

EYE MOVEMENT DESENSITIZATION AND REPROCESSING (EMDR) AND EATING DISORDERS: A SYSTEMATIC REVIEW

Marina Balbo, Maria Zaccagnino, Martina Cussino, Cristina Civilotti

Abstract

Objective: Eating disorders (Eds) are considered an emergency from a medical, health and social point of view in all Western countries. Alongside the great attention paid to the subject in public and the social media, EDs are a source of perplexity both for the scientific community, which attempts to study the psychopathogenetic processes and maintenance mechanisms of EDs and to monitor clinical interventions, and for clinicians, who often find themselves with patients who are difficult to deal with, reluctant to change and set up a solid therapeutic alliance, and inclined to drop out. This article aims to study the use of the Eye Movement Desensitization and Reprocessing therapy (EMDR) in the treatment of EDs through a process of systematic revision of the literature, after defining EDs theoretically, underlining a possible traumatic origin for their onset.

Method: In order to carry out a systematic analysis of the literature, the following bibliographic databases were used: EMBASE, MEDLINE, PsycINFO and CINAHL. The time criteria were set from the beginning of records to February 2017.

Results: Despite noteworthy clinical suggestions, the scarcity thus far of the studies in the literature, and their methodological limitations, do not allow clear conclusions to be drawn with regard to EMDR's efficacy.

Conclusions: EMDR appears to be a promising approach, but further scientific evidence in support of its efficacy is required.

Key words: Eating Disorders, Anorexia, Bulimia, Binge Eating

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Introduction

Eating disorders (Eds) are considered an emergency from a medical, health and social point of view in all Western countries (Olesen et al. 2012, Simon et al. 2005). Alongside the problem of the high healthcare costs of taking charge of patients with EDS (see, for example, Crow 2014), another highly worrying element is the high mortality rate of persons with EDs, above all in relation to complications connected with dysfunctional eating behavior and malnutrition (Rome and Ammerman 2003).

The ED emergency attracts not only the attention of the media and public, but has become a source of perplexity both for the scientific community, which attempts to study the psychopathogenetic processes and maintenance mechanisms of EDs and to monitor clinical interventions, and for clinicians, who often find themselves with patients who are difficult to deal with, reluctant to change and set up a solid therapeutic

alliance, and inclined to drop out (Kahn and Pike 2001).

So far, much progress has been made in understanding and treating EDs, but it is vitally important for the theoretical and clinical settings to be tested and validated. This article aims to study the use of the Eye Movement Desensitization and Reprocessing therapy (EMDR) in the treatment of EDs through a process of systematic revision of the literature, after defining EDs theoretically, underlining a possible traumatic origin for their onset.

Eating Disorders: definition difficulties

Debate is already underway at a nosographic level and the publication of the fifth edition of the American Psychiatric Association's (2013) Diagnostic and Statistical Manual of Mental Disorders (DSM-5) was followed by significant scientific debate and some sort of criticism (Frances and Widiger 2012). For example,

the diagnostic class “Not Otherwise Specified” (NOS), commonly used in the past for patients that do not meet the criteria for a specific disorder, has been substituted by two definitions: “Other Specified” and “Unspecified”. These categories have been recognized as an obligatory compromise for retaining clear thresholds for preserving the homogeneity of established EDs diagnosis, but this convenience comes at a cost (Thomas et al. 2009).

Many authors (Insel et al. 2010, Davies et al. 2006) suggest using a multidimensional/multi-axial approach to define such complex and multi-faceted case histories and the tendency thus far has been to combine the two principal theoretical paradigms present in the literature: the socio-cultural and the bio-psychiatric, taking their potentialities and limits and integrating their various aspects in a holistic model with a bio-psycho-social perspective (Levine and Smolak 2014, Strober and Johnson 2012, Klump et al. 2009, Striegel-Moore and Bulik 2007).

In this field, the clinical approaches regarding treatment divide into two branches: those based on behavior, and those which consider more the aspects of subjective experiences and the mechanisms of emotional regulation.

