Traumatic Incident Reduction and its empirical support in the treatment of psychological trauma and other conditions.

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Given that all human beings suffer in their life span a number of potentialy traumatogenic events, and only a few of them provoke some consequence or psychological sequelae, it is plausible to suppose that there is some sort of internal innate, non-learnt mechanism that stores that information in a way that doesn´t upset the person.

In the case of traumatic events the intense physiological stress and terror reaction would block the processing of the information received at the trauma moment, staying stored under the form of upsetting sensations, perceptions, memories, beliefs and ideas, in the same way as they were originally experienced (Shapiro, 1995, 2001; Solomon, & Shapiro, 2008; van der Kolk, et al. 1997). The processing of that information would be blocked, and many external as well as internal stimuli associated with the trauma could trigger the perturbations such as flashbacks, re-experimentations, nightmares, physiological arousal, etc. The neural network in which that information is stored seems to be isolated from the adaptive information contained in other networks (Shapiro, 2001; Shapiro, & Laliotis, 2011; Spector, 2007). The experiences are stored in preexistent memory networks, made of independent and interrelated cognitive structures (Le Doux, 1999; Rothbaum, & Davies, 2004). The information of that traumas would get stored in the nervous system in a specific way, as a state dependent memory, thus influencing the person behavior and personality (Shapiro, 2001; Spector, 2007).

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Since 2000 have been published several PTSD treatment guidelines (Ford, 2009). Foa, Keane, and Friedman (2000) describe many effective trauma psychotherapies. Spitalnick, Difede, Rizzo, & Rothbaum (2009) also do a review of the trauma treatment, in which TIR is included (Spitalnick, et al., 2009; Lahad, Leykin, Rozenblat, & Fajerman, 2014).

TIR (*Traumatic Incident Reduction*)

TIR was developed by 1984 by Frank Gerbode and other colleagues such as Gerald D. French and David Mayo. This approach is part, and at the same time the most well-known and developed tool, of a school named Metapsychology. It is a brief, simple person centered and highly structured treatment (Cazabat, 2015a; French, & Harris, 1999; Gerbode, 1995, 2005b, 2006; Moore, 2005, 2008).

Among its theoretical sources we find: (a) Carl Rogers´ Person Centered approach, (b) Freud and his neurosis traumatic theory, and (c) Pavlov´s Conditioned Stimulus Theory (French, & Gerbode, 2005/2007; French, & Harris, 1999; Gerbode, 2005a, 2006; Moore, 2005; Welch, & Rothbaum, 2007).

Carl Rogers´ Person Centered approach

From Rogers is drawn the main idea, consistent in that persons count with wisdom enough about themselves to understand and change the self-concept and attitudes and have the capacity to direct their behavior. These resources may be activated by means of the

psychological facilitation context building (Lux, Motschnig-Pitrik, & Cornelius-White, 2013). TIR recognizes as an own characteristic the fact of being person centered (French, & Gerbode, 2005/2007; French, & Harris, 1999; Gerbode, 2005a, 2006; Moore, 2005; Welch, & Rothbaum, 2007).

The goal of the TIR facilitator is to provide structure, a safe context and a methodology by means of which the consultant may get to discharge the emotionally charged traumatic memories. The facilitator helps the consultant to do the job not doing other thing that providing the procedure in order the consultant could put the attention in the mental contents inspection (Gerbode, 2006).

Other Rogerian characteristic that TIR shares is the Inconditional Positive Acceptance, which means a profound respect for the person´s experience. TIR accepts the person as she is, with no judgement or demand of any kind, respecting her potential. Thus, it implies that the Rogerian therapist (as well as the TIR practitioner) doesn´t use any kind of evaluation nor interpretation (Lux, et al., 2013).

All these characteristics are bound to empower the client, promoting her development (French, & Gerbode, 2005/2007; French, & Harris, 1999; Gerbode, 2005a; Lux, et al., 2013). Likewise, the person-centered characteristic such as the inconditional positive acceptation contribute to the safe therapeutic environment building (Gerbode, 2006).

However, a central component of the Rogerian approach, the non- directivity, is not present in TIR. Non-directivity implies that the client is who provides structure to the session. On the contraire, TIR is a highly directive and structured approach (French, & Gerbode, 2005/2007; French, & Harris, 1999; Gerbode, 2005a, 2006; Moore, 2005). Directivity and structure speed up the traumatic memories processing (Gerbode, 2006).

Freud and the Neurosis Traumatic Theory

In Studies on hysteria, Freud and Breuer (1895/1992) propose the importance of external events in the hysteric symptom's genesis, and that neurosis had their origins in psychological trauma experiences.

The Freud´s hypothesis was that the hysteric patients repressed traumatic memories from consciousness. That repression was meant to avoid aversive contents and their implications. Anyway, these repressed memories weren´t erased or forgotten; instead, they were maintained out of consciousness (Kudler, Krupnick, Blank Jr., Herman, & Horowitz, 2009). They also highlighted the role of catharsis or abreaction in the repressed affects discharge (Brandell, 2012).

Afterwards, catharsis was replaced by elaboration, which required a repetitive and precise work of exploration of the dynamic process of symptoms formation (Kudler, et al., 2009).

On the other hand, a central component of Freud´s approach, the interpretation and analysis, are absolutely absent in TIR. The TIR practitioner is restricted to apply the scripted procedure, without any interpretation.

Pavlov and the Conditioned Stimulus Theory

According to the Conditioned Stimulus pavlovian theory, the temporal contiguity between an unconditioned stimulus (US) (for example, food) with a neutral stimulus (for example, a tone) transforms the latter in a conditioned stimulus (CS). That means that when presenting the CS alone, the individual responds as it were present the US (food), thus

salivating. In the same way, neutral stimuli that were present at the moment of trauma could be associated to the aversive stimuli and therefore remain set as a CS, or trigger of the traumatic response. Likewise, these new CS, in subsequent opportunities can get associated to other neutral stimuli becoming new CS or triggers of the traumatic response (French, & Harris, 1999; Gerbode, 1999; 2005b).

TIR basic assumptions

The main idea behind TIR is that many of the recurrent themes in the persons´ lifes, such as dysfunctional feelings, emotions, psychosomatic pains, attitudes or sensations have in their origin one or more traumatic experiences that remained unprocessed. The memory remains unaltered, independently whether the individual recalls it or not, and regardless the time elapsed. In this way it constitutes the basis of behaviors and responses in the present time. So, present symptoms are considered as consequences of the activation of past experiences that remained stored and inappropriately processed (French, & Gerbode, 2005/2007; French, & Harris, 1999; Gerbode, 1995, 2005b, 2006, 2006; Moore, 2005, 2008).

After having experienced a potentially traumatic event, people have the possibility of confronting completely the experience, without any repression, and being completely aware of it. In this way, a potentially traumatogenic experience remains uncharged and doesn´t become a trauma (French, & Gerbode, 2005; French, & Harris, 1999; Gerbode, 2006). To some people it is difficult to confront such an experience because of the pain, and they try to block totally or partially its awareness. The fact of not confronting the incident, or not being aware of it, provokes that the incident keeps the emotional charge, in such a way that continues to affect the emotional life of the individual. As the individual represses the incident, it keeps its emotional charge, together with the intention of not experiencing it and any other intention or activity present at that moment. In this way, they remain in the present of the person, affecting her in a negative way. These incidents have an unaccomplished and repressed intention (French, & Gerbode, 2005/2007; French, & Harris, 1999; Gerbode, 1995, 2005b, 2006; Moore, 2005, 2008). As the person tried to block the traumatic incident by not confronting it completely, that cycle remains incomplete and unconscious. When any current trigger, by similarity of contextual clues, or themes of the present, etc., activate it, the traumatic incident is re-stimulated, activating in this way the unachieved intention (French, & Gerbode, 2005/2007; French, & Harris, 1999; Gerbode, 2006). For instance, a woman that has been raped, and decided not to confront the incident and thus block it, could have made the intention of not experience any pleasure or not allowing the penetration. As the cycle remained uncompleted, the intention remains active, and, even years later, it could happen that every time that she is going to have sexual intercourse in a safe context (for example with her partner), she could not get any pleasure or not allow to get penetrated.

Sometimes, the presented complaints by people are a consequence of a traumatic incident, while other times are a consequence of an accumulation of them. The first incident of the sequence is called the *root incident*. The root incident is the primary traumatic incident, as its emotional charge comes exclusively from the incident itself. The following incidents of the sequence are called *secondary traumatic incident*s, and its emotional charge comes partly from the re-stimulation of the previous traumatic incidents (French, & Gerbode, 2005/2007; French, & Harris, 1999; Gerbode, 2006). In this way, a chain or sequence of traumatic incidents that are at the origin of the unwanted feelings, emotions,

psychosomatic pains, attitudes and sensations is built. The goal of TIR is to run throughout the incidents sequence to reach the root incident, and resolve its emotional charge (French, & Gerbode, 2005/2007; French, & Harris, 1999; Gerbode, 2006, Moore, 2005, 2008).

A traumatic incident includes the thoughts, sensations and feelings with which the person reacted at that moment, and the perceptions of the incident. All this remains present because it is not completely perceived and understood, due to the avoidance or blocking of its contents. When reviewing precisely the incident, the person gets to be completely conscious of what happened and how she reacted. In this way, she could complete the cycle of any decision or intention that have been formulated by that time. So, by reducing the emotional charge or completely eliminating it, the intention contained in the incident gets dissolved, and consequently ceasing to influence in the present (French, & Gerbode, 2005/2007; French, & Harris, 1999; Gerbode, 1995, 2006). In the precedent example of the raped women, by confronting the incident, and making it completely conscious, she also makes conscious the fact that the intention of not having any pleasure was circumscribed to the rape and should not be generalized to other safe contexts.

To reach this goal, TIR provides the opportunity to review in detail the incident, by means of repeated visualizations and recounts of the incident. Repetition is useful to: (a) get precise consciousness about a theme, (b) eliminate compulsive actions (such as those determined by unfinished intentions), and (c) reestablish skills (French, & Gerbode, 2005/2007; French, & Harris, 1999; Gerbode, 1995, 2006; Moore, 2005, 2008).

