

## ARTICLES

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# EMDR Therapy in Psycho-Oncology: A Bridge Between Mind and Body

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Of the many life-threatening illnesses, cancer can be one of the most traumatic and distressful. It impacts the individual's sense of identity and interferes with essential features intrinsic to the person's uniqueness and self-awareness. It attacks patients' physical integrity, bringing death into the foreground and can directly threaten their sense of belonging to micro and macro social systems. This article stresses the importance of understanding that psychological pain and physical suffering are closely interconnected and, within the context of psycho-oncology, proposes a clinical perspective based on the eye movement desensitization and reprocessing (EMDR) approach, in which the cancer event is nested in the history of life of the patient. EMDR is a therapeutic approach guided by the adaptive information processing (AIP) model. The AIP model postulates that psychopathology results when unprocessed experiences are stored in their own neural network, incapable of connecting with other more adaptive networks. In this perspective, the core of the clinical suffering is hypothesized as embedded in these dysfunctionally suspended memories. In line with recent scientific literature presented in this article, it appears that previous and cancer-related traumas maintain a vicious cycle between psychological and physical health, and the aim of EMDR therapy is to break this cycle. Recent scientific research has hypothesized that EMDR therapy is effective at both the psychological and physical levels. However, because of the consistent heterogeneity of the research design, the findings reported in this article highlight the need for further controlled research for more comprehensive examination.

**Keywords:** eye movement desensitization and reprocessing (EMDR); psycho-oncology; cancer; adaptive information processing (AIP); psychotherapy

**A** cancer diagnosis can dramatically disrupt a person's life, affecting emotions, cognition, physical health, relationships, and the spiritual domain (Grassi, Biondi, & Costantini, 2009). The cultural construction of cancer often entails the perception of a great amount of physical pain and suffering, possibly even death, which are normally seen only as remote possibilities or as a tragedy for others. In addition, it completely changes the nature of the relationships between the patients with cancer, their families, and the broader social environment, disrupting the

habitual rules of reciprocity and mutual support (Bury, 1982; Townsend, Wyke, & Hunt, 2006).

As pointed out by Holland (2004), widely recognized as one of the founders of psycho-oncology, for centuries, a diagnosis of cancer carried a stigma among the general public, patients and their families, and among doctors themselves, who rarely communicated the current status of the disease to those affected by it. The practice of "keeping it secret" from patients precluded both talking with them about their emotions or the psychological problems connected with

the disease and adopting appropriate coping strategies to deal with the illness and threat of death. Only in more recent decades have the patient's right of access to information and the reduced stigma carried by cancer promoted a more open dialogue, allowing increasing recognition of the emotional impact of the disease on the mental state of the patient.

Although the scientific literature (Bultz & Holland, 2006) and international guidelines (National Comprehensive Cancer Network, 2013) focus increasingly on the importance of acknowledging as well as managing cancer's psychological distress, the burden of patients with cancer often remains unacknowledged and underdiagnosed (Fallowfield, Ratcliffe, Jenkins, & Saul, 2001; Holland, 2004; Söllner et al., 2001). Patients who may overtly exhibit symptoms linked to mental distress may not receive adequate treatment (Morasso & Tomamichel, 2005) and tend toward emotional withdrawal, feeling confused, powerless, and guilty. In addition, medical staff may overly focus on medical aspects at the expense of a responsive relationship toward patients' emotional experience, causing many emotions to be left unsaid. In time, these emotions will continue to remain unspoken and may eventually "freeze" into traumatic memories (Holland, 1989; Mager & Andrykowski, 2002).

Patients with cancer, against their will, may find themselves having to become passive individuals assisted by "significant others" who start making decisions for them once the diagnosis has been made. It is necessary to adopt a multiphased approach which implies on one hand, the treatment of physical symptoms, and on the other, psychological focus on the emotional aspects related to anguish, dejection, and sadness. These emotions require specific interventions aimed at enhancing the patient's residual physical functions and psychological resilience during the various stages of the illness. This article aims to substantiate the existence of a link between the psychological and physical aspects of the human experience, and how the eye movement desensitization and reprocessing (EMDR) approach in medical contexts can be effective with patients with cancer.

## The Psychosocial Implications of Cancer

### Impact on the Individual

From a clinical point of view, cancer has a highly traumatic impact on the life of an individual. As a chronic and fatal disease, with an often painful symptomatology, frequent periods of hospitalization, and invasive treatment procedures, cancer is not only a threat to life