As an alternative, the approaches focusing on the more subjective aspects of the disorder emphasize the psychological and personality characteristics of the subject, converging mainly on the personal perception of the emotional and cognitive pathogenic disbelief (Weiss 1997) linked with the ED condition. In this perspective, theorists suggest that the adolescents and young adults most likely to develop EDs are often subjects exposed to the risk of psychopathology early in life. Experiences such as trauma (severe neglect, psychological, physical or sexual abuse) may aggravate biological and genetic vulnerability (Racine and Wildes 2015, Thompson and Wonderlich 2004). These perspectives play down the role of socio-cultural aspects, proposing that the objective symptomatology provides only a manifestation (or an expression channel) rather than establishing and maintaining the psychopathology *per se*. From this point of view, for example, the extreme control over food and body shape concerns are a sort of vehicle to express the perfectionism, hopelessness or rigidity typical of the EDs (Lavender et al. 2016, Lloyd et al. 2014).

Psychological correlates of each Eating Disorder diagnosis

Anorexia Nervosa

Anorexia Nervosa (AN) is a multi-faceted syndrome characterized by a complex pattern of psychological, cognitive, behavioral and endocrine characteristics. It is often in comorbidity with other medical or psychiatric issues (Brand-Gothelf et al. 2014, Bühren et al. 2014, Mitchell and Crow 2006, Kaye et al. 2004). The onset is usually in adolescence or early adulthood, even though recent epidemiological studies show that the average age of onset has a downward trend, effectively making the disease even more insidious as it will be affecting bodies and minds still in a most delicate phase of development (Silber 2005).

The prevalence rate of AN is estimated at 0.3% among the adolescent population (Swanson et al. 2011) and at 0.3-0.9% in adults (Hudson et al. 2007).

The distinctive diagnostic trait characterizing AN is an exasperated pursuit of being thin connected with an oppressive fear of gaining weight (Gabbard

2007) and an anomalous perception of the body. The start of anorexia is usually not easily visible: it may begin with going on hypocaloric diets which slowly lead the patient to reduce more and more the amount of food eaten, to skip meals and overdo physical activity, and even to reduce the intake of food to the point where the patient is seriously underweight, a condition often associated with the pathology.

After an initial phase of relative wellbeing, given the improvement in self-image and the satisfaction at having been able to exercise a large amount of self-control, worries about weight and the fear of gaining more become, despite the results, ever more urgent and perception of the body changes seriously. The individuals, who indeed continue to perceive themselves as overweight, carry out ever more frequent dysfunctional checking behaviors (body checking), and repeatedly observe themselves and compare their own physical form with that of other people in the attempt to allay an anxiety which, despite everything, persists. Awareness of the ongoing problem is usually low and the symptoms often have egosyntonic characteristics (Balbo 2015).

Patients often develop their obsession with weight as a consequence of an internal sense of ineffectiveness, impotence and lack of autonomy originating in a dysfunctional relationship with the mother or family. In particular, a correlation has been found between anorexia and entangled family structures (Minuchin and Rosman 2009, Baiocco et al. 2012) within which the confines appear enmeshed and the bonds are pathologically entangled. Members of entangled families tend to mutually intrude into each other's thoughts and feelings, are excessively worried and hyperprotective, and in every way avoid modifying the interactional schemas in order to avert conflict (Gambini 2007).

AN patients are usually extremely self-critical, without feelings of compassion for themselves. There is a continuous monitoring of weight and food founded on a dichotomous structure (eg. skinny/fat, good/bad, and powerful/powerless). There is no possibility to explore the world without encountering a rigorous internal or external judgment. Not giving in to desires and hunger thus gives the anorexic patient an urgently needed sense of control. The copresence of anorexia and obsessive-compulsive traits and symptoms has, however, been noted in numerous studies (Schneier et al. 2016, Cederlöf et al. 2015, Halimi et al. 2004, Anderluh et al. 2003, Solyom et al. 1982). In the self-starving of these patients, it is also possible to see a strategy aimed at forcing the caregiver, presumably taken up by their own personal needs, to move their attention to (and keep it on) the anorexic patient and his/her own suffering (Orzolek-Kronner 2002).

