



Artículo de investigación

## FROM MEANING TO SYMPTOM REDUCTION: Contemporary approaches to psychotherapy after traumatic brain injury

DEL SENTIDO A LA REDUCCIÓN DE SÍNTOMAS:  
Enfoques contemporáneos de la psicoterapia después de un trauma cráneo encefálico

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### Abstract

**Introduction:** During the last decades, psychological interventions have become central components of rehabilitation programs for Traumatic Brain Injury (TBI). Nevertheless, due to a wide variability of therapeutic approaches there is little agreement regarding which approach is more suitable, or whether key elements from different psychotherapies should be integrated. This article critically reviews several contemporary approaches that are dominant in the literature. **Methods:** In order to accomplish such goal, an all-time search on Web of Science and Google Scholar was carried, using TBI and Psychotherapy as key words ( $n = 72$ ). **Results:** The main finding of this paper is that theoretical and technical variability among psychotherapies reflects differences in the 'level of care' that is targeted: symptom reduction, behavioral problem reduction, quality of life and meaning reconstruction. Four contemporary approaches to psychotherapy [cognitive behavioral, third wave cognitive behavioral, narrative and psychodynamic] are then briefly described, by presenting their main theoretical tenets, the level of care they target, and the existing evidence that supports their efficacy. Finally, the implications of using a 'levels of care' perspective when addressing the 'effectiveness' debate is considered, as well as the need to familiarize future clinicians with more integrative models of psychological support after TBI.

**Keywords:** traumatic brain injury, psychotherapy, emotional adjustment, neuropsychological rehabilitation

### Resumen

**Introducción:** Durante las últimas décadas, las intervenciones psicológicas se han convertido en un elemento central de los programas de rehabilitación para personas que han adquirido un Trauma Cráneo Encefálico (TEC). Este artículo revisa críticamente los enfoques contemporáneos predominantes en la literatura a la luz del concepto de "niveles de cuidado". **Método:** Se realizó una revisión bibliográfica entre los años 1985 y 2014 utilizando los motores de búsqueda Web of Science y Google Scholar, usando TEC y Psicoterapia como palabras claves. 72 artículos fueron seleccionados para revisión. **Resultados:** Existe una amplia variabilidad teórico/técnica en los enfoques utilizados en esta población, reflejando diferencias en los niveles de cuidado: reducción de síntomas, reducción de problemas conductuales, calidad de vida y reconstrucción de sentido vital. Cuatro enfoques psicoterapéuticos contemporáneos (cognitivo-conductual, cognitivo-conductual de tercera generación, narrativo y psicodinámico) son brevemente descritos, presentando sus supuestos teóricos, el nivel de cuidado que consideran como objetivo, y la evidencia existente que apoya su efectividad. Finalmente, se discuten las implicancias de utilizar una perspectiva de 'niveles de cuidado' en el debate sobre efectividad de la psicoterapia en personas con TEC, así como la necesidad de familiarizar futuros neuropsicólogos clínicos con modelos genéricos de apoyo psicológico para esta población.

**Palabras clave:** traumatismo encefalo craneano, TEC, psicoterapia, ajuste emocional, rehabilitación neuropsicológica

### Introduction

According to Ben-Yishay and Diller (2011), since the 1990s, a major shift in neuropsychological rehabilitation has occurred, where the 'subjective' experience of individuals with Traumatic Brain Injury (TBI) during the rehabilitation process, as well as their appraisal of the meaning of life after their injuries, became increasingly considered as a relevant therapeutic outcome. As a consequence, during the last twenty years or so, clinicians and researchers have begun to place emotional adjustment and acceptance at the heart of their therapeutic models (Mateer, Sira & O'Connell, 2005; Prigatano, 1999a; Wilson & Gracey, 2010). Several factors have contributed to this shift. Firstly, the realization that cognitive deficits cannot be completely 'remediated', but compensated at best (Wilson, 1997). Secondly, a greater awareness that cognitive and psychological problems, not physical ones, are the most important

cause of disability after TBI (Koponen, Taiminen, Hiekkänen, & Tenovuuo, 2011; Rabinowitz & Levin, 2014). The implications of this 'affective turn' in neuropsychological rehabilitation have been many, however, the acknowledgement of psychological interventions as a core component of our rehabilitation work is perhaps the most important one (Balchin, Coetzer, Salas & Webster, 2017; Coetzer, 2014; Newby, Coetzer, Daisley & Weatherhead, 2013).

