement and understanding, while also setting appropriate limits.

The family therapist assisted Ann and her adoptive parents in identifying specific triggers and negative beliefs driving Ann's behaviors. She helped them identify the unprocessed traumatic events in Ann's life as the source of her negative beliefs and distressing emotions. The family therapist encouraged Ann to use tools for self-regulation, such as breathing and relaxation techniques for self-calming.

8.3. Eye Movement Desensitization and Reprocessing (EMDR) therapy

The systemic interventions, insight work, and emotion regulation work completed in family therapy allowed the EMDR therapist to implement EMDR weekly. Initially, the EMDR therapy consisted of Attachment Resource Development (ARD) as part of the preparation phase of EMDR. ARD is an adaptation of Resource Development and Installation (RDI) for strengthening internal resources with EMDR as described by Shapiro (2001) and Korn and Leed (2002). The ARD involves several exercises that encourage feelings of closeness along with implementation of bilateral stimulation to reinforce the child's associated positive sensations and emotions. (Attachment and Trauma Center of Nebraska, 2011; Wesselmann, 2007; Wesselmann et al., in press). For example, the EMDR therapist

encouraged Ann to visualize a "magical cord of love" as a colored light, connecting her to her parents, while the therapist applied tactile bilateral stimulation on Ann's hands. Ann was guided in visualizing the cord of love, "heart to heart", during imagined situations that challenged her sense of connection, such as when her parents were away or when they were unhappy with her behaviors. Ann was also guided in visualizing her "hurt infant self" in a safe place with her adoptive parents caring for "baby Ann". Her adoptive parents were encouraged to describe how they would rock, cuddle, and play with "baby Ann" while the therapist applied the bilateral tactile stimulation to her hands to intensify the associated positive emotions and sensations.

Following the EMDR preparation work, the therapist implemented the standard EMDR protocol to target and reprocess current triggers to Ann's emotional and behavioral reactions and to reprocess traumatic memories. Ann's adoptive parents were encouraged to physically touch Ann and provide a silent but compassionate presence during the EMDR trauma work. The attunement and presence of Ann's caregivers strengthened her sense of connection with them and assisted Ann in staying emotionally regulated during EMDR (Attachment and Trauma Center of Nebraska, 2011; Wesselmann, in press; Wesselmann et al., in press).

Like most children diagnosed with RAD, Ann needed extra help with identification of feelings and beliefs. Ann also required some assistance during the EMDR reprocessing due to lack of appropriate relevant information. The EMDR therapist utilized "cognitive interweaves" when the reprocessing appeared to be blocked by providing a piece of needed information or asking a question that allowed her to view the event from a new perspective (Shapiro, 2001). In order to avoid interrupting the natural processing facilitated by the EMDR, excess dialogue was avoided.

Ann's EMDR therapist utilized the standard EMDR "three-pronged" approach, reprocessing past traumas and present triggers, and then using EMDR to reinforce guided imagery for adaptive future behaviors. Past traumatic events reprocessed with EMDR included:

- changes in foster homes;
- a situation when Ann had inadvertently had contact with her biological mother and experienced feelings of fear regarding her mother's hardened appearance;
- being forced to sleep in the bathtub in one foster home;
- being forced to sit on her hands for long periods in the same foster home;
- being returned to the frightening foster home following early visits with her soon-to-be adoptive family.

Like other children with RAD, Ann experienced multiple triggers throughout an ordinary day, and it was necessary to reprocess many current triggers. Current and recent triggers included:

- seeing food in front of her;
- her adoptive mother asking her a question;
- schoolwork;
- being on a trip away from her adoptive home;
- being in the car with her adoptive mother;
- a family bike ride;
- being told she had to give her adoptive mother school-related information.

The following negative beliefs were identified as associated with both past events and current triggers, and they were changed through EMDR reprocessing:

- I am not going to get to stay. I will have to go back to my birthmother;
- I am going to turn out like my birthmother;
- I am not normal;
- I am going to be mentally ill;
- I should have known better;
- I do not belong;
- I am bad;
- I am unimportant;
- I cannot trust my forever mom;
- I am not safe;
- if I get close to them, I will get taken away;
- I have to eat. I am never going to have enough food;
- I have to be in control;
- I have to be in charge;
- the past controls me.

The positive cognitions (PC) that were reached and reinforced through EMDR reprocessing included:

- I belong;
- I am normal;
- I am staying forever;
- it is okay to make mistakes;
- I am a good person;
- I am important;
- I can trust my forever mom;
- I am safe;
- it is safe to be close;
- I will always have enough food;
- I can relay on my parents to be in charge;
- the past has no power over me.

The EMDR therapist continued to target current triggers, other related traumatic memories, and reinforce future templates, with an emphasis on changing her negative beliefs about herself, safety in the world, and the adults who cared about her.

8.4. Results

After 24 weeks, Ann's functioning had significantly improved at home and school. Ann's bizarre food binges, nighttime enuresis, lying, defiance, hygiene problems, and crying outbursts had been eliminated. Ann reportedly exhibited only minor controlling behaviors and verbalized minimal anxiety related to friendships, school, and musical performances. Ann was able to remain emotionally regulated and engage in discussions during therapy sessions. Ann described improved self-esteem, and she reported new confidence in social situations and pride in herself for improved school performance and organization. For the first time, Ann did not have to enroll in summer school to make-up classes. Ann's adoptive mother reported that Ann was now communicating her feelings and thoughts at home. She reported that Ann was spending time with the family and participating in family events. For the first time, Ann's mother trusted Ann to remain home alone after school. Ann's mother reported that she was able to give Ann honest feedback and redirection without angry reactions from Ann. Ann's anxiety over her biological mother also appeared to have resolved. Ann stated, "The thought of her just doesn't bother me anymore like it used to. It is almost like a bad dream that feels better now".