Bulimia Nervosa

In diagnosis, the relevant aspects of Bulimia Nervosa (BN) are the presence of binge eating and compensatory behaviors, such as self-induced vomiting and the inappropriate use of laxatives, in persons with a relatively more normal weight with respect to anorexics (Gabbard 2007).

AN and BN are closely connected: a good many anorexic patients are, or can become, bulimic the moment or in the periods that they let go of their rigid control over hunger, and the diagnoses are often unstable (Collier and Treasure 2004, Casper et al. 1980).

Although a very wide spectrum of organizations of

the personality may be found in the clinical framework of BN, it is common to find a general weakness of the sense of the Self in patients. The delicateness of the disorder is that while, on one hand, bulimic patients satisfy their hunger, on the other, they control their weight through vomiting and trap themselves in a dysfunctional balance from which it is difficult to escape.

At the root of the pathological development of bulimia there seem to be low self-esteem (La Mela et al. 2015, Vohs et al. 1999) and, as with anorexia, family dynamics which tend not to favor separation (Mathiesen et al. 2015).

The maternal capacity for emotional regulation within the caregiving system, accustoming the child both to give up and wait for satisfaction of its needs, often seems inadequate in the history of bulimics, raised instead by caregivers with over-indulgent or markedly contradictory behaviors, in both cases laying the foundations for the development of a compulsion towards food (Lease et al. 2016, Von Wietersheim et al. 2014, Neumann 1963). Behaviors, imprecise rules and an ambivalent affective environment thus favor the development of pathologies within which these coexist fusional tendencies, expressed in binge eating, and aggressive tendencies of rejection, expressed in forcefully expelling the food (Montecchi 2009).

Binge-Eating Disorder

Binge-Eating Disorder (BED) is characterized by the frequent abnormal eating of large amounts of food followed by a sense of guilt or self-disgust, not associated with compensatory mechanisms. BED is associated with a wide range of psychological problems including low self-esteem and low social functioning (Fairburn and Brownell 2005).

Binge eaters often tend to feel overwhelmed by high expectations, both their own and those they believe others have of them. When unable to live up to these expectations, binge eaters find themselves weighed down by a highly negative self-image and worry about how others will see them, with associated anxiety and depression (Manjrekar et al. 2015, Heatherton and Baumeister 1991).

The motivation for BED could thus be a desire to escape the negative self-image and the negative image others are perceived to have of them and to feel nothing. Indeed, various studies have highlighted a close relationship between binge eating and dissociation. Binge eating takes place in moments when attention limits itself to only the immediately available surrounding stimuli and any potentially critical thought is avoided. Dissociation lowers the level of control over eating behavior, interferes with self-awareness and weakens the body image (Fuller-Tyszkiewicz and Mussap 2008), in this way leaving room for the uncontrolled binge eating.

Other EDs

In the DSM-V, Avoidant/Restrictive Food Intake Disorder has replaced the little used diagnosis of 'Feeding and Eating Disorders of Infancy or Early Childhood' of the previous version of the manual, the DSM-IV.

Avoidant/Restrictive Food Intake Disorder is characterized by the persistent limitation of food intake or the refusal to eat, due to an apparent lack of interest for eating in general or to rigidly selective ways of

eating on the basis of taste, smell, consistency or other, which leads to significant medical consequences such as weight loss, nutritional insufficiencies or, in children, failure to reach suitable development for their age.

Although Avoidant/Restrictive Food Intake Disorder has replaced a diagnostic category specifically concerning infancy and early childhood, the DSM-V adopted a perspective encompassing the entire life cycle, with the aim of considering with due attention how symptoms can vary, persist, or remain latent and then appear in adolescence and adulthood (Bryant-Waugh 2013).

Children and adolescents (for the most part male) are those likely to be diagnosed with Avoidant/Restrictive Food Intake Disorder. It has been hypothesized that these young men grow up in families characterized by low functioning, which becomes particularly stressful at mealtimes. Patients with this disorder risk, in turn, developing reduced social functioning (Fisher et al. 2014).

The main characteristic of Rumination Disorder is frequent regurgitation of previously ingested food, rechewed and swallowed or spat out, not attributable to a gastro-intestinal or medical condition and without retching or nausea.