but also to the entire psychological system (Borio & Torta, 2007; Drageset, Lindstrøm, Giske, & Underlid, 2011; Granieri et al., 2013; O'Connor, Wicker, & Germino, 1990). It affects psychophysical integrity, quality of life, and survival (Holzner, Giesinger, & Efficace, 2014) as well as subjective well-being (Hou & Lam, 2014; Tessier, Lelorain, & Bonnaud-Antignac, 2012). It also generates a sense of vulnerability, loss of control and personal autonomy, and a sense of desperation (Kenne Sarenmalm, Browall, Persson, Fall-Dickson, & Gaston-Johansson, 2013; Rodin et al., 2009), in addition to a purely posttraumatic symptomatology of intrusive thoughts, avoidance phenomena, and increased hyperarousal (Baider & Kaplan De-Nour, 1997; Brewin, Watson, McCarthy, Hyman, & Dayson, 1998; Civilotti et al., 2015; Kangas, Henry, & Bryant, 2002; Matsuoka, Nagamine, & Uchitomi, 2006; Smith, Redd, Peyser, & Vogl, 1999). The psychological aspects associated with the illness, including its social impact, can be partially neglected if the prevalent effort is devoted to "curing" the cancer, as if the patient were a device that no longer worked properly.

Cancer disrupts an individual's sense of identity and interferes with key features intrinsic to his or her human uniqueness and self-awareness. It attacks a person's physical integrity, bringing death into the foreground; its effects and treatment cause dramatic modifications in body image, including transformations in how the patient views his or her single body parts. Every stage from diagnosis to treatment and remission engages defense mechanisms and emotional responses influencing the personal meaning-making in relation to the illness (Grassi et al., 2009).

Kübler-Ross's (1969) model perfectly depicts the different stages of a patient's acceptance of the illness. Denial and disbelief are the first reactions. Later, reality paves the way to reactions of anger and often angry protest, followed by more depressive feelings that allow the subject to finally acknowledge and accept the illness. A life-threatening illness may prompt thus far neglected existential questions to be addressed from a religious or spiritual perspective. Cancer can also directly threaten the patient's sense of belonging within the microsystem which includes family, close friends, and neighbors. Subsequently, feelings of alienation may extend to the wider macrosystem of the social environment, work, and membership of various social groups (Grassi et al., 2009).

### Impact on the Family

In turn, relatives have to readjust their behavior and relationships within the family as well as within

the community. They have to face new responsibilities playing unexpected roles determined by the illness of their loved one, whose increased dependence on them obliges them to share the dread of death and witness all the physical changes. Regardless of who is primarily in charge of the sick loved one, the patient's loss of autonomy, pain, fatigue, and the side effects of treatment are a deep burden to all family members.

Families have to face various levels of difficulties. The meaning of life and of personal existence needs to be redefined, rethought, and reexamined. The attention and coping abilities of families are forcibly shifted to the illness and are strained by a sense of loss, abandonment, anguish of separation, anxiety, sense of inevitability, and blame. Family roles inevitably need to change, and as time passes, more physical strain will need to be faced—fatigue, physical exhaustion, and difficulties in sleeping or waking. Quite often, families are beset with nonmedical barriers, such as difficulties regarding information, finances, work, and the household. Interactions with others, particularly institutions, can become upsetting; communication problems with health care staff may arise, including ambiguities, conflicts, and misunderstandings as well as organizational problems and lack of treatment delivery.

### **The Influence of Early Life Stressors and Biopsychosocial Factors on Immune Functioning and Health**

In 1986, the World Health Organization, as well as most official health systems in the world, incorporated the biopsychosocial model (Engel, 1977) in their guiding framework, focusing on multifactorial perspectives that evaluate the interaction between the individual organism, the environment, and social systems. Later, the connections between the psychological and physiological aspects of cancer risk and progression were studied through the psychoneuro-immunology approach, according to which constant activation of the hypothalamic-pituitary-adrenal (HPA) axis in the chronic stress response may weaken the immune response and influence the onset and expansion of some types of cancer (Reiche, Nunes, & Morimoto, 2004).

This view underpins the adaptive information processing (AIP) model (Shapiro, 2001) based on theoretical and structural principles of EMDR. The AIP model posits that there is an innate physiological system programmed to transform disturbing information into adaptive resolution and healthy psychological integration. A trauma may disturb the

information processing system, storing in memory its original perception, as exhibited in posttraumatic stress disorder (PTSD; Shapiro, 1995). As a therapeutic method, EMDR acknowledges the importance of emotions and emotional responses as part of a process that guides and modulates the individual's cognitive interpretation and meaning-making.

We hypothesized that the elaboration and integration of the emotions and physical sensations linked to traumatic memories, if reprocessed with EMDR, could be efficiently stimulated to reshape and re-consolidate their most disturbing elements, whether related to the disease or past painful life experiences. Depending on the stage of the disease and the related traumatic personal history, there can be different EMDR targets in the treatment of these patients, as described in the specific EMDR protocol for patients with cancer (Faretta, 2014).

Briefly, the manualized eight-phase EMDR protocol addresses dysfunctional memories that the AIP model postulates as “frozen” in dysfunctional brain networks. In psycho-oncology, EMDR treatment focuses on all the dysfunctional cancer-related memories from diagnosis to the present moment and on all three perspectives of the patient's life: the past, present, and future, focusing on building resilience, enhancing emotional regulation, and strengthening the patient's coping skills (for a more detailed discussion of the clinical EMDR cancer protocol, see Faretta, 2014, 2015; Faretta, Agazzi, Poli, Sacchezin, & Zambon, 2013; Faretta & Sacchezin, 2015).