The provision of psychological support as marker of 'good practice', according to several clinical guidelines in the UK, reflects the increased awareness of rehabilitation professionals of the relevance of emotional issues after brain injury (Team D.L.T.C.N., 2005). For example, the *National Clinical Guidelines on Rehabilitation Following Acquired Brain Injury* (Turner-Strokes, 2003) suggests that: a) patients should be given the opportunity to talk about the impact of brain injury in their lives with someone experienced in managing

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the emotional impact of acquired brain injury; b) patients should be provided with access to individual and/or group psychological interventions for their emotional difficulties, adapted according to their neuropsychological deficits; c) patients should have access to neuro-psychotherapeutic interventions to facilitate long term psychological, family and social adjustment. The emphasis placed by national guidelines on providing adequate psychological support can be mirrored by the steady increase of publications, during the last thirty years, exploring the use of diverse psychological therapies in individuals with Traumatic Brain Injury [see Figure 1]

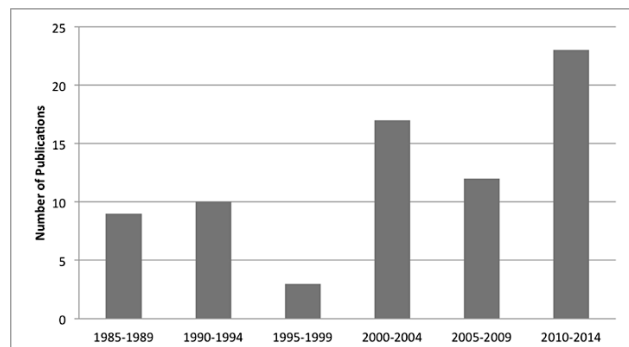


Figure 1. Psychotherapies and TBI (1985-2014). Even though the number of publications is still small compared to other topics in neuropsychological rehabilitation, there has been a steady increase of articles addressing the use of psychological therapies in people with TBI.

Even though psychotherapy has been widely acknowledged by rehabilitation professionals as a useful approach in managing and treating emotional/motivational disorders after TBI (Coetzer, 2006, 2007; Prigatano, 1999a; 2005; Ruff, 2013; Tyerman, 2008), the implementation of such interventions has not been exempt of debate. The most common topic of discussion is how psychotherapeutic approaches, generally developed to work with neurotypical individuals, can be adapted to the cognitive deficits presented by this population (Judd & Wilson, 2005; Ruff & Chester, 2014; Salas, Vaughan, Shanker & Turnbull, 2013). Another controversy has revolved around the question of which psychotherapeutic approach is the most suitable and, hence, the most effective. This debate has been more difficult to address for several reasons. Firstly, the conceptualizations of what constitutes the main psychological problems after TBI are extremely heterogeneous among psychotherapies, with some of them focusing on symptoms while others in the reconstruction of meaning. Secondly, different conceptualizations imply also a wide variation in what is considered as 'therapeutic actions'. Thirdly, conceptual and technical variation impedes comparison between approaches, since different clinical phenomena are considered as outcome variables, thus requiring diverse methodologies to capture them.

The main goal of this article is to contribute to this debate, by reviewing contemporary approaches to psychotherapy used by clinicians to work with individuals who present moderate to severe TBI. In particular, we would like to present these approaches in relation to the concept of 'levels of care', which proposes that each of the many psychotherapies targets different aspects of patient's psychological suffering. The concept of 'levels of care' allows clinicians to assess the unique contributions of each approach, this, beyond the obvious theoretical and technical discrepancies that exist between them. We strongly believe that, by acknowledging both commonalities and divergences, we are in a better position to build a more comprehensive model of how psychotherapy after TBI should look like.

### The four levels of care

One practical way to study the many psychotherapies used in treating individuals with TBI is by comparing the variable they seek to modify, or what they consider as an important outcome. From our perspective, outcomes do not only offer a way of measuring the effectiveness of a psychological intervention [does treatment X generates a decrease in variable Y?], but also provide valuable insights regarding theoretical assumptions [According to theory A well-being is equivalent to a decrease in variable Y], and the technical tools used to accomplish certain goals [in order to decrease variable Y, interventions E, F and G are recommended]. Based on this idea, we will describe four levels of care provided by different psychological therapies. The main idea is that, although all four levels are intimately related, they cannot be reduced to one another.

Level 1 focuses on "symptom reduction". Not uncommonly the goal is to reduce the levels of depression, anxiety, anger, irritability or stress post-trauma. Level 2 focuses on the reduction of problematic behaviors that seem to emerge, or be exacerbated, by psychological problems of copying follow a brain disorder. This typically involves the addictions, mainly alcohol and drugs. Level 3 aims at improving the patient's emotional adjustment to the intermediate and long-term effects of a brain disorder, by addressing the disturbed or changed "sense of self" after brain injury. Treatment at this level often focuses on relationships and has the specific goals of improving the quality of life and socio-emotional functioning of the individual. Level 4, is perhaps the most difficult to measure. Psychotherapies that intervene at this level try to help patients re-establish meaning in life "in the face of" (not despite) the effects of their brain disorder. This level also focuses on the disturbed sense of self, but approaches the problem by helping the individual deal with has been termed "the problem of lost normality" (Prigatano, 1995).