This disorder can typically be seen in children, but also in persons with development disabilities or neurological or psychiatric disorders, and in adults who present no other difficulty.

It is difficult to estimate how widespread rumination is among adults since the symptoms can easily be mistaken for those of other disorders of intestinal motility or of eating behavior, such as bulimia, both because people are reluctant to talk openly about a socially unacceptable behavior and because it may happen unseen (Olden 2001).

In children with no sign of a beginning of an intellectual disability, rumination is generally first seen in the first or second year. The hypotheses about its development are often associated with a disturbed relationship between mother and child: mothers not ready to take this role on in an adult manner and who have not reached full psychosexual development (Franco et al. 1993) find it difficult to recognize and promptly meet the child's biological and relational needs. Rumination can thus be seen as an attempt to relieve or prolong the moment of breast-feeding and create a source of pleasure and internal autonomous gratification, in situations where the child has no way to receive competent and sufficient care from the caregiver.

A final disorder is defined "pica". The distinctive factor of pica is compulsive ingestion of non-nutritious, non-food substances (earth, sand, paper, chalk, wood, etc.) inappropriate for the developmental level of the individual and not part of cultural practice, and may have serious medical consequences, such as intestinal obstruction, vomiting, iron deficiency (Moore and Sears 1994) and lead poisoning (Huber and Ekvall 2005).

Pica is mainly observable in specific populations, such as pregnant women, children aged 1-6 and those with developmental disabilities or in situations of high socioeconomic disadvantage, where it is the most frequently found eating disorder (Corbett et al. 2003, Edwards et al. 1994).

In infancy, pica can manifest itself in contexts where the child is under great stress: conditions of neglect or little child-parent interaction, or in families with a chaotic or highly conflictual structure. Just like several other ritualized and repeated behaviors, pica may be considered part of the spectrum of Obsessive-Compulsive Disorders (Stein et al. 1996) or be

frequently associated with it in a parallel coexistence of comorbidity (Iorio et al. 2014).

Given their low frequency (Call et al. 2013, Smink et al. 2012), such disorders will not be part of the systematic analysis of the literature.

Eating Disorders and etiopathogenesis in the light of trauma spectrum

Many ED patients have comorbidities with other psychiatric conditions, such as range personality disorders, anxiety, obsessive-compulsive disorder. One comorbid condition that has emerged in the last twenty years in a considerable number of studies is post-traumatic stress disorder (PTSD) (Holzer et al. 2008, Brewerton 2007, Gleaves et al. 1998). While only some studies have highlighted the co-occurrence of PTSD and ED, many lines of research are not as strictly focused on the PTSD diagnosis in itself, being more concerned with whether patients report early adverse childhood experiences leading to traumatic consequences in their history (both in terms of general early relational traumas and abuse) (Steiger et al. 2010). According to the World Health Organization (2001), the traumatic factors which may affect subjective wellbeing and the structuring of a healthy psychophysical balance are not limited to the evident influences connected with physical or sexual abuse (Molnar et al. 2001, Dinwiddie 2000), but may also extend to factors such as a disrupted family environment, neglect and isolation or to the presence of adverse events during infancy such as mourning or illnesses in the immediate environment (Sperry and Widom 2013, Kessler et al. 2010). Identifying events ascribable to such areas and the relative repercussions they have on the development of the child is today considered a fundamental element of the clinical practice of research into the outcomes of psychological interventions, due to the critical role they play in psychopathology in adulthood.