Table 1 reports the changes in scores on objective measures that were completed by the parents. Ann's total score on the Child Behavior Checklist, the Attachment Disorder Assessment Scale-Revised, and the Trauma Symptom Checklist for Young Children all moved from borderline or moderate clinical to non-clinical

Table 1
Changes in assessment scores for "Ann".

Assessment	Initial score	Scores at 12 weeks	Scores at 24 weeks	Scores at 3 month follow-up	Scores at 6 month follow-up
CBCL T Score	64[a]	58	58	53	50
RADQ	44	13	13	18	11
ADAS-R	43[a]	3	0	–2	–2
TSCYC PTS Tot	41[a]	31	33	30	29

Child Behavior Checklist (CBCL) T Score 64 = borderline clinical range; Attachment Disorder Assessment Scale-Revised (ADAS-R) Score 43 = moderate attachment disorder; Trauma Symptom Checklist for Young Children (TSCYC) post-traumatic stress disorder (PTSD) Tot Score 41 = possible PTSD; Randolph Attachment Disorder Questionnaire (RADQ) 44 = non-clinical range.

[a] Designates borderline or moderate clinical range.

range by 12 weeks treatment. On the Randolph Attachment Disorder Questionnaire, Ann's pre-treatment scores were not quite in the clinical range, but her scores improved measurably between pre- and post-treatment. Ann maintained her improved scores at 24 weeks treatment and also at three months follow-up and six months follow-up on all measures.

9. Conclusion

Bowlby posited that individuals' earliest attachment experiences set the stage for all later relationships, as the trust built in infancy determines expectations, and subsequently, interpersonal behaviors. According to Shapiro's AIP model (Shapiro, 2007), "little t" and "big T" relational trauma is stored in an unmetabolized form in neural networks along with associated emotions, sensations, and cognitions, and therefore unprocessed feelings and beliefs related to mistrust are naturally triggered by later relationships.

Without effective intervention, early relational trauma can lead to emotional and behavioral dysregulation and unstable relationships lifelong. Some symptoms related to early attachment injuries leave clients less capable of utilizing therapy. For example, clients with a history of relational trauma often lack self-awareness, self-regulation, or the ability to utilize others for support. The skilled therapist who stays aware of such deficits can meet the client where he is and help the client build basic skills for self-awareness, self-regulation, and trust in order to face the painful memories driving dysfunctional thoughts, feelings, and behaviors. Recent studies examining the effectiveness of the EMDR approach on attachment security provide preliminary evidence that with the proper support and preparation for clients who lack adequate emotional regulation skills and social supports, EMDR can help resolve attachment injuries and improve attachment status, emotional stability, and present-day relationships (Moses, 2007; Potter et al., in press; Taylor, 2002; Wesselmann, in press; Wesselmann & Shapiro, in press).

In a meta-analysis of eight studies of individual EMDR with children, Field and Cottrell (2011) found overall positive change with EMDR therapy, but they suggested that the integration of family therapy might improve treatment effects. In the case study presented here, family therapy was integrated with EMDR to treat a child with a diagnosis of RAD and problems that included defiance, crying episodes, lying, food binging, enuresis, and poor hygiene. Family therapy interventions increased the adoptive parents' emotional support for the child and helped the child build a foundation of trust, self-awareness, and emotion regulation in preparation for successful reprocessing of traumatic memories, desensitization of present-day triggers, and development of positive cognitions and adaptive behaviors. Scores on the Child Behavior Checklist, the Attachment Disorder Scale-Revised, and the Trauma Symptom Checklist for Young Children all moved from borderline or moderate clinical range to non-clinical range at 12 weeks and also at 24 weeks. Scores were maintained at three months and six months follow-up. The child and her mother reported elimination of defiance, crying episodes, lying, food binging, enuresis, and hygiene problems and overall improvement in family and school functioning.

Future directions: Further research is needed to determine the number of treatment sessions required to effectively treat children with complex trauma and attachment problems. In the current case study, treatment included 24 sessions of EMDR, which is more than the number of sessions implemented in other EMDR studies. However, EMDR research related to children with RAD is lacking, and multiple early relational traumas may require more EMDR sessions to reach non-clinical outcomes (Attachment and Trauma Center of Nebraska, 2011; Wesselmann et al., in press). In a meta-analysis by Rodenburg, Benjamin, de Roos, Meijer, & Stams (2009), EMDR was found efficacious in treating trauma in children with incremental efficacy of EMDR over cognitive behavioral therapy. However, fewer treatment sessions were associated with better treatment outcomes, perhaps due to the challenges inherent in the treatment of complex trauma cases. Children with an extensive relational trauma history may require both systemic interventions and a greater number of EMDR sessions to achieve significant change.

More randomized, controlled studies are needed that evaluate changes following EMDR in adults and children who have experienced early relational trauma. As well, more research is needed to examine effects of EMDR on broad symptoms beyond PTSD, including attachment status, relationship stability, emotional regulation, self-concept, beliefs and expectations, and interpersonal behaviors and functioning. Follow-up studies that examine the long-term effects of EMDR are an additional area of future inquiry.

Additionally, clinicians could benefit from more specific identification of EMDR adaptations and/or resource strategies that may increase treatment success for clients with therapy-interfering issues such as general mistrust, emotional dysregulation, and poor self-awareness. If continued research finds EMDR an effective method for improving attachment status, it seems reasonable to expect that change in attachment status in parents may increase attachment security and organization in their children. Thus, future investigation should determine the extent of transgenerational change following EMDR therapy.

Disclosure of interest

The authors declare that they have no conflicts of interest concerning this article.

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