### Methods

An all-time search (until 2014) on Web of Science and Google Scholar was performed, using *Traumatic Brain Injury* and *Psychotherapy* as key words. The following inclusion criteria were used: a) theoretical or experimental papers [single case studies, group studies and RCTs] related to individual psychotherapy with TBI; b) main target population of the article were adults with TBI; c) articles had to be published in a peer review journal. Papers were excluded when: a) TBI was not the main population; b) the paper focused on pediatric TBI; c) psychotherapy was used in family format; d) psychotherapy was described as a potential approach to deal with a psychological or psychiatric problem but was not considered the main focus of the paper; e) the paper used other therapeutic approaches to address psychological problems but not psychotherapy as main intervention [biofeedback, stress management].

Based on this initial search a total of 40 articles were found. As a second step, the reference lists of each of these articles were reviewed in order to detect new articles that were not suggested by search engines. References from non-peer reviewed documents [e.g. thesis], which were excluded from the initial sample, were also considered at this point. Using this strategy, 32 more articles were added to the list. In total, 72 articles, which ranged from 1985 to 2014, composed the total sample. As a final step, all 72 articles were classified according to: a) the psychological approach used to deliver psychological help [CBT, Third Wave, Narrative, Psychoanalysis, Generic and other]; b) the main psychological problem addressed by the paper [levels of care].

### Results: Psychotherapies and the four levels of care

In this section, and based on results from the review of the literature, the most commonly used psychotherapeutic approaches are presented and described in terms of: 1) their main theoretical tenets; 2) the level of care they address; 3) evidence regarding their efficacy [for a summary see Table 1].

#### Cognitive Behavioral Therapies

A wide range of treatment approaches exists within the scope of cognitive behavioral therapies [CBTs]. However, they all share the idea that cognitive activity mediates the response that individuals have to their environments, as well as the level of adjustment or maladjustment. In consequence, therapeutic change is conceptualized as the alteration of dysfunctional modes of thinking (Dobson & Dozois, 2010). During the last 20 years, there has been an explosive increase in the number of publications exploring the use of CBTs in TBI, mainly due to its known effectiveness addressing psychiatric symptoms (Butler, 2006; Epp & Dobson, 2010) and its allegedly suitability for people that present with cognitive problems (Ashman et al., 2014; Doering & Exner, 2011; Williams, 2005).

**Cognitive Therapy [Level 1-2].** Cognitive therapy (CT) is the most widely known form of CBT. The main idea behind this approach is that distorted thinking and unrealistic cognitive appraisals of situations can negatively affect one's behavior, and become schemas that influence emotional experience (Beck, 1970; Beck, Rush, Shaw & Emery, 1979). In consequence, the main goal of CT is to replace clients' distorted appraisals of life events with more realistic and adaptive appraisals. Interventions used by different studies that have employed CT in TBI populations vary widely, including cognitive re-structuring, self-dialogue modification, mastery and planning, relaxation, exposure exercises, role playing, psycho-education, self-regulation procedures, lifestyle management, etc. This wide technical variability in the

Table 1.  
Summary of Psychotherapies used with Traumatic Brain Injury population.

Theoretical Approach	Key Articles	Methodology	Level of Care	Results
CBT	Kinney (2001) Ashman et al., (2014)	RCT; Group Studies; Case Reports	Level 1 & 2	Reduction on a wide range of emotional symptoms and behavioural problems
	Hsieh et al. (2012) Bombardier & Rimmele (1999)	Group Studies; Case Studies	Level 1 & 2	Improvement in substance abuse problems and reduction of emotional symptomatology
Third Wave CBT	Beddard et al., (2013)	RCT; Group Studies; Case Studies	Level 1 & 3	Decrease in levels of depression and increase in quality of life
	Myles (2004)	Theoretical	Level 1, 3 & 4	Not available
	Ashworth, Gracey & Gilbert (2011) Ashworth et al., (2014)	Group Studies; Case Studies	Level 1 & 3	Decrease in levels of emotional symptomatology and self-criticism.
Narrative	Ylvisaker & Feeney (2000)	RCT; Case Studies	Level 3	Decrease in interpersonal conflict and increase engagement in rehabilitation
Psychodynamic	Prigatano (1991)	Case studies	Level 4	Long-term psychological adjustment to the permanent effects of TBI. Better outcome in holistic rehabilitation programs
	Klonoff & Lage (1991) Salas & Coetzer (2015)	Case studies	Level 3	Psychological adjustment to acquired deficits and reduction of catastrophic reactions
	Freed (2002) Yeates et al., (2013)	Case studies	Level 3	Improve capacity to relate to others and use them successfully as source of cognitive and emotional support

tools used to modify cognition could be considered as a limitation of this approach, since it makes more difficult to replicate and compare studies.