In the field of EDs, researchers have traditionally sought the origins of EDs in family relationships (Minuchin et al. 1978), and in particular in the mother-daughter dyad (Cole-Detke and Kobak 1996). Later, moving towards a viewpoint of the correlation between the onset and the disorders connected with managing post-traumatic stress, studies began to appear in the literature attempting to investigate which experiential aspects of the relationship with the caregivers had an effect on the origin of such disorders. The first such researches date back to the 1980s and went on for years, documenting a correlation between physical and/or sexual abuse and EDs, in particular with BN (Wonderlich et al. 1997). A study carried out on a large sample of women showed that infantile physical abuse is a probable risk factor for EDs (Waller 1991), whilst the contemporary presence of a history of physical and sexual abuse corresponds to a three-fold increase in the risk of diagnosis of an ED, with respect to the control group (Carter et al. 2006). A study on a sample of 10 year old abused and non-abused children revealed that, even at that age, the abused children had higher rates of weight dissatisfaction, and exhibited perfectionistic tendencies and a desire for thinner body types, with the adoption of purging and dieting behaviors. Furthermore, abused children reported eating less than control children when they felt emotionally upset (Wonderlich et al. 2000). Although the specific processes that could explain the relationship between trauma and EDs continue to need to be understood, it seems that the experience

of an early traumatic event (especially within the caregiving system) may lead to a psychobiological dysregulation that means the child or the adolescent risks developing a multiplicity of psychological disorders. The neuroendocrine mechanisms underlying such an increased risk seem to implicate and influence the endogenous stress response system (i.e., the hypothalamic-pituitary-adrenal [HPA] axis), which induces trauma-induced hormonal changes that may endure later in life (Monteleone et al. 2015). From a slightly different perspective, some theorists have ascribed the co-occurrence between the presence of a life-time PTSD and EDs to a shared genetic vulnerability across the two disorders (Mitchell et al. 2012).

Clinical treatments for EDs

Cognitive Behavioral Therapy (CBT) has been generally acclaimed as the most valuable “treatment of choice” for bulimia (Wilson and Shafran 2005). In the literature, many studies have supported this evidence, ranging from those with small sample sizes to others with large samples with a superior statistical consistency that has been confirmed over time. Regarding AN, little has been published on the efficacy of employing CBT.

A particular approach, called CBT-E (Enhanced cognitive behaviour therapy, Dalle Grave et al. 2013, Fairburn et al. 2008) seems to be the most successful treatment for EDs, focusing mainly on reducing the symptomatology (e.g. dieting, binge eating, purging) and addressing explicitly the distorted cognitions about body, weight and shape. This approach has achieved the most lasting results compared to other clinical treatments (Fairburn et al. 2015, Glasofer and Devlin 2013, Grilo et al. 2011). However, any conclusions regarding the adoption of CBT in literature are still under debate because there are few clinical trials of the efficacy of this treatment and these were conducted primarily on patients suffering from bulimia nervosa or on persons with an ED who were not underweight (Onslow et al. 2016, Dalle Grave et al. 2015, Lampard and Sharbanee 2015, Wonderlich et al. 2014).

Another important approach to treat eating disorders is the Family Based Treatment (FBT; Eisler et al. 2009), developed by the Institute of Psychiatry at the Maudsley Hospital in London. It is the most recognized approach with adolescent AN patients (Bean et al. 2010, Wilson and Shafran 2005). A characteristic of FBT is that, underlining the importance of objective and observable symptomatology, it takes a skeptical attitude towards the personal history of the patient and is, with regard to the etiology of the ED and to involvement of family members on a behavioral level, in general considered fundamental as a source of support for the patient (Smith and Cook-Cottone 2011, Bean et al. 2010). Moreover, although CBT and FBT, have proved to be effective approaches, they do not take into account certain aspects, especially those linked with the role of early traumatic experiences in the onset and maintenance of EDs, while they do seem to have a fundamental role, as described previously.

EMDR

Eye Movement Desensitization and Reprocessing is a relatively recent psychotherapeutic technique developed by Francine Shapiro in 1987 to treat PTSD. Following tens of controlled studies comparing EMDR with other psychotherapeutic and pharmacological treatments for trauma, the guidelines of the American

Psychiatric Association (Ursano 2004) and of the Department of Veteran Affairs and Defense (Foa et al. 2008), along with numerous international guidelines (Forbes et al. 2010, Bisson et al. 2007) defined EMDR one of the most effective treatments. EMDR is also one of the most supported by research approach, together with CBT (Seidler and Wagner 2006).