### **The Influences of Adverse Childhood Experiences on Psychological and Physical Functioning**

Felitti and collaborators' 1998 scientific paper can be considered a groundbreaking public health study. Here it was stated, for the first time, that there was a clear relationship between adverse childhood experiences (ACEs) and health risk behavior and disease in adulthood. ACEs are described as the result of household dysfunction, capable of creating trauma in the child, both directly (e.g., psychological, physical or sexual abuse) and indirectly (e.g., severe neglect, exposure to parental substance abuse, mental illness, intimate partner violence or criminal behavior; Felitti & Anda, 2010; Liotti & Farina, 2012; Lyons-Ruth, Bronfman, & Parsons, 1999). Once this report came out, the approach to health and psychotherapy would never be the same; it was no longer possible to ignore the link between traumatic events and their impact on health.

## Adverse Childhood Experiences and Childhood Neurobiological Development

ACEs have a massive influence on childhood neurobiological development, with possible life-long consequences (Rees, 2007). Trauma can cause lasting neuronal and hormonal changes that modify brain structure and function (Anda et al., 2006; Benedetti et al., 2011; Boyce & Ellis, 2005; Carrion & Wong, 2012; Danese & McEwen, 2012; Matz et al., 2010; Meaney, 2010; Oberlander, et al., 2008; Reiche et al., 2004; Roth & Sweatt, 2011; Shonkoff et al., 2012; Van der Kolk, 2003), which, in turn, can affect emotions, behaviors, and cognition. The lack of internal and external resources for an AIP can increase the likelihood of traumatization (Cotraccia, 2012). This point is closely related to the attachment theory.

The attachment system, as stated by Bowlby (1988), continues to operate “from the cradle to the grave” and is activated whenever a difficult and painful situation arises in which the subject feels vulnerable. Schore (2003, 2009) describes the early relational interaction with the caregiver as a condition under which it is possible to develop the disorganization of attachment. In this configuration, an openly hostile, or helpless parental attitude, causes the child to experience fear and impotence, determined by the unsolvable paradox of the caregiver who is simultaneously a source of danger as well as protection (Lambruschi, Lenzi, & Leoni, 2004; Liotti & Farina, 2011). In this configuration, as in the response to trauma, there is a concurrent but incongruous activation of defense mechanisms and the attachment system (Liotti & Farina, 2011). As explained by Schore (2000), the relationship with the mother is not just only to regulating a child’s affect but also to regulating hormonal and neurohormonal production, which influences the genetically endowed activation systems implicated in the structural development of certain brain regions (in particular, the prefrontal orbital cortex in the right hemisphere and limbic system), crucial for a child’s emerging social and emotional development.

The right hemisphere is primarily involved in encoding body sensations and emotional memories from birth, linking emotional limbic circuitry to the neocortex through the orbitofrontal cortex. Early and prolonged exposure to stress caused by trauma and/or childhood maltreatment seems therefore to have specific effects on subsequent response systems that connect the hypothalamus, pituitary gland, and suprarenal glands. This causes early neurophysiological sensitization, engendering intense responses to future stress, in terms of glucocorticoid production and reception as well (Bremner, 2005).

## The Relationship of Adverse Childhood Experiences to Somatic Diseases

The consequences of ACEs are not only represented by specific clinical conditions such as complex post-traumatic stress disorder (c-PTSD), dissociative disorders, or borderline personality disorder (Liotti & Farina, 2011) but exert their influence on a wide spectrum of somatic diseases in adulthood, including cancer (Brown et al., 2010; Brown, Thacker, & Cohen, 2013; Fuller-Thomson & Brennenstuhl, 2009). Wegman and Stetler (2009) carried out a meta-analytic review in which they considered the influences of childhood abuse on medical outcomes in a population of young adults and showed that there was significant association between the presence of abuse in childhood and poor physical and medical outcomes in adulthood.

The nervous system is strongly influenced by acute and/or chronic stressor events; the nervous sympathetic system, the HPA axis, and the adrenaline system are the three large systems particularly implicated in neurobiological stress response. Arousal, stress response, behavior, emotional, and neurodevelopmental regulation are all linked with these systems (De Bellis, 2012). The crucial point is that the HPA axis reaches its maximum development in the first 5 years of a child’s life (Sapolsky & Meaney, 1986), and it is understood, therefore, that traumatic events in that period are detrimental for the child’s development and the long-term effects may reflect epigenetic consequences. The latter consist in a permanent alteration of gene expression in the neuronal system related to the regulation of reactivity to stressors (Meaney & Szyf, 2005). In this context, parental care and thus the attachment system are a protective factor against disadaptive neurobiological development (Fisher & Gunnar, 2012).