When used in TBI population, CT has been both administered in individual and group formats, attempting to address a wide range of symptoms. There are a couple of randomized control trials suggesting that CT is effective in reducing depression (Ashman et al., 2014), anxiety (Bryant et al., 2003; Hodgson et al., 2005) and hopelessness (Simpson et al., 2011). Group studies using a pre-post treatment design have reported a decreased in post-traumatic headaches (Gurr & Coetzer, 2005), anger problems (Medd & Tate, 2000), depression symptoms (Topolovec-Vranic et al., 2009), post-traumatic stress disorder problems (Chard et al., 2011) and changes in coping style (Anson & Ponsford, 2006). Case reports have also been widely used, showing that CT can reduce symptoms like anxiety and depression (Hsie et al., 2012a; Ownsworth, 2005; Williams, Evans & Fleminger, 2003; Williams, Evans & Wilson, 2003), insomnia (Ouellet & Morin, 2004, 2007), or manage obsessive-compulsive disorders (Arco, 2008; Hofer et al., 2013). Overall it is possible to say that CT has offered substantial evidence in relation to its effectiveness in the remediation of symptoms. In consequence, this approach can be considered as operating mainly in the first level of care. However, CT has also influenced approaches that target a second level of care, such as addictions. This perspective will be briefly described in the next section.

**CBT + Motivational Interview [level 1 and 2].** In the last decade clinicians have shown an increase interest in the use of motivational interviewing as a prelude of, or in combination with, CBTs (Hsie et al., 2012b), mainly as a means to increase engagement with the rehabilitation process (Medley & Powell, 2010). In general terms, motivational interviewing is an approach that aims at reducing client's resistance to behavior change. It presupposes that therapists do not generate change, but only can create a climate within which change is facilitated, thus, change can emerge from the client. According to motivational theory, change promotion can be accomplished by the therapist through the implementation of four principles (Miller & Rollnick, 2002): 1) express empathy, mainly through the use of reflective listening techniques; 2) develop discrepancy between current status and desired outcomes; 3) roll with resistance rather than confronting; 4) support self-efficacy.

There are a handful of studies that have used MI+CBT to address psychological problems after TBI. Most of these studies have used a case report methodology or a group design where pre and post treatment measures are compared. Consistent with the rationale of MI, the outcome variable that these studies have targeted is commonly substance abuse problems after TBI, which correspond to the second level of care (Bombardier & Rimmele, 1999; Cox et al., 2003) (see Table 1). However, recent studies have also fo-

cused on the use of MI as a prelude to CBT for reducing anxiety and depressive symptoms –first level of care– (Bombardier et al., 2009; Hsie et al., 2012a, 2012b).

### Third Wave CBTs

During the last two decades a number of therapies, under the name of *Third Wave Therapies*, have developed within the field of CBTs. According to Hayes (2004), there is no factor that unites these approaches. However, they all emphasize issues like acceptance, mindfulness, cognitive defusion, dialectics, values, spirituality and relationships. In general, these therapies differ from CBT in that they teach individuals how to become aware of their own metacognitive processes, and therapeutic change is accomplished simply by recognizing the metacognitive process that is at fault (Dobson & Dozois, 2010). In this section three therapeutic approaches that are referred to as belonging to the third-wave family of CBTs, which have been particularly influential for clinicians offering psychological interventions to people with brain damage, will be presented in detail.

**Mindfulness Cognitive Based Therapy, MCBT [Level 1 and 3].** MCBT is a psychological intervention that combines elements from CBT and mindfulness-based stress reduction. The main idea behind this type of intervention is that individuals are trained to decenter from problematic thoughts by viewing them as mental events rather than as accurate reflections of reality (Bedard et al., 2013). MCBT interventions are often delivered in a group format during a short period of time [12 sessions], using a wide range of exercises [e.g. meditation techniques, yoga, visualization, breathing exercises, acceptance, group discussion]. The format of the sessions is often adapted to the neuropsychological difficulties exhibited by TBI.

There is a small group of studies that have explored the effectiveness of MBCT on a TBI population, using as main outcomes the presence of symptomatology and quality of life, thus corresponding to levels of care 1 and 3. In general the existing evidence suggests a decrease in levels of depression, increase levels of quality of life (Beddard et al., 2003; 2005; 2012) after MCBT training. To our knowledge there is only one existing RCT, which also appears to support the effectiveness of MCBT, for it found a decrease in levels of depression (Beddard et al., 2013) (see Table 1).