Apart from treatment for PTSD, EMDR has also shown its efficacy in the treatment for traumatic development disorders, traumatic memory disorders connected to a complex PTSD (Courtois and Ford 2009, Korn and Leeds 2002) and Dissociative Disorders (Miti and Onofri 2011).

The clinical protocol of EMDR is based on the theoretical model of Adaptive Information Processing (AIP) (Solomon and Shapiro 2008), which presupposes the existence in human beings of an innate neurobiological function suitable for processing information. This information is stored in a system of mnemonic networks containing the single components, such as ideas, emotions, feelings and images, which can be connected to a specific experience. The process thus consists in the formation of the necessary associations which allow all the incoming information to be integrated adaptively with the pre-existing information. The problem arises when an individual has to deal with a traumatic experience. In this case, the individual is unable to implement the necessary processing and storage, and the information connected to the trauma remains 'frozen' in the neural networks, disconnected from the pre-existing knowledge into which it cannot integrate. These memories, stored dysfunctionally because of their very nature, may involuntarily reactivate themselves through flashbacks, intrusive automatic thoughts or dissociative episodes, causing great emotional discomfort and often leading to the onset of pathologies which can be traced back to the post-traumatic spectrum. EMDR therapy has shown particular efficacy as a treatment for PTSD in that it

makes it possible to access the dysfunctionally stored traumatic memories and stimulate a rapid reprocessing of the information, so that by moving the information to a more appropriate memory system, it can be adaptively integrated (Shapiro 2014).

Systematic review of the literature

methodology

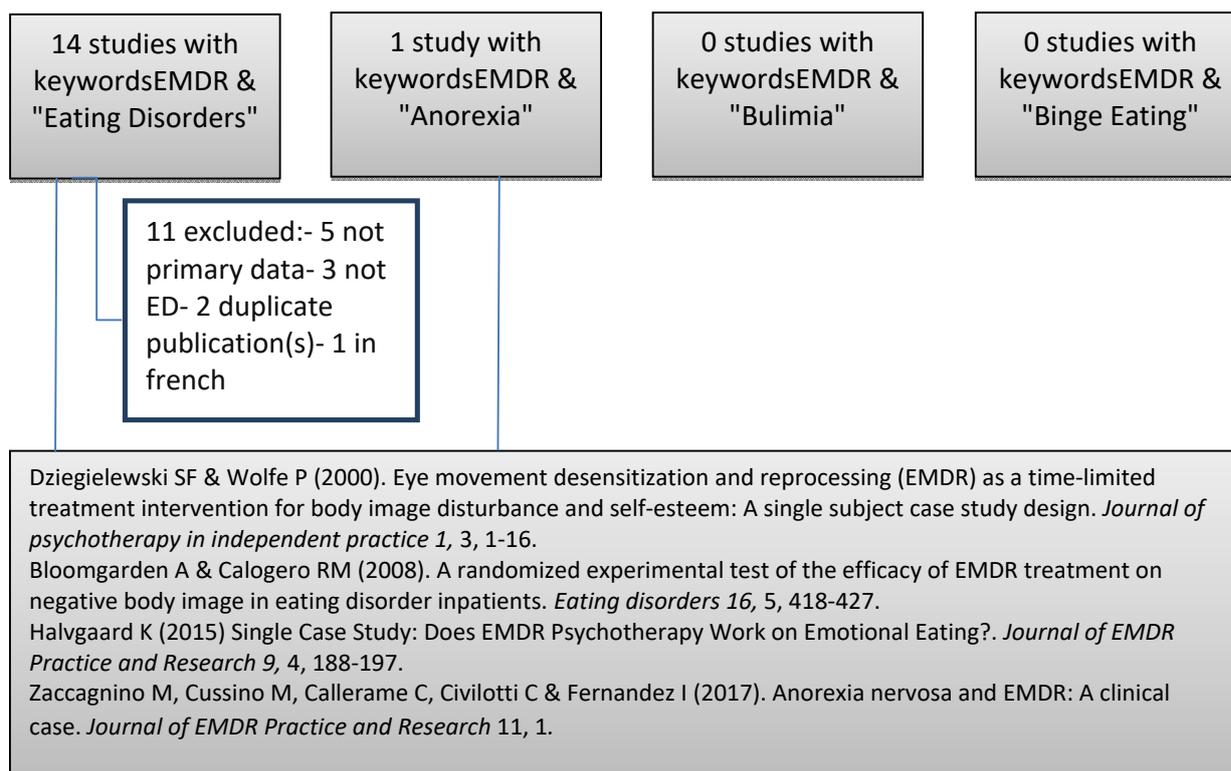
In order to carry out a systematic analysis of the literature, the following bibliographic databases were used: EMBASE, MEDLINE, PsycINFO and CINAHL. The time criteria were set from the beginning of records to February 2017, and the search field was limited to articles in English. The search for further scientific studies proceeded with the analysis of citations of other articles or through direct requests to the reference authors in the field. There were four search phases, with the respective keywords "EMDR" or "Eye Movement Desensitization and Reprocessing" plus: 1. "Eating Disorder"; 2. "Anorexia"; 3. "Bulimia"; 4. "Binge Eating".