Adverse early life events may dysregulate cellular immune function and autonomic responses as well as lead to higher levels of stress-induced cortisol (Dowd, Palermo, & Aiello, 2012; Fagundes, Glaser, Malarkey, & Kiecolt-Glaser, 2013; Shirtcliff, Coe, & Pollak, 2009). HPA axis activation and the subsequent hypercortisolemia often operate as a negative reaction mechanism to control an amplified immune or inflammatory response originated by the chain of cytokines. This delicate equilibrium seems to be part of a homeostatic mechanism, the malfunction of which could be followed by serious disorders such as infection, cancer, or autoimmune disease. Because the brain plays a central role in this cycle, factors such as emotions or psychosocial stressors can negatively

influence the balance of this mechanism (Kronfol & Remick, 2014). Moreover, it has been shown that the immunological changes associated with stress may make the natural killer of cancer or viral infections less able to respond (Kawamura, Kim, & Asukai, 2001; Kiecolt-Glaser & Glaser, 1999; Laudenslager et al., 1998; Leonard & Song, 1996; Nunes et al., 2002).

In 2010, Felitti and Anda hypothesized that ACEs have a direct impact on the onset of cancer and other severe diseases. Children who suffered traumatic events may develop health risk behaviors (Hussey, Chang, & Kotch, 2006), physical diseases (e.g., ischemic heart disease, diabetes mellitus, cancer, chronic lung disease, skeletal fractures, liver disease), social problems, and impairment in social, emotional, and cognitive capacities (Felitti, 2002; Felitti et al., 1998; Shapiro, 2014) throughout their lifetime.

Two types of biological causality between ACEs and cancer may be assumed: a “direct effect” and an “indirect effect.” The direct effect includes all the biological alterations produced by the stress of the illness; the indirect effect emerges as behaviors which may put health at risk (e.g., smoking, severe obesity, depression, promiscuity, suicide attempts, alcoholism or drug abuse; Anda et al., 1999; Brown et al., 2010; Delpierre & Kelly-Irving, 2011; Kelly-Irving et al., 2013; Monahan & Forgash, 2012; Shapiro, 2014). In a recent study, Larkin, Felitti, and Anda (2014) underline the importance of including a biopsychosocial perspective in the study of adverse childhood experiences.

ACEs seem to create a kind of vicious cycle between psychosocial aspects and physical health, a circuit that feeds on itself; the first negatively feeds the second, and the second the first, with a gradual increase in the parameters involved. The aim of EMDR treatment with adult patients with cancer is to “repair the ancient somatic memories,” thus breaking this cycle.

### **The Traumatic Nature of Cancer: A Perspective in Which the Cancer Event Is Nested in the History of Life of the Patient**

Trauma means “wound” in Greek (τραῦμα—to perforate, damage, harm, ruin) and doubly refers to a ruptured wound and to the effects of a violent shock on the whole body. The term *trauma* was widespread in the field of medical–surgical disciplines during the 18th century and has been taken up by psychiatry and clinical psychology to indicate when a subject is overwhelmed by excessive stimuli and unable to access his or her defenses and react (Van der Kolk, McFarlane,

& Weisaeth, 2005). The psychological conception of trauma includes the extent, intensity, and earliness of trauma as well as the aspects of an individual’s temperament, personality, attachment style, susceptibility, resilience, and the presence or absence of a supportive social network. A subject’s responses to trauma may range from experiencing disruptive and uncontrolled emotions, mostly negative and painful, to disorientation and feeling a loss of control, followed by dysfunctional behaviors, such as avoidance and flight defenses. These reactions can recover or disappear spontaneously over a short period of time yet generate symptoms related to the personality of a patient that are difficult to observe externally. In the worst cases, patients may develop a chronic dysfunctional disorder such as PTSD (*Diagnostic and Statistical Manual of Mental Disorders* [5th ed.; DSM-5]; American Psychiatric Association [APA], 2013). When a person experiences an unacceptable, incomprehensible, terrifying, and unbearable event, the human psyche’s natural capacity to process the event can be compromised.

The individual’s response to trauma depends on subjective and intrasubjective variability, his or her life stage, and mentalizing skills, and the psychological construct of “trauma” includes objective (the event’s extent, intensity, time of onset) as well as subjective variables (personality traits, attachment style, susceptibility, resilience, social support). Trauma cannot be defined merely by the objectively derived intensity of an external stressor but also requires consideration of internal subjective responses that depend on the patient’s attachment status and internal resources. Traumatic experiences lead the individual to exhibit attachment-related behaviors through internal working models, such as seeking out help, comfort, and protection throughout the life span; although in recent research, age-related differences in attachment behaviors and state of mind have been observed, primarily in relation to the changing of social roles across the life span, but also based on the influence of these roles on personality development (Chopik, Edelstein, & Fraley, 2013; Roberts, Wood, & Smith, 2005).