**Acceptance and Commitment Therapy, ACT [Level 1, 3 and 4].** ACT is an experiential therapy that is based in clinical behavior analysis. According to ACT, people tend to become fused with their verbal descriptions, evaluations or reasons [cognitive fusion], thus seeing them not as their own behaviors but as situations that need to be avoided. From this point of view, therapeutic change is conceived as the process by which actions become progressively more related to experience than literal language (Hayes & Pierson,

2005). In order to accomplish this goal, clients are taught *willingness* [to deliberately embrace difficult thoughts, feelings or body sensations] and *cognitive defusion* [to experience thoughts willingly as an ongoing process occurring in the present, thus reducing the dominance of the literal meaning of thoughts], as well as the identification of values. It has been noted that ACT may be particularly useful for individuals with TBI, who are often impaired in their ability to change negative thoughts [as in CBT], thus benefiting from approaches that focus on learning to accept negative thoughts (Coetzer, 2104).

Even though many researchers have proposed that positive findings from studies with other clinical populations could be replicated in individuals with acquired brain injury, to our knowledge at the moment of writing this paper, there is no published evidence of any kind supporting the efficacy of ACT in TBI survivors. This lack of information does not allow us to establish with certainty which level of care is likely to be targeted by this type of intervention. However, from a theoretical point of view, and following the ideas presented by Myles (2004), it is possible to think that ACT would target not only emotional distress [level of care 1] but also quality of life [level of care 3] and even the reconstruction of meaning after brain injury [level 4].

**Compassion Focused Therapy, CFT [Level 1 and 3].** CFT was developed for individuals with high levels of shame and self-criticism (Tirch & Gilbert, 2015). CFT represents an integration of theories from a wide range of backgrounds and its main tenet is that human beings manage their emotional states through three emotion regulation systems (Gilbert, 2009): *threat and protection, drive and excitement and contentment, soothing and social safeness*. CFT conceptualizes psychological distress as an excessive activation of the threat and protection system and an inadequate functioning of the soothing system. In consequence, the therapeutic goal of CFT is to improve the balance between these emotion regulation systems, by teaching patients to cultivate an inner compassionate and soothing self (Tirch & Gilbert, 2015). CFT has been described as one of the ten most important technical improvements in neuropsychological rehabilitation (Wilson, 2013). Its therapeutic relevance is obvious when the prevalence of self-criticism and shame, as well as difficulties regulating negative emotional states, after TBI is considered (Klonoff & Lage, 1991; Salas & Coetzer, 2015; Shields et al., 2015).

There is a growing number of studies reporting positive results in the use of CFT across a wide range of clinical populations (Tirch & Gilbert, 2015), however, the available evidence in individuals with TBI is still limited. Ashworth, Gracey and Gilbert (2011) reported in a case study that, after a 24 sessions intervention, a decrease in anxiety and depression, a decline in the level of aggression directed to the self, and an increase in self-esteem were observed. The authors also reported a drastic decrease in the frequency of negative cognitions and an observable increase in social participation. A study by the same author (Ashworth et al., 2014) found a significant reduction in levels of depression, anxiety and self-criticism after a program that combined group CFT and individual interventions, on a mixed neurological sample [TBI  $n = 7$ ; Stroke  $n = 3$ ; Other  $n = 2$ ]. Additionally, an increase in the capacity to re-assure the self was also reported. In conclusion, the existing literature appears to suggest that CFT is effective, not only reducing symptoms [Level of care 1], but also in facilitating emotional adjustment and well-being, through the process of identity reconstruction [Level of care 3].

### Narrative Therapies

Narrative therapies are rooted in a social constructionist and constructivists approach to reality. They refuse to see people as problems and encourage them to see themselves as separate from problems, in order to find alternative ways to relate to problems, for example, by resisting to them or negotiating with them (White & Epsom, 1990). From this perspective, therapeutic change occurs by exploring how language is used to *construct* and maintain problems, and how people *interpret* their experience in the world (Etchison & Kleist, 2000). Even though the number of papers using narrative work to address psychological problems is still small, the interest of clinicians for this approach is growing (Weatherhead & Todd, 2014), due to an increased awareness of how brain damage disrupts survivors' narratives about who they are, as well as their spontaneous efforts to cope with these changes via the generation of alternative narratives (Morris, 2004; Nochi, 1998; 2000; Weatherhead & Todd, 2014).