Results

Only the keyword combinations 1 and 2 of the search gave results, 14 and 1, respectively, of which only four have been taken into consideration (see **table 1**).

Bloomgarden and Colegero's study (2008) examined the short- and long-term effects of EMDR in a residential population with eating disorders. It is the only one with a randomized research design, and compared 43 women receiving standard residential ED treatment (SRT) to 43 women receiving SRT and EMDR therapy (SRT+EMDR) on measures of negative body image along with other clinical outcomes. The results showed that the SRT+EMDR group reported

Table 1. Flow chart of the results



better clinical outcomes regarding both the distress linked with body image and body dissatisfaction at post-treatment, 3- and 12-month follow-ups, compared to the SRT group.

The other three studies examined all single cases. Dziegielewski and Wolfe's study (2000) focused on the concepts of body-image disturbance and self-esteem, through specific questionnaires pre- and post-EMDR. The scores for subjects' self-esteem and body-image disturbance showed clinical improvement over the treatment period. Halvgaard's study (2015) examined whether treating the symptoms of Emotional Eating with EMDR would have a positive effect on a 55-year-old patient treated with an adjusted version of the desensitization of triggers and urge reprocessing (DeTUR) protocol, including resource installation, affect management, ego state work, and the standard EMDR protocol. The patient reported an overall positive change in eating behavior. Zaccagnino et al.'s study (2017) illustrated a clinical case by describing the positive results of EMDR therapy in the recovery from unremitting anorexia nervosa by a 17-year-old inpatient, underlining the attachment issues and the treatment for early relational traumas through the use of EMDR.

Conclusions

Considering the bond recognized by the literature between the possible onset of traumatic origin and EDs and that EMDR is one of the elective treatments for the management of post-trauma, on a theoretical level, the soundness of implementing the original protocol or specific ones (e.g., as proposed by Zaccagnino in press) for EDs could be appropriate.

Indeed, although the studies analyzed have significantly contributed to showing that EMDR is a promising approach in the field of ED, there has not so far been a great amount of evidence in the literature and the use of EMDR with EDs would merit further in-depth analyses. Only one randomized study was found, whilst the others are accounts of psychotherapeutic interventions, with excellent results, made with the EMDR approach and all of which, apart from Dziegielewski and Wolfe's study (2000), report an improvement maintained even a year after therapy. The articles examined cannot, however, lead to generalizations nor the results be considered in any way representative of the population. Respecting the norms of scientific divulgation, all the studies cited recognize the methodological limits of their relative research designs, urging the need to include in future researches a control group and rigid standardization procedures, in order to be able to prove the validity and consistency of the results obtained. Today, distancing ourselves from the position of absolute caution taken by Hudson et al. (1998), we can affirm that studies in the field of EMDR/ED are beginning to be made and that the clinical evidence is being structured. However, we also affirm that, along with the purely therapeutic paths, the aspect of researching and monitoring the outcomes in a standardized and comparative way will be important, if possible by triangulating the data of self-report questionnaires and interviews carried out by clinical staff and by using scientific equipment, such as Functional Magnetic Resonance Imaging and electroencephalography.

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