The *DSM-5* introduced significant changes in the description of the clinical features of PTSD compared to the previous *Diagnostic and Statistical Manual of Mental Disorders* (4th ed., text rev.; *DSM-IV-TR*; APA, 2000). The *DSM-5* no longer addresses PTSD as an anxiety disorder, including it in a new chapter on “Trauma and Stress or Related Disorders,” and it focuses on the behavioral symptoms accompanying PTSD. Moreover, the criteria including subjective responses such as intense fear, powerlessness, and horror, which in the *Diagnostic and Statistical Manual*

of *Mental Disorders* (4th ed.; *DSM-IV*; APA, 1994) represented a clinical innovation with respect to the *Diagnostic and Statistical Manual of Mental Disorders* (3rd ed.; *DSM-III*; APA, 1980), are also abolished.

Because of the variability in results, the perspective that views life-threatening diseases as the cause of potentially traumatic outcomes still remains debated. Today, diagnostic agreements are still poor, and there is no common shared diagnostic guideline: Several studies on PTSD in cancer settings support the PTSD-related psychological outcomes (Kangas, Milross, Taylor, & Bryant, 2013; Posluszny, Edwards, Dew, & Baum, 2011), whereas others believe this perspective to be overestimated (Mehnert & Koch, 2007; Phipps et al., 2014). The applicability of the PTSD label to patients with cancer has been called into question because the prevalence changes extensively, often revealing that only a minority of patients meet the threshold for PTSD caseness (Kangas et al., 2002; Thompson, Eccleston, & Hickish, 2011). Moreover, PTSD symptoms could be confounded by secondary consequences of the disease: A reasonable fear of recurrence may recall intrusion symptoms (Hodges & Humphris, 2009; Mehnert, Berg, Henrich, & Herschbach, 2009), and the side effects of chemotherapy may mimic symptoms of hyperarousal (Kangas et al., 2002; Shelby, Golden-Kreutz, & Andersen, 2008; Thompson et al., 2011).

Various data seem to prove that although the nosographic classifications in the *DSM* and International Classification of Diseases, 10th revision (*ICD-10*) have increased the diagnostic reliability of depressive symptoms, it is a fact that these manuals do not adequately detect the nature and variability spectrum of psychological states and social suffering among patients with cancer. The existence of a link between cancer and PTSD is supported by various scientific researches, which indicate that 3%–35% of patients with cancer develop a disease-related PTSD (Kangas et al., 2002).

A major clinical consideration is how a patient's highly traumatic stories may be dealt with, when *DSM-5* criteria are not fully met? If event-related conditions meet criteria that include an objective and imminent life threat (earthquakes, hurricanes, flooding, extremely violent situations), what happens when a threat is not external, such as in the case of a life-threatening cancer diagnosis? Does the definition of a traumatic event solely apply to the circumstances included in the *DSM-5* classification, or may we trust our patients' painful narratives when sharing their cancer journey in therapy?

In theory, cancer has the potential to be a traumatic event because a cancer diagnosis and the subsequent

treatment are a real threat to life and physical integrity. There is a large body of literature in cancer populations corroborating the existence of a specific form of PTSD or cancer-related PTSD (e.g., Cordova, Studts, Hann, Jacobsen, & Andrykowski, 2000; Smith et al., 2011; Thompson et al., 2011). In this sense, cancer is conceived as "a treacherous, uncontrollable, invasive and transforming process, gradually leading to death" (Saccomani, 1998), sharing with other severe illnesses, several traumatizing aspects: a threat to the patient's physical and psychological integrity and of a significant loved one (secondary trauma), engendering feelings of vulnerability, loss of control, and hopelessness. Patients with cancer can have emotionally intense reactions with high arousal, avoidance behavior in everyday life, as well as intrusive thoughts that may interfere with normal functioning abilities during and after the traumatic event. In addition, recurrences may cause retraumatization. Among the many subjective risk factors for the onset of organic diseases, research has identified two main emotional conditions: hopelessness and helplessness (Schmale & Engel, 1967), which appear to stem from an individual's emotional response to separations or affective losses. Schmale and Engel (1967) believe that these stressful events, paired to states of despair and giving up on the social environment, lead to greater vulnerability and can engender the development of a disease. States of hopelessness and helplessness in patients with cancer significantly reduce the quality of life (Gustavsson-Lilius, Julkunen, & Hietanen, 2007) and are associated with a strong wish to die sooner, requests for assisted suicide, and euthanasia (Rodin et al., 2007), a higher rate of recurrences and worse prognoses (Watson, Haviland, Greer, Davidson, & Bliss, 1999; Watson, Homewood, Haviland, & Bliss, 2005).