Kinds of TIR

When the person wants to work on a known traumatic incident, the procedure to be applied is called *Basic TIR*. When the person wants to work on a theme, such as unwanted feelings, emotions, psychosomatic pains, attitudes, and/or sensations, the procedure to be applied is called *Thematic TIR* (Cazabat, 2010, 2015a; Cazabat, & Kriwet, 2008; French, & Gerbode, 2005/2007; French, & Harris, 1999; Gerbode, 1995, 2006; Kriwet, 2007; Moore, 2005, 2008).

The therapist intervention is highly structured. The protocol consists in a serie of fixed questions and instructions that leads the consultant to get in contact with the traumatic incident, as well with the sensations, feelings, cognitions, etc., that it generates. The therapists doesn´t give any intervention nor interpretation. All the consultant attention must be oriented inwards, to her mental contents, to retrieve that traumatic memory, to get in contact with it, and put into words the experience. In every case, TIR sessions have no predetermined duration, and its finalization is determined by the showing up of an End Point (Cazabat, 2015a; Cazabat, Mussi, & Kremer, 2004; French, & Gerbode, 2005/2007; French, & Harris, 1999; Gerbode, 1995, 2006; Moore, 2005, 2008). The TIR protocol allows the consultant to confront completely the traumatic incident (Gerbode, 2006). The procedure is based mainly in running through the incident from beginning to end, usually with eyes closed, and later telling what she ran through. It´s very important to keep the separation between both phases, given that during the phase of *running through* (*viewing*) the person is in a receptive mode, getting in experiential contact with the incident, while in the recounting phase she is in an integrative mode, cognitively processing the viewed material in the previous phase (Gerbode, 2006).

TIR can approach unwanted feelings, emotions, psychosomatic pains, attitudes and sensations. Some examples could be: jealousy, phobias, migraines, nausea, sleep problems,

sex reject, sexual desire problems, public exposure fear, psychogenic stuttering, food rejection, etc. As the root of the problem is supposed to be in an early traumatic incident, TIR provokes a non-hypnotic regression till the root incident is reached, reduced its emotional charge, and leading in this way to its resolution (Cazabat, 2010, 2015a; Cazabat & Kriwet, 2008; French, & Gerbode, 2005; French, & Harris, 1999; Gerbode, 2006).

End Point

As the traumatic incident is reviewed over and over, lost fragments of the traumatic memory could be retrieved, catharsis can occur (sometimes very intense ones), and the account gets gradually transformed. When a detailed examination of the traumatic incident is completed by the procedure of continuous repetition, a reduction or elimination of the emotional charge is achieved, setting the person free of the negative consequences. It promotes, therefore, symptoms relief, insights, and decisions, reaching then an End Point. The End Point indicates the therapist that must end the procedure and the session (Cazabat, 2010, 2015a; Cazabat & Kriwet, 2008; Cazabat, et al, 2004; French, & Gerbode, 2005/2007; French, & Harris, 1999; Gerbode, 2005a, 2005b, 2006; Moore, 2005).

The main characteristics of an End Point are: (a) good analogic indicators (smiles, relief expressions, relief, etc.); (b) insights, or understandings; and (c) extraversion (shift of the attention from the past incident to the present or the therapist)

The consultant could also experience: (a) relief of unwanted conditions (nervousness, headaches, muscle tension); and (b) retrieved or gained skill (forgive, communication) (Cazabat, et al., 2004; French, & Harris, 1999; French, & Gerbode, 2005/2007; Gerbode, 1995, 2005b).

The End Point could be precipitated in a given moment by formulating the questions "How does this incident seem to you now? or "Did you make any decisions at the time?" (French, & Gerbode, 2005/2007; French, & Harris, 1999).

Research on TIR

TIR was formally born in 1988 with the publication of Frank Gerbode´s *Beyond Psychology: An introduction to Metapsychology* (Volkman, 2008). From that point, with the growing of TIR by means of courses and workshops, anecdotic evidence began to accumulate.

First scientific researches were made at the beginning of 1990s. Lori Beth Bisbey, in the UK, conducted an experimental study, comparing TIR and Direct Therapeutic Exposure (DTE) outcomes. Wendy Coughlin, in the USA, conducted a quasi-experimental study, with 20 patients, about the effects of TIR on anxiety and panic attacks symptoms. Both works were published in 1995 (Coughlin, 2008; Valentine, 2008; Volkman, 2008).

In 1994, Carbonell and Figley (1996, 1999) in the *Florida State University Traumatology Institute*, developed the Active Ingredients in the Treatment of Trauma Project. It consisted in a Systematic Clinical Demonstration, where three other treatments, besides TIR, were tested. This methodology doesn´t test efficacy neither does any comparation. In this study the mean duration of the TIR sessions was of 72 minutes, and all the 9 treated patients improved significative in a mean time of 254 minutes of treatment (Carbonell, 2008; Carbonell, & Figley, 1996, 1999; Wylie, 2008).

In 1997, Pamela Valentine published a study about the TIR treatment of incarcerated women in Florida.

Valentine (1995), and Valentine and Smith (1998) conducted qualitative researches with ethnographic methodology, bound to discover and expand the TIR theoretical basis. The first one was a case study. The second one consisted in telephone in deep interview, with 16 patients treated with TIR (Valentine, 2008a, 2008b).

In 1999 two books exclusively dedicated to TIR were published. Gerald French and Chris Harris published *Traumatic Incident Reduction*, while S. Bisbey y L. B. Bisbey published *Brief Therapy for Posttraumatic Stress Disorder: Traumatic Incident Reduction* (Volkman, 2008).

Odio (2003) found that TIR is an effective treatment for children and adolescents diagnosed with PTSD. Bisbey (2008) conducted a study with victims of crime diagnosed with PTSD, comparing three experimental conditions: (a) DTE, which combine imaginal flooding with progressive relaxation; (b) TIR; and (c) control group. The study was made with a sample of 57 participants. The results indicate that the group treated with TIR got better outcomes than the group treated with DTE, statistically significative. And both experimental groups got better results than the control group. As in the study only were excluded participants diagnosed with substance abuse, it was also found that DTE as well as TIR improved significative the depressive symptomatology (one of the co-morbid PTSD conditions), as well as obsessive compulsive symptomatology.

Valentine (2008a) conducted a study about the TIR effectiveness on posttraumatic symptoms in incarcerated women, victims of interpersonal violence. In all cases the treatment was of only one session. It studied not only the posttraumatic symptomatology, but also depressive and anxious symptoms, and low self-efficacy. The sample was of 123 participants. The results were favorable to TIR in the reduction of the symptomatology treated.

Descilo, Greenwald, Schmitt and Reslan, (2010) treated successfully 33 urban young at risk, and 31 minors refugees without family.

Dulen (2011) found that TIR was effective in reducing the posttraumatic symptomatology, in the treatment of 106 gender violence victims.

Recently, the SAMHSA (*Substance Abuse and Mental Health Services Administration) National Registry of Evidence-based Programs and Practices (*NREPP) after having evaluated the quality of the published researches and studies, acknowledged TIR as an evidence-based practice for PTSD, depression, anxiety and self-efficacy. The quality of researches was evaluated between 2.6 and 2.8, and its preparation for diffusion evaluated in 3.7, both in a 0-4 scale (NREPP, 2011).

Finally, a study made by one of the authors of this paper (MK) as a part of her doctoral dissertation, put on trial the TIR effectiveness in a sample of argentine Spanish speaking patients. It consisted in three single case experimental design studies (Barlow, & Hersen, 1984; Borckardt, & Nash, 2014; Byiers, Reichle, & Symons, 2012; Cazabat, 2013; Lundervold, & Belwood, 2000), which provides empirical support enough to consider TIR as probably efficacious treatment for PTSD, according to the APA criteria by Chambless et al (1996) (Kriwet, 2018).

TIR Components with empirical support

There is currently a debate in the mental health field, and in the psychological trauma treatment in particular, about whether the researches support whole treatment packs, or if the obtained evidence supports strategies and specific components that could be present in more than one given treatment approach (Ford, 2009). Bower and Gilbody

(2010) state that the field could get much more benefit by identifying principles of change than psychotherapies *trademarks*. Likewise, Rosen and Davidson, (2003, in Gaudiano, & Miller, 2013), as well as Schnyder, et al., (2015), propose that would be useful to focus in principles of change, by studying processes and strategies present in different effective treatments, identifying mechanisms of action. A treatment is said to be based in principles when it is based in generic ideas about which elements of an approach could be useful when treating a variable set that compose a painful situation (Fernández Álvarez, 2009; Schnyder, et al., 2015).

As it is detailed in the following section, many researches have contributed with evidence and support to some of the components present in the TIR procedure, as detailed below.

Repeated visualization

Fairbank and Nicholson (1987), when doing a theory review of the PTSD treatments, affirm that only approaches that include some form of direct imaginary exposure are effective. This is reinforced, among others, by Keane, Marx, Sloan, & DePrince (2011).

Grossberg and Wilson (1968, in Moore, 2005) demonstrated that repeated visualization of a fearing experience causes a significative diminishing of the physiologic response to the threatening image, evidenced by the Galvanic Skin Response (GSR). Likewise, Blundell and Cade (1980, in Moore, 2005) independentely confirmed these results using repeated visualization of anxiogenic situations, and Folkins, Lawson, Opton, and Lazarus (1968, in Moore, 2005) with terror films.

Hayman, Sommers-Flanagan and Parsons (1987) state that, by using mental imagery, the traumatized person makes a frame by frame revision of all the traumatic experience sequence. During this process, the person can remind and uncover significative thoughts and feelings related to the trauma and, consequently, the anxiety associated with the trauma gets dissipated.

According to Beck (1970, in Moore, 2005), when a person experiences an upsetting emotion (for example, shame, sadness, anxiety or disgust) associated with a situation, that emotion can, sometimes be eliminated or reduced by means of repeatedly imagining the situation. This outcome can be obtained even though the content of the fantasy doesn´t change. With each voluntary repetition in fantasy, the person become more and more capable of accurately discriminate between real and imaginary threats. The more realistic is the cognitive appraisal of the fantasy, more the threat and the anxiety get reduced. Also, Clark and Beck (2012) point that imaginary and situational exposure are crucial and powerful components of the effective PTSD treatments. This consists in presenting systematic, repeated and prolongedly XXXXXXXXX that avoided by the person because it is the anxiety and fear source. According to these authors, this mechanism modifies the fear memory structure.