Research exploring the efficacy of narrative therapy in patients with TBI is almost nonexistent, and mostly comprises theoretical papers and case studies (Morris, 2004; Weatherhead & Todd, 2014). Evidence from case studies suggests that narrative-based interventions, such as the Metaphoric Identity Mapping, can facilitate engagement and goal setting in rehabilitation (Ylvisaker et al., 2008), as well as the reduction in conflicts, or negative interactions,

when used in individuals with marked behavioral problems (Ylvisaker & Feehey, 2000). A recent pilot RCT, also suggests that the Metaphoric Identity Mapping may be effective in engaging individuals with TBI in the goal setting process (McPherson, Kayes & Weatherall, 2009). Considering this evidence, as well as the theoretical underpinnings of narrative therapy, it is possible to propose that this perspective operates at the third level of care, by facilitating emotional adjustment and identity reconstruction.

### Psychodynamic therapies

The basic premise of most forms of psychodynamic therapies is the belief that behavior and thought processes are greatly influenced by non-conscious factors that are the product of early attachment relationships with caregivers, which are implicitly learnt and work as a template to perceive the world and respond to it. Psychodynamic oriented techniques typically aim at helping individuals to gain awareness of these patterns, instead of being blindly driven by them. These ideas have permeated neuropsychological rehabilitation in two ways. Firstly, by acknowledging the existence of psychodynamics that influence the process of emotional adjustment after the injury (Prigatano, 1999a; 2008; Prigatano & Salas, 2017). Secondly, by raising awareness among clinicians of the interpersonal processes [attachment] that occurs between patients and rehabilitation professionals, and its relevance for rehabilitation success (Klonoff, 2011; Schonberger, Hulme & Teasdale, 2006; Sherer et al., 2007).

**Self Psychology [Level of care 3].** Self-Psychology follows the work of Heinz Kohut, a post-freudian psychoanalyst that studied the developmental process by which human beings acquire a sense of well-being or self-cohesion (Wolf, 1988). According to Kohut, the Self, as a cohesive structure, is built through the many interactions that the child has with his/her environment/caretakers, who initially sustain his/her self-cohesion through the support of physiological and psychological needs [self-objects]. This subjective experience of continuity and flux with the environment constitutes, according to Kohut, a nucleus from which adult normal self-esteem will develop. In adulthood, human beings continue to require self-object experiences in order to sustain self-cohesion, however, these experiences are not restricted anymore to caretakers, but also include family, friends and even activities.

Self-Psychology ideas have profoundly influenced holistic rehabilitation (Klonoff, 2005), particularly in raising awareness on how brain damage can compromise self-cohesion, and how the relationship of the self with the environment can be drastically altered, thus generating experiences of self-fragmentation and decreased self-esteem (Goldstein, 1939/1995; Klonoff, Lage & Chiapello, 1993). Therapeutic change is conceived by this approach as the reduction, and management, of catastrophic reactions, as well as self-destructive behaviors that emerge as a response to self-fragmentation (Klonoff & Lage, 1991). This is often accomplished via the development of a capacity to tolerate imperfections brought by the injury, or 'narcissistic injuries'. Authors from this approach have also developed guidelines to address the impact of cognitive deficits after TBI in emotional awareness and mourning (Salas et al., 2013; Salas & Coetzer, 2015). This approach can be considered as intervening in a third level of care, for its main goal is to increase levels of well-being and socio-emotional functioning. The evidence that supports this perspective is exclusively based on case studies (Klonoff, 2010; Salas et al., 2013).

**Relational Psychoanalysis [Level of care 3].** The relational approach proposes that, since birth, human beings are always immerse in relationships, constantly co-regulating their behaviours and inner states with others. It is not until later that such interactions become patterns of self-regulation (Beebe & Lachmann, 2003). Authors from this perspective agree that TBI compromises intrapersonal forms of behaviour and affect regulation [self-regulation], thus forcing survivors and their families to rely on extrinsic forms of behaviour and affect regulation [self-other regulation] (Freed, 2002; Salas, 2012; Salas & Castro, 2014; Yeates & Salas, in preparation). As a consequence, the main therapeutic focus of this approach is to help individuals with TBI to re-connect with significant others -thus regaining intimacy- and to use relationships as a successful source of cognitive re-integration and extrinsic regulation. Evidence that supports this perspective is exclusively based on case studies, which suggest improvement in levels of well-being, thus targeting the third level of care (Freed, 2002; Salas, 2012; Salas et al., 2013; Yeates 2009; Yeates et al., 2013).

**Symbolic/Existential [Level of care 4].** This perspective closely follows the work of C.G. Jung, by suggesting that human beings consciously

and unconsciously use symbols to generate meaning in life. This is particularly important when working with TBI, since certain symbols helps individuals to cope with their residual cognitive, motor and affective impairments and generate new meanings (Prigatano, 1999b; 2012). For example, symbols related to work, love and play, which are common to all humans –archetypes in Jungian theory- are particularly relevant for people with TBI, since they help connecting with aspects of life that often need to be re-constructed after the injury (Prigatano, 1989). The existential aspect of this perspective is provided by the belief that self-realization is a basic need, and that human beings attempt to reach self-realization by developing their own individuality through life (the so-called process of individuation). Impairments brought by brain injury often interrupt this process, demanding from individuals the need to find new ways to actualize themselves (Prigatano, 2012).