Our belief is that factual observable phenomena, such as data gathered from a severity of illness assessment, the existence of a real life threat, and medical procedures, appear to have a lower effect than the subjectivity of experience (Ganz et al., 1993; Härtl et al., 2010; Maunsell, Brisson, Dubois, Lauzier, & Fraser, 1999; Rowland et al., 2000). In addition, there are certain characteristics which differentiate cancer from other traumatic events and make it difficult to place in the posttraumatic field. First, unlike any other event detrimental to health, cancer is complex and lasting, an experience of traumas of indefinite duration and repeated over time rather than an acute defined event (Borio & Torta, 2007). This makes the PTSD of a patient with cancer quite different from the same disorder in someone who has experienced

a single traumatic event (Greimel et al., 2013). Secondly, the intrinsic threat of cancer is anticipatory in nature because the intrusive thoughts are oriented to the future consequences of the disease, such as the fear of relapse (Mehnert et al., 2009). Lastly, unlike an acute traumatic event which origins are external to the individual (e.g., abuse, natural disasters, aircraft accidents), the cancer threat carries a significant internal component, above all in terms of perceived ineluctability (Gurevich, Devins, & Rodin, 2002). Given the earlier discussion, it seems important to reflect on whether it “makes sense” to talk of post-traumatic stress regarding cancer, of which no one has ever been declared “definitively cured” (Trotti & Bellani, 2010).

According to the scientific literature, the evidence seems to support a more frequent presence of post-traumatic stress syndrome (PTSS) or subclinical PTSD rather than full PTSD. Although symptom clusters appear to be subthreshold according to the *DSM* classification, they are nonetheless a strongly disabling condition for patients. Gurevich et al. (2002) reported that only 3%–4% of patients with a recent cancer diagnosis presented a full PTSD, whereas 20% exhibited subthreshold PTSD symptoms. In addition, 35% of patients exhibited a subthreshold disorder after active treatment, whereas 80% did so after disease recurrence. These are significant percentages, suggesting the need to identify key symptoms to assess subthreshold PTSD (Blanchard, Jones-Alexander, Buckley, & Forneris, 1996; Marshall et al., 2001; Stein, Walker, Hazen, & Forde, 1997). These results suggest trauma-related stress responses ought to be conceptualized along a continuum. The authors suggest abandoning a categorical model to more accurately identify cases that require clinical intervention. Intrusive symptoms linked to disturbing memories and the reexperiencing of a trauma related to a diagnosis of cancer appear dominant (Matsuoka et al., 2006) and are exhibited through constant worrying, fear of recurrence, nightmares, flashbacks, and low expectations for the future. These intrusive memories are linked to maladaptive coping behaviors, avoidance behavior, and autobiographical memory deficits (Brewin et al., 1998) which play a significant role in the patient’s functioning and may hinder the process of acceptance of the illness (Whitaker, Brewin, & Watson, 2008). In addition, a recent research by Civilotti et al. (2015) hypothesizes a specific psychological reaction of dissociation, which may be ascribed to the traumatic spectrum within the context of cancer.

Modern neuroimaging techniques enable the observation of how posttraumatic symptoms in patients

with cancer, especially intrusive symptoms, activate the same brain areas as reported in PTSD research studies. Just like individuals with PTSD, patients with cancer exhibit a significant reduction in the hippocampus volume, the brain area involved in semantic and autobiographical memory processing (Nakano et al., 2002; Shin, Rauch, & Pitman, 2006). Patients with cancer with intrusive memories showed noticeable reductions in the amygdala volume (Matsuoka, Yamawaki, Inagaki, Akechi, & Uchitomi, 2003). The same evidence has been found in patients with cancer affected by illness-related depression compared to patients who did not develop the same symptomatology (Yoshikawa et al., 2006). In the orbitofrontal cortex, patients with cancer with posttraumatic symptoms also exhibit structural alteration not found in the absence of symptoms (Hakamata et al., 2007). Further observations in patients diagnosed with cancer reveal structural and functional modifications in specific areas and neural circuitry (Kandel, Schwartz, & Jessell, 2000), accounting for the intrinsic plastic property that enables the human brain to adapt its functions and attain experience-related changes.

## The Role of EMDR Treatment in Psycho-Oncology

New experiences, such as a diagnosis of cancer, are a never-ending conscious and subconscious flow of information, and relevant sensorial, cognitive, emotional, and somatic information is stored in memory networks for future adaptive application, directing the person’s reactions to the surrounding environment. In normal conditions, this system is adaptive, but when distressing negative events occur, the information processing system can be overwhelmed and is no longer capable of assimilation. In particular, when these events are repeated daily, the information related to the negative event is stored in isolation, unable to link up with more adaptive memory networks. Current situations can sometimes reactivate these memories, leading to maladaptive, or symptomatic behaviors. EMDR therapy intervenes on these unprocessed traumatic life events (Faretta, Callerame, & Civilotti, 2014).

The clinical work on the distant past should investigate the patient’s evolutionary history, with particular attention to attachment. In the specific instance, investigation of a possible condition of vulnerability ascribable to psychogenic causes, such as the presence of traumas connected to the activation of the attachment system in the personal history of development, appears significant.