Cloitre, Bryant and Schnyder, (2015), in their review about effective trauma treatment components, state that directing the attention and explicitly review the traumatic incident produce a bigger symptoms reduction than therapies that don´t do it. This is made by means of imaginary exposure, or narrative reconstruction, among other ways. This way, the person gets to resolve fear, anger, guilt, shame and other feelings, and conceptualize coherently the incident, re-signifying it.

TIR is similar to imaginal flooding, in which the consultant watches repeatedly the incident until she changes his comprehension. TIR differs from other techniques in the duration of the sessions, the lack of interpretation by the therapist, and because he follows the client choice about which incident to review (Cukor, Spitalnick, Difede, Rizzo, & Rothbaum, 2009; Spitalnick, et al., 2009; Valentine, & Smith, 2002). Implosion therapy as well as TIR have been criticized because they are techniques supposedly too harsh, provoking suffering and possible re traumatizations. However, Lyons and Keane (1989) say that it is not only appropriate but also ethic to present upsetting stimuli. Such stimuli, according to the authors, can´t do any harm by themselves. On the other hand, exposure to that stimuli also happens during spontaneous re-experimentations, which the traumatized usually must face. Implosion therapy is based in exposure to trauma reminders until anxiety gets extinguished. According to the authors, changes in images during the treatment evolve from a direct re-experimentation towards a more symbolic representation of the trauma. Likewise, Foa, Zoellner, Feeney, Hembree and Alvarez-Conrad (2002, in Hackmann, Ehlers, Speckens, & Clark, 2004) state that imaginary exposure seldom provokes symptomatology exacerbation, and when it does it, even so benefits in the long term are reached. Also, Littrell (1998, in Greenberg, 2008) says that when therapies are designed for restructuring traumatic memories, painful memories re-experimentation in therapy is therapeutic and beneficial.

Finally, Schnyder et al. (2015) conclude that imaginary exposure to traumatic memories is a component that is present in almost every trauma related treatment with empirical support.

Emotional expression. Emotional processing

The emotional processing is a key component of process as well as outcomes research in psychotherapy. However, it still remains unknown the mechanism by which emotional expression leads to change (Greenberg, 2008).

People that have a negative attitude regarding the emotional expression, and an incomplete processing of the trauma narratives, usually present health problems, PTSD in particular. Consequently, those who actively inhibit the emotional expression present more health problems (Berry, & Pennebaker, 1993 in Eid, Johnsen, & Saus, 2005).

According to Hobson, (1985, in Mahoney, 1995) the corrective emotional experiences are at the core of effective psychotherapies, independently of the theoric orientation. As well, Greenberg and Safran (1987, in Mahoney, 1995) assert that emotional expression without personal meaning doesn´t have the effectiveness of the emotional expression that have personal relevance for the person. The studies made suggest that is not useful to ask the person to act emotionally (such as hitting a cushion, or shouting. However, it is useful to make the person evoke a significative incident of her life, and express the evoked emotion (Mahoney, 1995). The emotional processing seems to be mediated by the activation, in such a way that the experience must be activated and experienced from the guts by the person (Greenberg, 2008).

Roth and Newman (1991) describe the ideal trauma resolution process as “a process that involves a reexperiencing of the affect associated with the trauma in the context of painful memories.” (p. 281). Such a process leads the person to an emotional and cognitive comprehension of the trauma meaning and the impact that have had and could lead to a symptom reduction and a successful integration of the traumatic experience.

In the imaginary exposure the person must imagine the feared situation, experiencing the fear without inhibiting it. By means of exposure to triggers and reliving the traumatic memories, a reduction in the frequency, vividness and distress provoked by intrusive memories is reached. By means of imagery, is possible to access to the emotions and modify them. In particular, memories that evoke negative emotions usually are recalled by means of images, more than semantic means. In an analog way, imagining something, more than thinking it with words, have a profound emotional impact. This is very important when considering the mechanisms of change, given that some approaches, such as cognitive behavioral therapies, are mainly verbal (Holmes, James, Blackwell, & Hales, 2011).

Kosslyn, et al. (2001, in Hackmann, Bennett-Levy, & Holmes, 2011) say that stimuli presented in a perceptual way have a stronger impact in the fear module, than evolutively more recent stimuli, such as verbal ones. During imaginary exposure, words can be said, formulating a more coherent narrative, and doing a reevaluation of the experience (Hackmann, Bennett-Levy, & Holmes, 2011)

The Lang fear structure theory (1977, in Wells, & Matthews, 2015) consists in memory networks. Such networks, according to the author, would be made of: (a) the feared stimulus situation, (b) the verbal, physiologic and behavioral responses, and (c) the information about the meaning of the stimulus and the response. Foa, & Kozak (1986) propose an emotional processing model defined as the modification of the memory structure that underlie the emotions. This model integrates elements of the learning theory with the cognitive theory, in the frame of the information processing theory. According to this model, trauma memories are impoverished and disorganized due to the fact that information processing was interrupted by the trauma itself (Cooper, Feeny, & Rothbaum., 2015). The authors formulate a fears theory and an emotional processing model. Fears are represented in networks that are stored in the long-term memory, conforming fear structures. These structures are conformed by interrelated representations of: (a) feared stimuli, (b) responses information, and (c) the meaning of information. These structures, that can be innates or learned, are activated by input information. In such a way, fear is evoked that provokes avoidance or escape. Avoidance provoked by fear doesn´t allow the learning process to take place by which the person arrives to the conclusion that the memory or the contextual clues aren´t dangerous (Cooper, et al., 2015). The strong integration between the memory and the emotion could lead that any thought about the traumatic incident, explicit or implicit, voluntary or involuntary, automatically active the associated emotions (Boals, & Rubin, 2011; Cooper, et al., 2015; Foa, & Kozak, 1986). PTSD pathologic fear is produced when there is an excessive representation in the memory of the elements of response (for example, hyperactivation) inappropriate associations between stimuli and responses (for example psychological or physiological reactions of fear associated to contextual trauma clues and not to the trauma itself) and inappropriate interpretations (such as “all men are dangerous”) (Cooper, et al., 2015).

Fear can be reduced by incorporating corrective information (Taylor, 2002). In order that process to take place, it is needed some form of feared situation exposure, which is a common characteristic of many effective anxiety disorders psychotherapies. This is known as the exposure principle. The authors propose that, if patients suffering from pathologic anxiety or fear are avoidant, psychotherapy should provide a favorable context to confronting, so producing changes in emotions (Brewin, & Holmes, 2003; Clark, &

Beck, 2012; Foa, & Kozak, 1986; Keane, Marx, Sloan, & DePrince, 2011; van Minnen, & Foa, 2006; Vorstenbosch, Newman, & Antony, 2014).

The goal of exposure, based in the learning theory extinction principle (Massad, & Hulsey, 2008), is provoking anxiety, fear or anguish, allowing that relief takes place without avoidance, escape or other means of getting calmness, and helping the patient to command her memories (and not the opposite) (Clark, & Beck, 2012).

For the emotional processing to take place, there must be two conditions: (a) the fear structure (in other words, the memory) must be activated, and the person must experience anxiety to a certain point; and (b) information incompatible with the pathologic characteristic of the memory must be incorporated, creating a new memory. If the fear remains inactivated is impossible its processing. In this way, the fear gradually diminishes during exposure sessions and between them. The fear network could be activated by means of imaginary, intern or in vivo exposure (Brewin, & Holmes, 2003; Clark, & Beck, 2012; Foa, & Kozak, 1986; Keane, Marx, Sloan, & DePrince, 2011; Schmertz, Gerardi, & Rothbaum, 2014; Vorstenbosch, Newman, & Antony, 2014).

The authors propose three emotional processing indicators: (a) the fear structure activation, (b) fear progressive drop during sessions, and (c) fear progressive drop between sessions. These three indicators are directly related with the treatment efficacy (Foa, & Kozak, 1986; Schmertz, Gerardi, & Rothbaum, 2014; Vorstenbosch, Newman, & Antony, 2014).

When there were fails in the emotional processing, it is supposed that the cause is related with the failure in the fear structure activation and/or the incorporated information was insufficiently incompatible with the elements of the structure. This may be result of the cognitive avoidance. Some of the manifestations of cognitive avoidance could be distancing from the situation, feared image distortion, directing the concentration to non-feared elements, and elements that make difficult the fear activation (Foa, & Kozak, 1986; Schmertz, Gerardi, & Rothbaum, 2014; Vorstenbosch, Newman, & Antony, 2014).

On the other hand, the quality of the attention to the inner experience (that includes affective involving, conscious and deliberate questioning of the cognitive components) is related with the therapeutic outcomes (Klein, Mathieu-Coglan, & Kiesler, 1986; Safran, & Greenberg, 1991, in Lutgendorf, & Antoni, 1999).

When evoking and reflecting the content of the event, spontaneous cognitive changes may happen. Frequently in such circumstances, the person can perceive cognitive distortions and find possible solutions. It is also frequent that this process elicits related previous experiences memories. These experiences may share meaning or sensorial similar characteristic, and frequently have a high incidence in the present. In the same way, the emotional bridge technique allows to establish connections with similar previous experiences, allowing to explore possible origins. This technique lies in, once the person totally evoked the upsetting memory, ask her if she had any similar previous emotional experience (Hackmann, Bennett-Levy, & Holmes, 2011).

According to Hackmann, Bennett-Levy, & Holmes (2011), some of the possible involved mechanisms of change in the imaginary evocation are: (a) spontaneous restructuring of meanings, (b) habituation, (c) new information introduction that brings safety, (d) opportunity for discriminate traumatic from non-traumatic events, (e) ability to maintain control while evoking traumatic memories, (f) opportunity to re-appraise trauma aspects that were originally assessed as negative, and (g) contextualization of fragmentary trauma memories, that allows a resignification. Although with different degrees of

centrality in the process, and with the possibility of happening spontaneously or proposedly during or after the process, according to Schnyder, et al. (2015) the cognitive processing, re-structuration and/or meaning attribution is a component present in all the trauma related empirical supported psychotherapies.