Since this psychotherapeutic approach attempts to facilitate the re-construction of meaning in life after TBI, it can be considered as operating on the fourth level of care. Regarding its efficacy, most of the existing evidence is based on case studies (Freddie, 2007; Prigatano, 1989; 1991), as well as studies that consider the efficacy of neuropsychological rehabilitation programs that incorporates this psychotherapeutic approach (Prigatano et al., 1984; Prigatano et al., 1994)

### Discussion

While the potential usefulness of psychotherapy in neuropsychological rehabilitation after brain injury was doubted for many years (Prigatano, 1991), there has been a progressive appreciation that psychotherapeutic interventions of various types may be helpful to persons with moderate and severe TBI. This review has attempted to document how a wide range of psychotherapies, commonly used by clinicians, target different levels of psychological

care after TBI. By understanding the theoretical assumptions and the technical approaches of each of the psychotherapies listed above, we are in a better position for determining which are the ‘active’ ingredients that make each approach so effective addressing its own level of care. Failure to consider the commonalities and diversity among these approaches may lead to false assumptions regarding their value in treating emotional and motivational problems experienced by patients. It is interesting to note that, outside the field of neuropsychological rehabilitation, researchers exploring the effectiveness of psychotherapy in non-neurological populations have adopted a similar approach, looking for commonalities between the apparently dissimilar psychotherapies (see the Generic Model of Psychotherapy by Orlinsky, 2009). These ideas have slowly permeated our field, with some authors advocating for the technical and theoretical advantages of adopting a ‘generic’ approach when working with individuals that have acquired a TBI (Coetzer, 2007). Such perspective appears to be supported by a considerable number of articles in this review [n =9] that adopt a non-specific theoretical framework, where the focus is placed on the common problems presented by TBI patients, the therapeutic tools that are useful to address them and the necessary modifications to such tools (see Table 2)

At the present time, therapies that focus on the first and second level of care (i.e. symptom reduction and the addictions) can be easily translated to experimental paradigms where ‘objective’ changes can be measured and randomized control designs employed. In contrast, interventions that operate at the third and fourth level of care (psychodynamic and narrative) target a set of psychological processes that are considerably more complex and profoundly personal. Here, qualitative and first-person research methodologies, which unfortunately are often seen by the scientific community as less rigorous [not the ‘gold standard’], may be required to capture the efficacy of these approaches. Additionally, due to the dynamic nature of the phenomenon addressed at level three and four, the evaluation of effectiveness will also need