Besides investigating the traumatic experience ascribable to the patient's developmental history, it appears likewise necessary to focus the clinical work on the temporal dimension of the recent past and deal with the traumatic experience connected to the patient's history of illness. It also appears to be significant to focus the clinical work on the current life situation of the patient in a present dimension which extends into the future. As with all the other temporal dimensions mentioned earlier, the influence of the social system of attachment is significant, in particular for the way emotions are regulated, the perception of social support and the capacity to ask for help and, as a result, the different coping strategies adopted, psychological adaptation to the disease, and survival (Faretta, 2014).

### EMDR Research in Psycho-Oncology and With Medical Illnesses

Numerous research studies in the past 20 years have recognized EMDR as an evidence-based treatment effective on trauma in many clinical guidelines of professional organizations and national mental health services. In 2000, EMDR was included in the recommendations of the International Society for Traumatic Stress Studies as an evidence-based therapy approach, and in 2004, the APA acknowledged its effectiveness by including it within its guidelines for clinical practice (Faretta, 2014, 2015).

Since 2000, EMDR has received international recognition demonstrating its scientific effectiveness. Different trials have shown the efficacy of using EMDR in psychology for a wider range of disorders. Numerous meta-analyses (Bisson & Andrew, 2007) show that EMDR produces therapeutic effects similar to other methods which have undergone more scientific research, such as cognitive behavioral therapy (CBT).

In the field of psycho-oncology, the first controlled study of EMDR treatment of patients with cancer was conducted by Capezzani et al. (2013). This study highlighted the major efficacy of EMDR compared to CBT in treating PTSD in oncology patients in the follow-up phase of the disease. In this stage, the patients treated with EMDR were significantly freer of PTSD after treatment than those treated with CBT. The scores on the Impact of Event Scale—Revised (IES-R) and Clinician-Administered PTSD Scale (CAPS) were significantly reduced in the EMDR group compared to the CBT group. EMDR demonstrated the same efficacy in active cancer treatment as well as during follow-up of the disease. Anxiety and depression, however, improved equally in both treatment groups.

In 2014, Faretta et al. presented a pilot clinical study on 18 mixed patients with cancer. From the preliminary results, it was shown that after 12 sessions of EMDR, an attenuation of various forms of psychological complications arising as a result of the diagnosis of cancer was registered, in particular, a remission of PTSD symptoms, a decrease in the levels of anxiety, depression, and the perception of pain. A pilot study by Jarero et al. (2015) evaluated the effectiveness of the EMDR Integrative Group Treatment Protocol (EMDR-IGTP) specifically for women with different types of cancer and related PTSD symptoms. The statistical results showed significant improvement in both the active and follow-up phases of the cancer. In addition, after EMDR-IGTP treatment, patients perceived a subjective overall improvement. Further randomized controlled studies are clearly necessary to demonstrate the effectiveness of EMDR-IGTP in this population, but the positive results of this pilot study suggest that this protocol may be a valuable support for patients with cancer and with PTSD symptoms.

A comparative clinical study with patients in radiotherapy conducted recently in Iran by Majidzadeh and Sediq (2015a, 2015b) with a simple pretest–posttest research design seems to confirm the efficacy of EMDR in managing stress, anxiety, and depression in patients with cancer. The methodology is not well explained, so we interpret these results as a positive indicator but without the necessary accuracy of a scientific controlled study. In 2002, Peters, Wissing, and Du Plessis reported a descriptive multiple case study where three patients with cancer were treated by EMDR and three by a supportive method. In this study, data collection was triangulated in terms of quantitative clinical outcomes, semistructured interviews, and through an interview by an external researcher. The results were in favor of EMDR from both subjective and objective points of view.

EMDR also shows its efficacy in other medical contexts. For example, patients who have survived a life-threatening cardiac event may develop PTSD symptoms and concomitant depressive and anxiety symptoms. In these cases, EMDR treatment has proved very effective (Arabia, Manca, & Solomon, 2011). The results of this pilot study provide preliminary support for EMDR as an effective treatment for survivors of life-threatening cardiac events. Behnam Moghadam, Behnam Moghadam, and Salehian (2015) concluded that EMDR is an efficient method for treating and reducing depression in patients with myocardial infarction and can thus be effectively used for the treatment of patients in critical care units.



In 2002, Grant and Threlfo highlighted the effectiveness of the EMDR Chronic Pain Protocol in decreasing pain levels and consequent negative effects. In their study, Mazzola et al. (2009) investigated EMDR treatment in 38 patients suffering from chronic pain (in particular, headaches) with 12 weekly 90-minute sessions. As hypothesized, EMDR produced changes in the emotional response to pain. A recent systematic review (Tesarz et al., 2014) again emphasized the efficacy of EMDR treatment in relieving chronic pain. Reinforcing this area of research is therefore recommended. Because chronic pain is common in cancer (Green, Hart-Johnson, & Loeffler, 2011), EMDR may seem to be a worthwhile intervention for this reason alone.