The reflection on the emotion allows people to find meaning to her experience, promoting its integrations to the narratives and, thus, transforming them. In this way, the therapy involves changes in the emotional experience and the related narratives (van der Kolk, 1995, in Greenberg, 2008; Greenberg, 2008). By putting words to the emotional experience, the person can reflect about emotions, create new meanings, asses her own experiences, so that the conjunction of emotional activation with the reflective exploration of the emotional meaning produces change (Greenberg, 2008).

Exposure underlying mechanisms

Repetition

The goal of exposure therapies is the fear reduction. This occurs by means of repetitive exposure to the stimulus, reactivating emotions present at the moment of trauma, in absence of the feared consequence. So, exposure makes relive and reactivate the arousal level associated with the traumatic incident, but in a predictable and safe environment. For that, one can ask the patient to recall and describe the trauma in detail. The repetition of this procedure produces the fear and anxiety extinction and the formation of new associations between the previously feared stimulus and a neutral meaning (Beutler, Bongar, & Shurkin, 1998; Meadows, & Butcher, 2005; Nezu, Nezu, & Lombardo 2006; Vorstenbosch, Newman, & Antony, 2014). The repetition allows the formulation of a trauma narrative less fragmented and more coherent (Foa, et al., 1995, in Hackmann, Bennett-Levy, & Holmes, 2011). In such a way, when activating the traumatic material, corrective information may be incorporated, and a cognitive-emotional processing may ocurr. In such conditions of recall, the person can remember aspects of the incident previously forgotten, and undercover meanings that had been kept encapsulated. Accessing verbally to the traumatic material is not as effective as the imaginary access. When accessing in an imaginary way, the material is available for reevaluation (Hackmann, Bennett-Levy, & Holmes, 2011).

According to Ehlers, Hackmann, and Michael (2004) is important that the patient make a reconstruction and elaboration of what happened during the incident. Some ways of doing it are by repeatedly reliving the incident in the imagination (Foa, & Rothbaum, 1998) and make a written recount of the incident (Pennebaker, & Francis, 1996; Pennebaker, 1993, in Lutgendorf, & Antoni, 1999; Stickney, 2010)

van der Kolk and van der Hart (1991, in Lutgendorf, & Antoni, 1999) propose that the traumatic memories reprocessing mechanism involves coming back repeatedly in an attempt of integration with preexistent mental schemes. The access to the schemes is favored by the conscious emotional experience. When the processing is superficial, and emotions are not evoked, structures remain unmodified, and change does not take place (Safran, & Greenberg, 1991, in Lutgendorf, & Antoni, 1999).

Clark and Beck (2012) say that one of the goals of the PTSD cognitive therapy is to improve the organization, coherence, integration and elaboration of the trauma memory, highlighting the processing based in trauma concepts. One of the strategies to achieve it is, contrary to the common sense, the repeated imaginary exposure to the trauma memory. Maintaining the memories repeatedly reliving them until the reduction of anxiety and anguish, helps to its processing and retake control over them. In this way, memories will

become less emotional. Finally, the authors affirm that systematic and repeated exposure, imaginary and in vivo, are effective therapeutic ingredients of cognitive therapy that produce significative and long-lasting reductions in PTSD symptoms, generalized anxiety and depression.

Constans (2005) says that persons suffering from PTSD usually present overgeneral memories in front of the presentation of key words, positive as well as neutral or negative ones, this means a category of events in place of specific memories. This means that before the key word "candle" the response would be "birthday", in place of "my 15 birthday". In this way, the job done with TIR would go in the sense of going into details would counterbalance the tendency to overgeneralize.

The role of narrative

Some authors hypothesize that traumatic experiences are stored under the form of long-term traumatic memories, and that is very important to organize an autobiographic memory, while others think that traumatic memories are fragmentary and deficient representations of the incident. In both cases, the structuration of a narrative, in a chronological order, seems to be crucial for its resolution (Lorenzzoni, et al., 2014; Megías, Ryan, Vaquero, & Frese, 2007; van der Kolk, 2014).

Talking about intrusions provoke a drop in the sensation of present, probably because of the fact that talking about them in a different context give a different temporal perspective, and the sensation of having occur in other place and time (Hackmann, Ehlers, Speckens, & Clark, 2004).

Therapies based in exposure require that the traumatized person produce a detailed narrative of the traumatic incident. Its function is to transform the traumatic memory into narrative memory (Brewin, 2005b).

The account of stressing or traumatic experiences, combining facts and emotions seems to be necessary to get long term changes (Stickney, 2010; Pennebaker, & Beal, 1986, in Lutgendorf, & Antoni, 1999).

Clark and Beck (2012) say that the modification of anxious memories begins by its detailed description. In order to get that, the authors ask the patient to make a written description, very detailed, that will serve as a basis for the repeated exposure.

According to Lutgendorf and Antoni (1999), disclosure of stressing emotional events is positively related to psychological adjustment and distress drop. Likewise, the bigger degree of involvement in the disclosure and experiencing of negative emotions contribute to major insights, that means that only linguistic expression is not enough to get a drop in negative emotions. In the same direction, O'Cleirigh, et al., (2003) found that the trauma emotional expression is related with a better health condition and immunologic system. One of the disclosure ways is by writing. One possible explanation of its effect is that the act of expressing leads to a cognitive structuring of the experience (Pennebaker, 1993, in Lutgendorf, & Antoni, 1999; Pennebaker, & Francis, 1996), given that persons try to produce coherent and comprehensible contents (Clark, 1993, in Lutgendorf, & Antoni, 1999). This way, cognitions and feelings related with the experience are reorganized and integrated.

One of the ways of processing traumatic experiences and that improve health in several aspects, is by talking or writing about the experience. This can help reorganize and assimilate negative emotionally experiences (Harber, & Pennebaker, 1992, in Eid, et al., 2005). At the same time, those who face their traumatic memories, resolve better stressing

experiences (Pennebaker, 1985, 1990, 2000; Pennebaker, & Beall, 1986, in Eid, et al., 2005; Stickney, 2010). Mc Nally, et al. (1996, in Clark, & Beck, 2012) add that repetition can make fade the effect of trauma.

A goal of the trauma psychotherapy is helping the person to develop a coherent narrative. This narrative must begin before the incident and finish after it, when the person is safe again. Moreover, this narrative must put the trauma memory elements in context, and in chronologically order and in the past (Clark, & Ehlers, 2004). On the other hand, as the person suffering from PTSD progress in her therapy, narratives of trauma become more organized and coherent (Berry, & Pennebaker, 1993, in Eid, Johnsen, & Saus, 2005). According to Pennebaker (in King, & Holden, 1998) the fact of formulating a coherent and significative narrative is therapeutic, even in the case that the document is not shared with anyone. The crucial point seems to be the integration of cognitive aspects with emotional ones, given that writing about thoughts without considering emotions, or writing about emotions without analyzing the trauma, seems to have no benefit (King, & Holden, 1998). The only experience of trauma without the translation of this experience to language doesn´t have beneficial effects. The translation of the experience to language itself, changes the experience (Pennebaker, & Chung, 2007, in De Giacomo, L'Abate, Pennebaker, & Rumbaugh, 2010).

Among the techniques that the authors suggest, there is writing in detail the facts, and relive the event vividly, and, simultaneously what the person is experiencing and thinking. The latter usually promotes the recall of forgotten fragments of the event, so it is particularly useful to put them in context (Clark, & Ehlers, 2004).

Although with different names, the structuration of a coherent narrative and the reorganization of the memory seem to be a central process in the psychological trauma treatment (Schnyder, et al., 2015)

Pennebaker (1993, in Clark, & Beck, 2012) support the idea that an important phase of the natural response to trauma consists in thinking and talking about the incident immediately after it has occurred, and that they are an important part of the adaptation process. Both components, thinking and talking about the trauma, are at the core of the TIR procedure. It could be seen as if the TIR procedure replaces that natural mechanisms that failed or didn´t exist at all, eliciting that natural response and the processing. As stated previously, the fact of expressing leads to structure the experience cognitively (Pennebaker, & Francis, 1996; Pennebaker, 1993, in Lutgendorf, & Antoni, 1999), given that people try to produce coherent and understandable contents (Clark, 1993, in Lutgendorf, & Antoni, 1999). This way, cognitions and feelings related to the experience get reorganized and integrated. On the other hand, Berkowitz, and Troccoli (1990, in Lutgendorf, & Antoni, 1999) affirm that identifying emotions reduce the perceived intensity of them. Thus, making a story of a stressing incident, identifying the experienced emotions, would allow simultaneously its cognitive restructuration, the integration with related emotions, and the drop of the emotions perceived intensity, as the person gains the sensation of control over the emotional experience.

Moreover, PTSD autobiographic memories are characterized by details amnesia, with gaps or vague and/or unclear details (Brewin, 2005a). During TIR procedure amnesic fragments are retrieved and details get more accurate, completing in such way a more coherent narrative (Clark, & Beck, 2012; Krans, Naring, Holmes, & Becker, 2009; Lorenzzoni, et al., 2014; Schmertz, Gerardi, & Rothbaum, 2014).

As said previously, memories of trauma haven´t the same level of organization and elaboration as normal ones, given that don´t get integrated with the previous and later experiences context and information in a properly way. They lack temporal perspective. Because of that, intentional recall of the event memory is usually unarticulated and unconnected, for instance, altering the chronology, or, when retrieving upsetting information, the person may be unable of retrieving previous and posterior information that could correct the impressions and predictions made during the incident (Ehlers, Hackmann, & Michael, 2004). Some of the TIR protocol instructions, such as "have you made any decision at the moment of the incident?" or "What do you think about the incident now?" (that can be used to precipitate an End Point) could help to put in temporal context the incident and the intentions present at the moment of the incident, differentiating it from the present context.

According to some studies cited by Steinmetz and Kensinger (2010), those persons who reported more fragmented memories immediately after the trauma, suffered form more severe PTSD symptoms later. Consequently, the repetition characteristic of the TIR procedure may help defragment memories, integrating them into a narrative.