Table 2  
*Technical Adaptations to a Generic Model of Psychotherapy with TBI*

	Psychotherapy Dimensions (Orlinsky, 2009)	Technical Modifications in TBI (Coetzer, 2017; Salas, et al., 2013)
Therapeutic contract	Mutual understanding between therapist and patient regarding goals of the collaboration, methods to be used, modality (e.g. individual, couple therapy, etc) and norms governing participants' behavior in their role as therapist or patient.	A flexible adaptation of the setting is often required in terms of frequency, length of sessions and modality (individual and family interventions). Use of compensatory tools to help encode and retrieve information from sessions is necessary (e.g. therapy notebook, session summaries). Due to awareness deficits, an initial focus on agreeing therapeutic goals is often required.
Therapeutic operations	Technical or instrumental aspect of the process. Four cyclic steps can be described: a) Presentation of complaints and information about problematic feelings, symptoms or life situations; b) Construction by the therapist of an "expert" understanding of the real problem underlying patient's complaints; c) Therapist offers a therapeutic intervention; d) The intervention evokes a co-operation dynamics that offers further information for a new cycle to start.	a) Due to awareness and memory problems, patients may not spontaneously bring into session emotional or interpersonal issues, requiring the therapist to have an active role in gathering information from the patient and significant others. Use real-life events as breaches to access subjective experience. Coordinate closely with relatives and significant ones to spot events of emotional relevance. Flexibly modify frequency of sessions to capture events of emotional significance. b) Psychoeducation and helping patients to see "the big picture" when patients are concrete and struggle connecting their feelings with events. Help patients not only to understand their cognitive and behavioral deficits post injury but also their emotional reaction to them. c) Deliver psychotherapeutic interventions in plain and simple language -without being condescending. d) Patient positive and negative responses to an intervention made by the therapist need to be understood under the light of both emotional and cognitive variables.
Therapeutic bond	Interpersonal aspect of the therapy process. Two aspects can be distinguished: task-teamwork and empathic resonance	a) <i>Task-teamwork</i> : Difficulties coordinating positions of control and initiative. Enhance patient's sense of agency by calibrating when, and how much help, is needed. b) <i>Empathic resonance</i> : difficulty attuning to a concrete mode of functioning. Develop the ability to stay in the present moment and attend to somatic and affective responses. Develop the capacity to flexibly shift between concrete and abstract modes of functioning.
Self-Relatedness	Intrapersonal aspect of the process, defined as the way in which a person perceives and responds to himself while interacting with those around him.	Help the patient to become aware of problematic emotional and behavioural response patters to specific events. Help the patient to connect events with feeling and label feelings. Use the therapist-patient interaction to illustrate emotional and behavioural patterns that can occur outside sessions with significant others. Educate patient regarding how pre-morbid personality traits, as well as post-injury cognitive changes, contribute to problematic emotional and behavioral patterns.
In-Session Impacts	It refers to positive (insight, emotional relief and sense of hope) and negative (confusion, anxiety and discouragement) results attained during sessions	a) <i>Positive in session impacts</i> : difficulty generating awareness of motivations and making sense of emotional responses. Teach patients to flag somatic responses to events. Collaboratively generate a set of 'typical' causes, or common events, that trigger somatic responses. Expose the patient repeatedly to the same information. Help the patient to generalize insights to new situations and use significant others to reinforce new mental schemas. Facilitate insight by using personally compelling metaphors as well as external graphic organizers. b) <i>Negative in session impacts</i> : difficulty tolerating negative arousal when exploring psychological conflict. Monitor and manipulate patient's level of negative arousal in order to scaffold a reflective attitude.
Temporal patterns	Different configurations that the five previously mentioned dimensions acquire as the therapy process change over time as microevents within therapy sessions and macro events over the course of treatment	Help the patient to build, and remember, a narrative that connects insights and themes developed through the psychotherapeutic process.

to consider the long-term evolution of well-being issues and existential problems. It is our view that beyond these methodological considerations, clinicians typically agree that symptom reduction and meaning reconstruction are *both* important and necessary goals in the rehabilitation of individuals with TBI. Consequently, clinical common sense should not be obscured by predominant discourses in today scientific *Weltanschauung*.

Unfortunately, health care systems throughout the world have demanded briefer and less expensive forms of care, thus influencing the type of psychological support clinicians deliver. Thus, focusing on patients' symptoms [level 1 and 2] has become a common place, which mostly responds to the pressure of the health system on clinicians to prove that what they do works, and most importantly, works quickly. Unfortunately, the emotional consequences of brain damage do not respond to this medical logic exclusively based on symptom removal. Furthermore, such an idea completely misses the point of what it entails to acquire, and live with, a TBI. Emotional adjustment and meaning reconstruction after brain damage takes time, mainly due to the particular cognitive difficulties observed in TBI, the recurrent crises triggered by patients' inability to solve novel problems on their own, as well as the time it takes to generate a strong therapeutic alliance between patient and rehabilitation professionals. Authors who considered these variables in the process of emotional adjustment have suggested the use of low-stream psychological interventions, where resources can be wisely administered along the years, so psychological support can be 'dosified' according to the particular needs of each individual (Coetzer, 2014).

Another way of addressing the polemic between therapeutic approaches focused on symptom relief versus approaches focused on meaning reconstruction is by considering the problem of mourning after TBI. As suggested by Goldstein, a key aspect of neuropsychological rehabilitation after brain injury is to help patients to "bear, without resentment, the restrictions that are necessary" (1954, p. 143). Symptoms are the expression of such resentment. But eliminating symptoms does not necessarily help individuals to mourn for their losses. According to Goldstein himself, this can only be accomplished if the patient is able to re-experience a sense of meaningful productivity in life as well as experiencing positive interpersonal relationships, not only a reduction in symptomatology. This often requires from therapists to know who that person was before the injury, and his/her conscious and unconscious motivations for choosing a certain line of work or life style. Therapies that work at the third and fourth level of care can offer important theoretical and technical tools to address these issues.

Training programs for clinical neuropsychologists should introduce their students to more integrative modes of psychological support for individuals with TBI. Only by offering new clinicians a comprehensive panoramic of the available approaches to address psychological suffering after TBI, they will be able to acquire the appropriate theoretical and technical skills that prepare them to manage the complex psychological needs presented by this population. In addition, only by familiarizing new clinicians with the wide variety of psychotherapies, it would be possible to overcome the underrepresentation of some approaches in the research community, thus generating a critical mass of investigators to adequately explore their effectiveness.

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