A 2007 study by Schneider, Hofmann, Rost, and Shapiro describe the application of Shapiro's AIP model in the treatment of phantom limb pain (PLP), and in 2008, the same researchers carried out a study that confirmed the positive influence of EMDR in decreasing or eliminating phantom pain, confirmed in the long-term follow-up. The study highlighted a reduction in depression and PTSD symptoms and a significant reduction or elimination of medication related to the phantom pain. In 2013, a study conducted by Amano, Seiyama, and Toichi in Japan on a female patient suffering from PLP demonstrated the success of EMDR using a PLP protocol. It is possible to deduce the involvement of a PTSD-like mechanism in the pathogenesis of PLP as well as the effectiveness of EMDR in PLP treatment. A recent case study by Brennstuhl et al. (2015) with two patients with phantom breast syndrome shows the effectiveness of EMDR therapy on quantitative and qualitative outcomes and the clinical change in producing a modification of the body representation. There were also positive results in the treatment of psychogenic seizures (Chemali & Meadows, 2004) and in psychogenic nonepileptic seizures (Kelley & Benbadis, 2007), both with comorbidity with PTSD, as well as in cases of epilepsy and mild intellectual disability (Rodenburg, Benjamin, Meijer, & Jongeneel, 2009).

### **EMDR in Patients With Cancer: Current and Future Directions**

A holistic perspective on illness acknowledges the binding connection between mind and body and employs a treatment approach which takes into account the complexity of the system, with particular attention to their reciprocal influences. Physical illness can cause great psychological pain. Likewise, the mind can influence physiological processes, intervening

on the endocrine modulation circuits in response to stressors.

A recent overview of published research studies (Shapiro, 2014), investigations on ACEs (Felitti et al., 1998), as well as a large number of scientific researches conducted in psychology and biomedicine reveal how adverse life experiences engender the development of diseases and eventually lead to a state of chronicity. Many posttraumatic symptoms stem from the individual's cognitive struggle to face a traumatic event and his or her failure to reprocess traumatic memory-related cognitions.

The EMDR intervention must therefore take certain aspects into consideration. First of all, psychological adjustment to the disease is influenced by relatively stable personal characteristics (social status, personality, life events), by variables which can influence the global adjustment of the individual to the disease and are liable to change over time (coping strategies), and by the treatment and therapeutic techniques applied (De Piccoli, 2014; Morasso, Di Leo, & Grassi, 2002; Zani & Cicognani, 1999).

The specificity of psycho-oncology consists in addressing a patient whose psychological discomfort arises primarily not from a psychopathological disorder but from the traumatizing situation of the disease (Morasso et al., 2002). The psychotherapeutic intervention focusing on the patient with cancer thus has the following objectives (Faretta, 2014; Varetto, Ramonda, Stanizzo, & Torta, 2007): (a) to limit suffering, encouraging the patient to verbalize negative thoughts and feelings; (b) to help the patient develop more adaptive behaviors, giving back personal control over his or her own life; (c) to favor communication between the patient, medical staff, and family, allowing practical problems connected to the medical treatment to be solved; (d) to make clear to the patient the influence of psychological factors on the cancer; and (e) to give back a sense of the future to the patient and family.

Given these conditions, and in the light of the points outlined in the present article, it may be affirmed that a clinical intervention with EMDR in psycho-oncology seems obliged to develop on different levels of work, associated with the various temporal dimensions of the life of the patient. The AIP model offers an exhaustive theoretical and clinically fertile framework guiding the dismantling of the circuits which fuel the pathological emotional responses and perpetuate high levels of suffering, along with physical and psychological distress.

EMDR reprocessing makes possible a shift in the emotional and physical perceptions linked to frozen

traumatic memories, enabling integration and reconsolidation of the most disturbing elements, whether illness-related or linked to past painful life experiences. Through protocols specifically designed for patients with cancer or other organic diseases (Faretta, 2014, 2015), EMDR seems to respond successfully to the need for structured therapy programs that holistically take into account the physical, bodily, and semantic aspects of the patients' experience. Primarily, EMDR allows healing of the psychological wounds resulting from ACE and then, through the use of the protocol for the past, present, and future, makes it possible to help the patient cope with the physical aspect and regarding the unpredictable timing of the disease.

The research reported earlier is encouraging, suggesting that the EMDR approach can be an effective therapy in helping people to face cancer. However, there is only one controlled randomized study in the scientific scenario supporting the use of EMDR (Capezzani et al., 2013), whereas the research design of other studies is, at times, not fully clear. Future research is needed, covering a larger population of patients with cancer, using control groups to compare different kinds of clinical approaches, using randomized research designs, and producing more evidence of neurobiological outcome to attest to EMDR's effectiveness. In parallel, it is essential to integrate the new research in psychology, neurobiology, and medical studies with the panorama of clinical skills and strategies used in patient care, especially when a comorbidity of psychological and physical symptoms are involved.

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