The trauma film paradigm

The trauma film paradigm is an experimental study model about intrusive memories. It takes trauma films as analogous of trauma. (Deeprose, Zhang, DeJong, Dalgleish, & Holmes, 2012; Holmes, et al., 2011; Krans, Woud, Naring, Becker, & Holmes, 2010). Given that it would be ethically unacceptable to expose people to traumatic events, this model allows to study the flashbacks formation in healthy participants, to test diverse experimental hypothesis. This paradigm has been proved to induce negative emotions, distress, dissociation and intrusive memories of the film, as well as other symptoms similar to PTSD. In this way, this paradigm provides an analogous of real trauma useful for their study (Holmes, & Bourne, 2008).

Flashback memories are supposed to be caused by the type of information codification at the trauma moment. In these cases, the processing is mainly visual, and thus, mainly sensorial and emotional more than verbal. Lack of conceptual frame makes difficult its integration in the autobiographic memory. This kind of memories are more difficult to recall in a voluntary way, and more prone to be intrusive. This was supported, partially, by neuroimages studies (Clark, Mackay, & Holmes, 2014; Krans, Naring, Holmes, & Becker, 2009). Likewise, the visualization of emotionally charged films that provokes memories analogous to flashbacks, provoke a different activation in brain than those that don´t provoke flashbacks.

There are several kinds of experimental manipulation in the trauma film paradigm studies. The kind of study related to the present work is the experimental manipulation of the cognitive peritraumatic processing (Holmes, & Bourne, 2008).

The interference in the conceptualization process during the codification of an aversive film increased the intrusive memories (Holmes, & Bourne, 2008; Krans, Naring, Holmes, & Becker, 2009). Also, according to Halligan, et al. (2002, in Holmes, & Bourne, 2008) those persons that process mainly in a conceptual way, had less intrusions than those that process mainly in a perceptual way. Krans, Naring, Holmes and Becker (2009) found that, after viewing an aversive film of traumatic content, those persons that answered a memory test, made with the goal that the participants run the film in a detailed and structured way, had significative less intrusions, than those who didn´t had the test. The

authors suppose that this intervention makes that the memory of the film gets integrated better in the autobiographic memory.

These studies provide evidence that tasks that help the verbal processing of the experience, by means of confronting strategies as well as conceptual processing, decrease intrusions (Holmes, & Bourne, 2008).

The role of willingness

A possible explanation of the TIR mechanism of action (French, & Harris, 1999) would come from the existent differences between the retrieving of the implicit and explicit memory (Cazabat, 2015b). This component would be present in other effective therapies such as Cognitive Behavioral Therapy, Thought Field Therapy (Callahan, 1996), and EMDR (Shapiro, 2001). From the view of the Dual Attention Theory (Lee, Taylor, & Drummond, 2006; Shapiro, 2001), that could be common to the therapies above mentioned, the fact of maintaining the attention in the past trauma and simultaneously in the emotions, sensations and thoughts provoked by the recall in the present, would contribute to the memory integration and contextualization. The implicit memory is involuntary, reflex, ascendant, while the spatial memory is recalled in a voluntary way, and is descendent (Kandel, 2008). This means that, while the spontaneous retrieving of traumatic memories (flashbacks, v.gr.) are produced in the systems that involve the implicit memory with ascendant sense, the deliberate recall, that are shown in the imaginal exposure of the mentioned therapies, is descendent and involves the explicit memory with the hippocampus intervention.

Some authors (Ehlers, 2010) say that deficits in the coding of traumatic memories provoke difficulties in the intentional recall of them. Persons suffering from PTSD usually present problems with the chronology of the event, may have gaps in their memories, or could have problems when retrieving important details for the meaning or the event. The disarticulation between the memories of the worst moment of the trauma and other autobiographic memories that could put the trauma in perspective and would give meaning, keeps the sensation of threat and re-experimentation. The way in which people interpret the trauma influences its evolution (Ehlers, 2010; Ehlers, Hackmann, & Michael, 2004; Kleim, Wallott, & Ehlers, 2008; Lorenzzoni, Silva, Poletto, Kristensen, & Gauer, 2014).

Moreover, the person must get in contact deliberately with the trauma reminders. Some treatments (Foa, & Rothbaum, 1998), besides TIR, require that the patient repeat the procedure many times till the fear decreases. Thus, the procedure of the exposure therapy involves eliciting involuntary traumatic images, while the patient put consciously her attention in them. That would provoke that, firstly, the fear gets excited, and gets modulated while getting in context.

The voluntary recall of memories is a goal-oriented process that requires executive control to initiate and monitor the search. On the contrary, the involuntary recall is an associative process that requires few executive control interventions and few cognitive works. A crucial difference between both is that the voluntary recall involves a search of descriptions in the autobiographic memory and elaborated during the retrieving process. On the contrary, involuntary recall is an associative process triggered by contextual cues without conscious control of the retrieving process. The exposure that occurs spontaneously is characterized by being unpredictable, nonsystematic, brief (this implies a defeat perception), infrequent, sporadic, and the threat results exaggerated, safety is ignored,

triggers anxiety and the efforts to control it, and promotes avoidance and escape. On the contrary, therapeutic exposure is expected, planned, systematic, prolonged, frequent, repeated, the degree of threat is assessed, and information about safety is incorporated, promotes bigger tolerance to anxiety and less efforts to control it, and, finally, eliminates avoidance and escape (Clark, & Beck, 2012)

During voluntary retrieving, emotional re-appraisals of the event may be made, while is less feasible that it happens during spontaneous recall, due to the fact that it is unexpected. On the contrary, in the case of voluntary retrieving, an emotional regulation during the searching and description construction process may happen (Berntsen, 2012).

In this sense, the TIR instructions could help transforming the spontaneous narrative into something controlled and, thus, voluntary. In the first place, the therapist educates the consultant about the procedure, by giving her a guideline about how to begin to take control over the memory. With the application of the procedure itself, the consultant learns how to dominate voluntarily the memory retrieving. The repetition of the procedure could be interpreted, in the Revised Dual Representation Theory terms, as a way of strengthening the contextual representation (C-reps) and its association with the sensory-bound representation (S-reps) that correspond with the traumatic memory, allowing its appraisal in the appropriate context. When in first place, the consultant must run the traumatic incident silently, she connects with the S-rep, and when putting it into words, she connects with the C-rep. The repetition of the procedure would favor a stronger coding, and the association of the C-rep with the S-rep.

In the same way, when the consultant can´t get to connect with the emotions experienced during the incident (S-reps), the questions of the protocol ("do you remember any sensation, something that has been told?") may provoke the connection with the correspondent S-rep, putting in motion the process.

In this way, the fact that the TIR procedure makes the consultant run and tell the incident from the beginning to the end, can be interpreted as a way of connecting the traumatic memory with the previous and posterior contexts, this means with the times when the trauma had not occurred yet, or had already ended. In this way, a safe context would be set, anchoring the traumatic memory to the context where there is no trauma, helping to establish an adaptive network with the non-traumatic data.

The HERA model (*Hemispheric Encoding/Retrieval Asymmetry Model*) affirm that while the left hemisphere is specialized in the coding of the episodic memory, the right hemisphere is specialized in the decoding of the episodic memory (Habib, Nyberg, & Tulving, 2003; Tulving, Kapur, Craik, Moscovitch, & Houle, 1994, in Propper, & Christman, 2008). Many studies with neuroimages have supported this model (Habib, et al., 2003; Propper, & Christman, 2008).

In that terms, and accepting that the decoding of traumatic memories, as stated previously, is more disorganized, fragmented, scarcely elaborated and integrated in the context, time and space, and in relation with other autobiographic memories, with amnesia of details, with gaps or vague details (Brewin, 2005a, 2011; Clark, & Beck, 2012; Constans, 2005; Keane, Marx, Sloan, & DePrince, 2011; Lorenzzoni, et al., 2014), could be interpreted that the TIR procedure repetition, alternating the running through de incident with the telling, would stimulate the interhemispheric communication. A similar explanation is adopted as an explanatory hypothesis of the EMDR mechanisms of action (Cazabat, 2015b; Shapiro, 1995, 2001), that consist in that horizontal eye movements increase the communication between the brain hemispheres (Propper, & Christman, 2008).

Abreaction and synthesis

Even though TIR is not a procedure mainly cathartic, during its application catharsis could happen, sometimes intense ones (Gerbode, 1995, 2005b, 2006; Moore, 2005). When deeply evoked the images of the incident, emotional reactions more intense than expected may happen (Hackmann, Bennett-Levy, & Holmes, 2011). The abreactions must be differentiated from similar phenomena, as flashbacks and spontaneous re-experimentations, with no control, that doesn´t achieve any discharge (Putnam, 1989, in Van der Hart, & Brown, 1992). Braun (1986, in Van der Hart, & Brown, 1992) warns about the inappropriate use of abreaction, that only should be allowed in a controlled, planned and safe environment. Besides of tensional and emotional discharge, the modern approaches to abreaction or catharsis include the control and cognitive change. The only abreaction, without that ingredients could be retraumatizing, and is contraindicated (ISSTD, 2011).

Beutler, Clarkin and Bongar (2000, in Greenberg, 2008), found that the emotional intensity of sessions is a strong predictor of the therapy outcome, though that effect is mediated by the therapeutic alliance. The emotion must be experienced in order to the processing have place (Warwar, 2003, in Greenberg, 2008). Also, the rage expression in the treatment of depression and sexual abuse was observed as effective (Beutler et al., 1991; Van Velsor & Cox, 2001, in Greenberg, 2008).

The mechanism of change, then, is the repeated access to the traumatic material, and the reassociation and integration of the fragmented elements, conforming a coherent and understandable narrative (ISSTD, 2011; Van der Hart, & Brown, 1992; Van der Hart, Steele, Boon, & Brown, 1993). The integration of traumatic memories consists in making connection between aspects of the experience that had been dissociated, such as the sequence of the event, the emotions, the physiologic and somatic representations of the experience, so the person gets a cognitive conscious and a comprehension of her role as well as the other actors of the event (ISSTD, 2011). During TIR, emotional discharges, in such cases, are controlled by the instructions and rules of facilitation.

The End Point, characterized by (a) analogic good indicators, (b) comprehension or insights, and (c) extraversion (getting out of the incident and orienting towards the present) will be indicators of the synthesis made.

The question of the protocol that helps to precipitate the End Point, “what does the incident seem now?” would give a temporal perspective. This would help a cognitive resignification or restructuration, putting the incident in the past, helping to assess the incident in the temporal context, after having achieved by means of the procedure repetition, the association of the S-rep with the C-rep, and it strengthen.

Ehlers, Hackmann and Michael, (2004) describe the difficulties of the traumatized persons to retrieve the information posterior to the trauma, that would correct the impressions and predictions made during the event. The other question that can be asked to precipitate the End Point, “did you make any decision at the moment of the incident?”, in addition of favoring the temporal perspective, connects with the dysfunctionality of the present, and may help to connect with the predictions made during the event, putting in evidence the temporal context in which they were made, different from the present context.

Conclusions

As it was documented in this paper, the main principles in which TIR is based have enough empirical support. According to Figley (2003), as TIR shares the main theoretical

principles and components with other therapies that have been put on trial and demonstrated their effectiveness, so TIR should be considered validated and effective., Anyway, even though there is growing evidence to consider TIR as an effective treatment for trauma and other conditions, more research is needed.

References

Barlow, D., & Hersen, M. (1984). *Single case experimental designs. Strategies for studying behavior change* (2nd. ed.). N. Y.: Pergamon.

Berntsen, D. (2012). Spontaneous recollections: involuntary autobiographical memories are a basic mode of remembering. In D. Berntsen y D. C. Rubin (Eds.). Understanding Autobiographical Memory. Theories and approaches (pp. 290-310). NY: Oxford University Press.

Beutler, L. E., Bongar, B, & Shurkin, J. N. (1998). *Am I crazy, or is it my shrink?* N. Y.: Oxford University Press.

Bisbey, L. B., (2008). No longer a victim: A treatment outcome study for crime victims with PTSD. In V. R. Volkman (Ed.). *Traumatic Incident Reduction: Research and Results (2nd. ed.)* (pp. 23-30). Ann Arbor, MI: Loving Healing Press.

Boals, A., & Rubin, D. C. (2011). The Integration of Emotions in Memories: Cognitive-Emotional Distinctiveness and Posttraumatic Stress Disorder. *Applied Cognitive Psychology, 25*(5): 811–816. doi: http://dx.doi.org/10.1002/acp.1752.

Borckardt, J. J., & Nash, M. R. (2014). Making a contribution to the clinical literature: time-series designs. In M. R. Nash, & A. J. Barnier (Eds.), *The Oxford handbook of hypnosis theory, research and practice* (pp. 727-744). NY: Oxford University Press.

Bower, P., & Gilbody, S. (2010). The current view of evidence and evidence-based practice. In M. Barkham, G. E. Hardy, & J. Mellor-Clark (Eds), *Developing and delivering practice-based evidence: a guide for the psychological therapies* (pp. 3-20). West Sussex, UK: Wiley.

Brandell, J. R. (2012). Psychoanalytic Theory (Part I). In S. Ringel, & J. R. Brandell (eds.) *Trauma: contemporary directions in theory, practice, and research*, (pp. 41-61). Thousand Oaks, Ca: Sage.

Brewin, C. R. (2005a). Encoding and Retrieval of Traumatic Memories. In J. J. Vasterling, & C. R. Brewin (Eds.). *Neuropsychology of PTSD: biological, cognitive, and clinical perspectives* (pp. 131-150). N. Y.: Guilford.

Brewin, C. R. (2005b). Implications for Psychological Intervention. In J. J. Vasterling, & C. R. Brewin (Eds.). *Neuropsychology of PTSD: biological, cognitive, and clinical perspectives* (pp. 271-291). N. Y.: Guilford.

Brewin, C. R., & Holmes, E. A. (2003). Psychological theories of posttraumatic stress disorder. *Clinical Psychology Review 23, 3*, 39–376.

Byiers, B. J., Reichle, J., & Symons, F. J. (2012). Single-subject experimental design for evidence-based practice. *American Journal of Speech-Language Pathology, 21*(4), 397-414. doi: http://dx.doi.org/10.1044/1058-0360(2012/11-0036)

Carbonell, J. (2008). Active ingredients study: preliminary findings. In V. R. Volkman (Ed.). *Traumatic Incident Reduction: Research and Results (2nd. ed.)* (pp. 65-73). Ann Arbor, MI: Loving Healing Press.

Carbonell, J. L., & Figley, C. (1996). A systematic clinical demonstration methodology: A collaboration between practitioners and clinical researchers. *Traumatology, 2*(1), doi: http://dx.doi.org/10.1177/153476569600200101

Carbonell, J. L., & Figley, C. (1999). A systematic clinical demonstration of promising PTSD treatment approaches. Traumatology, 5(1), 6. http://dx.doi.org/10.1177/153476569900500106

Cazabat, E. H. (2010). Un caso de tartamudez de origen traumático abordado con TIR. [A case of stuttering of traumatic origin treated with TIR]. *Revista de la Asociación de Psicoterapia de la República Argentina, 3*(2). Retrieved http://apra.org.ar/revistadeapra/pdf/Noviembre_10/_Cazabat_art.pdf

Cazabat, E. H. (2013). De clínico a investigador: La aplicación de diseños experimentales de caso único al contexto clínico. [From clinician to researcher; the application of single case experimental designs to the clinical context]. *Revista Argentina de Clínica Psicológica, 22*(3), 239-248.

Cazabat, E. H. (2015a*).* Abordajes innovadores en el tratamiento del trauma psicológico. EMDR, TIR, Terapias Basadas en la Energía. [Innovative approaches in the treatment of psychological trauma. EMDR, TIR, Energy Based Therapies]. En B. S. Kerman (ed.). *Nuevas Ciencias de la Conducta. Las herramientas del cambio* [New behavioral sciences. The change tool] (pp. 399-416). Bs. As.: Universidad de Flores.

Cazabat, E. H. (2015b). *El papel de la estimulación auditiva bilateral alternada en el procesamiento de los recuerdos traumáticos y la efectividad de EMDR [The role of alternated bilateral auditory stimulation in the processing of traumatic memories and the effectiveness of EMDR]*. Unpublished Doctoral dissertation. Pontificia Universidad Católica Argentina Santa María de los Buenos Aires.

Cazabat, E. H., & Kriwet, M. R. C. (2008). Tratamiento para los dos extremos del abuso [Treatment for both ends of abuse]. In D. Mosca, E. H. Cazabat, & R. O. Lescano (Eds.). *IX Congreso de Estrés Traumático [IX Traumatic Stress Congress]* (pp.115-120). Bs. As.: Akadia.

Cazabat, E. H., Mussi, C. M., & Kremer, M. (2004). TIR: completar la narrativa para aliviar los sufrimientos [TIR: completing the narrative to alleviate sufferings]. In G. Piperno et al. *Las psicoterapias como camino [Psychotherapies as a way]* (pp. 45-56). Bs. As.: Ricardo Vergara Ediciones.

Chambless, D., Sanderson, W., Shoham, V., Johnson, S., Pope, K., Crits-Shristoph, P.,... & McCurry, S. (1996). An update on empirically validated therapies. *The clinical psychologist, 49*(2), 5-18.

Clark, D. A., & Beck, A. T. (2012). *Terapia cognitiva para trastornos de ansiedad. Ciencia y práctica [Cognitive therapy for anxiety disorders. Science and practice]*. Bilbao: Desclée de Brouwer.

Clark, D. A., & Ehlers, A. (2004). Posttraumatic Stress Disorder from Cognitive Theory to therapy. In R. L. Leahy (Ed.) *Contemporary cognitive therapy: theory, research, and practice*, (pp. 141-160). NY: Guilford.

Clark, I. A., Mackay, C. E., & Holmes, E. A. (2014). Low emotional response to traumatic footage is associated with an absence of analogue flashbacks: An individual

participant data meta-analysis of 16 trauma film paradigm experiments. *Cognition and Emotion*, 1-12. doi: http://dx.doi.org/10.1080/ 02699931.2014.926861

Cloitre, M., Bryant, R. A., & Schnyder, U. (2015). What Works for Whom? In U. Schnyder, & M. Cloitre (Eds.). *Evidence Based Treatments for Trauma-Related Psychological Disorders: A Practical Guide for Clinicians* (pp.499-512). N. Y.: Springer. doi: http://dx.doi.org/10.1007/978-3-319-07109-1

Constans, J. I. (2005). Information-Processing Biases in PTSD. In J. J. Vasterling & C. R. Brewin (Eds.). *Neuropsychology of PTSD: biological, cognitive, and clinical perspectives* (pp. 105-130). N. Y.: Guilford.

Cooper, A. A., Feeny, N. C., & Rothbaum, B. O. (2015). Clinical aspects of trauma-related anxiety and posttraumatic stress disorder. In K. J. Ressler, D. S. Pine, & B. O. Rothbaum (Eds.). *Primer on Anxiety Disorders. Translational Perspectives on Diagnosis and Treatment* (pp. 135-149). N. Y.: Oxford University Press.

Coughlin, W. (2008). TIR and anxiety symptomatology. In V. R. Volkman (Ed.). *Traumatic Incident Reduction: Research and Results (2nd. ed.)* (pp. 51-56). Ann Arbor, MI: Loving Healing Press.

Cukor, J., Spitalnick, J., Difede, J. A., Rizzo, A., & Rothbaum, B. O. (2009). Emerging treatments for PTSD. *Clinical Psychology Review, 29(8), 715-726.* doi: http://dx.doi.org/10.1016/ j.cpr.2009.09.001

De Giacomo, P., L'Abate, L., Pennebaker, J. W., & Rumbaugh, D. (2010). Amplifications and Applications of Pennebaker's Analogic to Digital Model in Health Promotion, Prevention, and Psychotherapy. *Clinical Psychology and Psychotherapy, 17,* 355–362. doi: http://dx.doi.org/10.1002/cpp.706

Deeprose, C., Zhang, S., DeJong, H., Dalgleish, T., & Holmes, E. A. (2012). Imagery in the aftermath of viewing a traumatic film: Using cognitive tasks to modulate the development of involuntary memory. *Journal of behavior therapy and experimental psychiatry, 43*(2), 758-764. doi: http://dx.doi.org/10.1016 /j.jbtep.2011.10.008

Descilo, T., Greenwald, R., Schmitt, T. A., & Reslan, S. (2010). Traumatic incident reduction for urban at-risk youth and unaccompanied minor refugees: Two open trials. *Journal of Child and Adolescent Trauma, 3*(3), 181-191. doi: http://dx.doi.org/10.1080/ 19361521.2010.495936

Dulen, S. B. (2011). Treatment of trauma for Latina and African American survivors of intimate partner violence dissertation]. Available in PILOTS: Published International Literature On Traumatic Stress. (882093591; 93048). Retrieved http://search.proquest.com/docview/ 882093591?accountid=28179

Eid, J., Johnsen, B. H., & Saus, E.-R. (2005). Trauma narratives and emotional processing. *Scandinavian Journal of Psychology, 46,* 503–510. doi: http://dx.doi.org/10.1111/ j.1467-9450.2005.00482.x

Ehlers, A. (2010). Understanding and Treating Unwanted Trauma Memories in Posttraumatic Stress Disorder. *Journal of Psychology, 218*(2), 141–145. doi: http://dx.doi.org/10.1027/0044-3409/a000021

Ehlers, A., Hackmann, A., & Michael, T. (2004). Intrusive re-experiencing in post-traumatic stress disorder: Phenomenology, theory, and therapy. *Memory, 12*(4), 403-415.

Fairbank, J. A., & Nicholson, R. A. (1987). Theoretical and empirical issues in the treatment of post-traumatic stress disorder in Vietnam veterans. *Journal of Clinical Psychology, 43*(1), 44-55.

Fernández Álvarez, H. (2009). Entrevista a Héctor Fernández Álvarez [Interview to Héctor Fernández Álvarez]. *Revista Latinoamericana de Ciencia Psicológica, 1*(1). Retrieved from http://www.psiencia.org/index.php/psiencia/article/view/6/25

Figley, C. (2003). El tratamiento del estrés traumático. Una perspectiva basada en la teoría [The treatment of traumatic stress. A perspective based in theory]. *Revista de Psicotrauma para Iberoamérica, 2*(1), 4-13.

Foa, E. B., Keane, T., & Friedman, M. (2000). Guidelines for Treatment of PTSD. *Journal of Traumatic Stress, 13*(4), 539-588. doi: http://dx.doi.org/10.1023/A:1007802031411

Foa, E. B., & Kozak, M. J. (1986). Emotional processing of fear: exposure to corrective information. *Psychological bulletin, 99*(1), 20-35.

Ford, J. D. (2009). Posttraumatic Stress Disorder. Science and practice. N. Y.: Elsevier.

French, G. D., & Gerbode, F. A. (2007). *TIR. Taller de Reducción de Incidente Traumático [TIR Traumatic Incident Reduction Workshop]*. (Translated by E. H. Cazabat), Traumatic Incident Reduction Workshop reprint, 2005 (5a. ed). Ann Arbor, MI: AMI Press.

French, G. D., & Harrys, C. (1999). *Traumatic incident reduction*. Boca Ratón, FL: CRC.

Freud, S. (1895/1992). Estudios sobre la histeria [Studies on hysteria]. In S. Freud, *Obras completas, vol. II*. Bs. As.: Amorrortu.

Gaudiano, B. A., & Miller, I. W. (2013). The evidence-based practice of psychotherapy: Facing the challenges that lie ahead. Clinical Psychology Review, 33(7), 813–824. doi: http://dx.doi.org/10.1016/j.cpr.2013.04.004

Gerbode, F. A. (1995). *Beyond Psychology. An introduction to Metapsychology* (3rd. ed.). Menlo Park, CA: IRM Press.

Gerbode, F. A. (2005a). Applied Metapsychology: Therapy or Personal Grouwth? In V. R. Volkman (Ed.). *Beyond Trauma. Conversations on Traumatic Incident Reduction* (2nd. ed.) (pp. 276-281). Ann Arbor, MI: Loving Healing Press.

Gerbode, F. A. (2005b). Critical issues in trauma resolution. In V. R. Volkman (Ed.). *Beyond Trauma. Conversations on Traumatic Incident Reduction* (2nd. ed.) (pp. 1-22). Ann Arbor, MI: Loving Healing Press.

Gerbode, F. A. (2006). Traumatic incident reduction: A person-centered, client-titrated exposure technique. *Journal of Aggression, Maltreatment and Trauma, 12*(1-2), 151-167. doi: http://dx.doi.org/10.1300/J146v12n01_08

Greenberg, L. S. (2008). The Clinical Application of Emotion in Psychotherapy. In M. Lewis, J. M. Haviland-Jones, & L. F. Barrett (Eds.). *Handbook of emotions* (3rd. Ed), (pp. 88-101). N. Y.: Guilford.

Habib, R., Nyberg, L., & Tulving, E. (2003). Hemispheric asymmetries of memory: the HERA model revisited. *Trends in Cognitive Sciences, 7*(6), 241-245. doi: http://dx.doi.org/10.1016/S1364-6613(03)00110-4

Hackmann, A., Bennett-Levy, J., & Holmes, E. A. (2011). *Oxford Guide to Imagery in Cognitive Therapy*. N. Y.: Oxford University Press.

Hackmann, A., Ehlers, A., Speckens, A., & Clark, D. M. (2004). Characteristics and content of intrusive memories in PTSD and their changes with treatment. *Journal*

of traumatic stress, 17(3), 231-240. doi: http://dx.doi.org/10.1023/B:JOTS.0000029266.88369.fd

Hayman, P. M., Sommers-Flanagan, R., & Parsons, J. P. (1987). Aftermath of violence: posttraumatic stress disorder among Vietnam veterans. *Journal of Counseling and Development*, 65, 363-366.

Holmes, E. A., & Bourne, C. (2008). Inducing and modulating intrusive emotional memories: A review of the trauma film paradigm. *Acta Psychologica, 127*(3), 553-566.

Holmes, E. A., James, E. L., Blackwell, S. E., & Hales, S. (2011). They flash upon that inward eye. *The psychologist, 24*(5), 340-343.

International Society for the Study of Trauma and Dissociation (2011): Guidelines for Treating Dissociative Identity Disorder in Adults, Third Revision. *Journal of Trauma & Dissociation, 12*(2), 115-187. doi: http://dx.doi.org/10.1080/15299732.2011.537247

Kandel, E. (2008). *En busca de la memoria. El nacimiento de una nueva ciencia de la mente [In search of memory. The emergence of a new science of mind]*. Bs. As.: Katz.

Keane, T. M., Marx, B. P., Sloan, D. M., & DePrince, A. (2011). Trauma, Dissociation, and Post-traumatic Stress Disorder. In D. H. Barlow (ed,). The Oxford handbook of clinical psychology (pp. 364-391). N. Y.: Oxford University Press.

King, D. J., & Holden, J. M. (1998). Disclosure of Trauma and Psychosomatic Health: An Interview with James W. Pennebaker. *Journal of Counseling & Development, 76*, 118-123.

Kleim, B., Wallott, F., & Ehlers, A. (2008). Are Trauma Memories disjointed from other Autobiographical Memories in Posttraumatic Stress Disorder? An experimental investigation. *Behavioural and Cognitive Psychotherapy, 36*, 221–234. doi: http://dx.doi.org/10.1017/S1352465807004080

Krans, J., Woud, M. L., Naring, G., Becker, E. S., & Holmes, E. A. (2010). Exploring Involuntary Recall in Posttraumatic Stress Disorder from an Information Processing Perspective. Intrusive Images of Trauma. In J. H. Mace (Ed.). *The Act of Remembering. Toward an Understanding of How We Recall the Past* (pp. 311-336). West Sussex, UK: Blackwell. doi: http://dx.doi.org/10.1002/9781444328202

Krans, J., Naring, G., Holmes, E.A., & Becker, E.S. (2009). Tell me more: can a memory test reduce analogue traumatic intrusions? *Behaviour Research and Therapy, 47*(5), 426-430. doi: 10.1016/j.brat.2009.01.009

Kriwet, M. R. C. (2007). A propósito de un caso: Tratamiento de una niña abusada sexualmente [Concerning a case: the treatment of a sexually abuse child]. *SASH Sociedad Argentina de Sexualidad Humana, 20*(1), 13-17.

Kriwet, M. R. C. (2018). Efectividad del TIR en el tratamiento del trauma psicológico [Effectiveness of TIR in the treatment of psychological trauma]. Unpublished doctoral dissertation. Universidad de Flores.

Kudler, H. S., Krupnick, J. L., Blank Jr., A. S., Herman, J. L., & Horowitz, M. J. (2009). Psychodynamic Therapy for Adults. In E. B. Foa, T. M. Keane, M. J. Friedman, & J. A. Cohen (Eds.). *Effective Treatments for PTSD. Practice Guidelines from the International Society for Traumatic Stress Studies* (2nd. Ed.), (pp. 346-369). N. Y.: Guilford.

Lahad, M., Leykin, D., Rozenblat, O., & Fajerman, Z. (2014). Exploring the Efficacy of Anxiety and PTSD Therapeutic Techniques and Protocols in practice during ongoing Terrorism: Evidence from a Focus Group Research. *International Journal of Social Work, 1*(1), 49-69. doi: http://dx.doi.org/10.5296/ijsw.v1i1.5289

Le Doux, J. (1999). *El cerebro emocional [The emotional brain]*. Bs. As.: Planeta

Lee, C. W., Taylor, G., & Drummond, P. D. (2006). The active ingredient in EMDR: is it traditional exposure or dual focus of attention? *Clinical Psychology and Psychotherapy, 13*, 97–107. doi: http://dx.doi.org/10.1002/cpp.479

Lorenzzoni, P. L., Silva, G. L. T., Poletto, P. M., Kristensen, H. C., & Gauer, G. (2014). Autobiographical Memory for Stressful Events, Traumatic Memory and Post Traumatic Stress Disorder: A Systematic Review. *Avances en Psicología Latinoamericana, 32*(3), 361-379. doi: http://dx.doi.org/10.12804/apl32.03.2014.08

Lutgendorf, S. K., & Antoni, M. H. (1999). Emotional and cognitive processing in a trauma disclosure paradigm. *Cognitive Therapy and Research*, *23*(4), 423-440.

Lundervold, D. A., & Belwood, M. F., (2000). The best kept secret in counseling: Single-case (N=1) experimental designs. *Journal of Counseling and Development, 78*(1), 92-102. doi: http://dx.doi.org/10.1002/j.1556-6676.2000.tb02565.x

Lux, M., Motschnig-Pitrik, R., & Cornelius-White, J. H. (2013). The Essence of the Person-Centered Approach. In J. H. Cornelius-White, R. Motschnig-Pitrik, & M. Lux (Eds.). *Interdisciplinary handbook of the Person-Centered Approach: Research and theory* (pp. 9-21). N. Y.: Springer Science & Business. doi: http:// dx.doi.org/ 10.1007/978-1-4614-7141-7_2

Lyons, J. A., & Keane, T. M. (1989). Implosive Therapy for the Treatment of Combat-Related PTSD. *Journal of Traumatic Stress, (2)*2, 137-152.

Mahoney, M. (1995). Emotionality and Health: Lessons From and for Psychotherapy. In J. Pennebaker (Ed.). *Emotion, disclosure & health*, (pp. 241-254). Washington, DC: American Psychological Association. doi: http://dx.doi.org/10.1037/10182-000

Massad, P. M., & Hulsey, T. L. (2008). Exposure therapy renewed. In V. R. Volkman (Ed.). *Traumatic Incident Reduction: Research and Results (2nd. ed.)* (pp. 131-141). Ann Arbor, MI: Loving Healing Press.

Meadows, E. A., & Butcher, J. (2005). Anxiety—Adult. In A. Freeman (Ed.). *Encyclopedia of cognitive behavior therapy* (pp. 32-35). N. Y.: Springer.

Megías, J. L., Ryan, E., Vaquero, J. M. M., & Frese, B. (2007). Comparisons of Traumatic and Positive Memories in People with and without PTSD Profile. *Applied Cognitive Psychology*, *21*, 117–130. doi: http://dx.doi.org/10.1002/10.1002/acp

Moore, R. H. (2005). Psychological foundations of TIR. In V. R. Volkman (Ed.). *Beyond Trauma. Conversations on Traumatic Incident Reduction* (2nd. ed.) (pp. 14-21). Ann Arbor, MI: Loving Healing Press.

Moore, R. H. (2008). TIR: primary resolution of the Post-Traumatic Stress Disorder. In V. R. Volkman (Ed.). *Traumatic Incident Reduction: Research and Results (2nd. ed.)* (pp. 5-16). Ann Arbor, MI: Loving Healing Press.

Nezu, A. M., Nezu, C. M., & Lombardo, E. (2006). *Formulación de casos y diseño de tratamientos cognitivo-conductuales. Un enfoque basado en problemas [Case formulation and cognitive behavioral treatment designs. An approach based on problems]*. Bogotá: Manual Moderno.

NREPP (2011). *Traumatic Incident Reduction*. Retrieved from http://nrepp.samhsa.gov/ViewIntervention.aspx?id=245

O'Cleirigh, C., Ironson, G., Antoni, M., Fletcher, M. A., McGuffey, L., Balbin, E., ... & Solomon, G. (2003). Emotional expression and depth processing of trauma and their relation to long-term survival in patients with HIV/AIDS. *Journal of Psychosomatic Research, 54*(3), 225-235.

Odio, F. (2003). *Traumatic incident reduction (TIR) program for children* [dissertation] Available in PILOTS: Published International Literature On Traumatic Stress. (42453018; 91632). Retrieved from de http://search.proquest.com/docview/42453018?accountid=28179

Propper, R. E., & Christman S. D. (2008). Interhemispheric interaction and saccadic horizontal eye movements implications for episodic memory, EMDR, and PTSD. *Journal of EMDR Practice and Research, 2*(4), 269-281. doi: http://dx.doi.org/10.1891/1933-3196.2.4.269

Roth, S., & Newman, E. (1991). The process of coping with sexual trauma. *Journal of Traumatic Stress, 4*, 279-297.

Rothbaum, B. O., & Davis, M. (2004). Aplicación de los principios del aprendizaje para el tratamiento de reacciones postraumáticas [The application of learning principles to the treatment of posttraumatic reactions]. *Revista de Psicotrauma para Iberoamérica, 3*(2), 4-13.

Rubin, D. C., Boals, A., & Berntsen, D. (2008). Memory in posttraumatic stress disorder: properties of voluntary and involuntary, traumatic and nontraumatic autobiographical memories in people with and without posttraumatic stress disorder symptoms. *Journal of Experimental Psychology: General, 137*(4), 591-614. doi: http://dx.doi.org/10.1037/a0013165

SAMHSA (2013). *SAMHSA National Registry of Evidence Based Programs and Practice. Traumatic Incident Reduction*. Retrieved from http://nrepp.samhsa.gov/ViewIntervention.aspx?id=245

Schmertz, S. K., Gerardi, M., & Rothbaum, B. O. (2014). Posttraumatic Stress Disorder. In S. G. Hoffman (Ed.). *The Wiley Handbook of Cognitive Behavioral Therapy* (pp. 1023-1042) Chichester, U. K: Wiley. doi: http://dx.doi.org/10.1002/9781118528563.wbcbt03

Schnyder, U., Ehlers, A., Elbert, T., Foa, E. B., Gersons, B. P., Resick, P. A., ... & Cloitre, M. (2015). Psychotherapies for PTSD: what do they have in common? *European Journal of Psychotraumatology, 6*. Retrieved from http://www.researchgate.net/publication/281171632. doi: http://dx.doi.org/ 10.3402/ejpt.v6.28186

Shapiro, F. (1995). *Eye Movement Desensitization and Reprocessing: Basic principles, protocols, and procedures*. NY: Guilford.

Shapiro, F. (2001). *Eye Movement Desensitization and Reprocessing: Basic principles, protocols, and procedures* (2nd. ed.). NY: Guilford.

Shapiro, F., & Laliotis, D. (2011). EMDR and the Adaptive Information Processing Model: Integrative treatment and case conceptualization. *Clinical Social Worker Journal, 39*, 191–200. doi http://dx.doi.org/10.1007/s10615-010-0300-7

Sieff, D. F. (2015). Connecting conversations: expanding our understanding to transform our trauma-worlds. In D. F. Sieff (ed). *Understanding and Healing Emotional Trauma. Conversations with pioneering clinicians and researchers* (pp. 221-236). N. Y.: Routledge.

Spector, J. (2007). Eye Movement Desensitization and Reprocessing (EMDR). In C. Freeman, & M. Power (Eds,), *Handbook of evidence-based psychotherapies. A guide for research and practice* (pp. 93-109). Chichester, UK: Wiley.

Steinmetz, K. M., & Kensinger, E. A. (2010). *Emotion's effects on attention and memory: relevance to posttraumatic stress disorder*. N. Y.: Nova Science.

Stickney, L. T. (2010). Who Benefits from Pennebaker's Expressive Writing? More Research Recommendations: A Commentary on Range and Jenkins. *Sex Roles, 63*, 165–172. Doi: http://dx.doi.org/10.1007/s11199-010-9771-9

Taylor, S. (2002)**.** Exposure. In M. Hersen, & W. Sledge (Eds.), *Encyclopedia of psychotherapy* (pp. 755-759). NY: Elsevier.

Valentine, P. V. (2008a). Brief Treatment of Trauma-Related Symptoms. In V. R. Volkman (Ed.). *Traumatic Incident Reduction: Research and Results (2nd. ed.)* (pp. 43-50). Ann Arbor, MI: Loving Healing Press.

Valentine, P. V. (2008b). A qualitative study of client perceptions of Traumatic Incident Reduction (TIR): A brief trauma treatment. In V. R. Volkman (Ed.). *Traumatic Incident Reduction: Research and Results (2nd. ed.)* (pp. 115-129). Ann Arbor, MI: Loving Healing Press.

Valentine, P. V., & Smith, T. E. (2002). Finding something to do: The disaster continuity care model. *Brief Treatment and Crisis Intervention, 2*(2), 183-196.

Van der Hart, O., & Brown, P. (1992). Abreaction re-evaluated. *Dissociation, 5*(3), 127-140.

Van der Hart, O., Steele, K., Boon, S., & Brown, P. (1993). The treatment of traumatic memories: Synthesis, realization, and integration. *Dissociation, 6(2*/2), 162-180.

van der Kolk, B. (2014). The body keeps the score. Brain, mind and body in the healing of trauma. N. Y.: Viking Penguin.

van Minnen, A., & Foa, E. B. (2006). The effect of imaginal exposure length on outcome of treatment for PTSD. *Journal of Traumatic Stress, 19*(4), 427-438. doi: http://dx.doi.org/10.1002/jts.20146

Vorstenbosch, V., Newman, L., & Antony, M. M. (2014). Exposure Techniques. In S. G. Hoffman (Ed.) *The Wiley Handbook of Cognitive Behavioral Therapy* (pp. 45-65) Chichester, U. K: Wiley. doi: http://dx.doi.org/10.1002/9781118528563.wbcbt03

Welch, S. S., & Rothbaum, B. O. (2007). Emerging Treatments for PTSD. In M. J. Friedman, T. M. Keane, & P. A. Resick (Eds.). *Handbook of PTSD: science and practice* (pp. 469-496). N. Y.: Guilford.

Wells, A., & Matthews, G. (2015). Attention and emotion: a clinical perspective. N. Y.: Psychology press.

Wylie, M. S. (2008). Researching PTSD: Going for the cure. In V. R. Volkman (Ed.). *Traumatic Incident Reduction: Research and Results (2nd. ed.)* (pp. 97-114). Ann Arbor, MI: Loving Healing Press.