Negative Emotional Memories in Clinical Treatment: Theoretical Considerations

Robert A. Moss
Center for Emotional Restructuring

The pursuit of empirically supported therapies has resulted in controversy and further division between practicing and academic clinicians. The current article provides an overview of a clinical biopsychological model that may serve to guide assessment and treatment of many psychological problems, with a selective review of the literature supporting the model. One particular area, negative emotional memories, is discussed in theoretical and practical terms as related to the development of clients' psychological problems and how certain therapists' behaviors can positively and negatively affect clients. Next, the theorized effects of psychological treatments on negative memories are discussed. The article concludes with a call for efforts to pursue a neuropsychological model of treatment based on hypothesized causal factors.

Keywords: clinical biopsychology, emotional memories, psychological treatment, emotional restructuring

Since the last decade of the 20th century, there has been growing interest in empirically supported therapies (ESTs; Chambless & Hollon, 1998). This has resulted in much controversy, and the result has largely been to divide further academic and practicing clinicians. It has been noted that these ESTs address very narrow diagnostic groups which do not necessarily reflect most clients seen in the "real world" (Westen, Novotny, & Thompson-Brenner, 2004). Further, in reference to desired change, it has been noted that the variance for which these treatments account is relatively small, leaving open the fact that additional factors (e.g., therapist variables, process variables) are present but overlooked in such research (Doss, 2004).

In defining the treatment groups in EST research, the *Diagnostic and*

Correspondence concerning this article should be addressed to Robert A. Moss, Center for Emotional Restructuring, P. O. Box 591, Travelers Rest, SC 29690. E-mail: rmoss@emotionalrestructuring.com

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Statistical Manual-IV (*DSM–IV*; American Psychiatric Association, 1994) criteria are those typically chosen. This fails to take into consideration that clients with similar diagnoses based on the defining symptoms may well have different factors resulting in the symptoms. In such cases, it should not be surprising that clients would demonstrate varied results in response to a specific treatment. The development of meaningful ESTs might be enhanced if it were possible to define specific factors that lead to a given client's problematic symptoms. If identified, treatment studies could specifically target those factors and/or determine if these are moderating variables in outcome. Thus, the hypothesized causal factors would be the focus of treatment and study as opposed to the symptoms. Despite the existence of theorized causal factors (e.g., cognitive–behavioral, interpersonal therapy) in ESTs, it has been acknowledged (cf. Carson, Butcher, & Mineka, 2000; Greenberg, 2002) that each theory is limited in its ability to explain the development and maintenance of psychological problems. Moreover, clients are not selected based on the existence of these causal factors in such research, and there is an absence of analysis of the actual existence/influence of such factors when evaluating treatment outcome.

Three basic theoretical approaches have historically been those guiding individual psychotherapy—behavioral/cognitive–behavioral, psychodynamic, and humanistic/experiential (Greenberg, 2002). As originally conceived, behavior therapy offered a more scientific approach to the treatment of various psychological problems compared to psychodynamic and experiential approaches. It downplayed internal processing, regarding the brain as a "black box." The emphasis was on clearly observable behaviors, with various environmental or behavioral manipulations employed to create desired changes. The assessment involved a functional analysis of behavior leading to the targeting of specific behaviors for modification.

In an attempt to broaden this approach, there was a movement to view internal verbal dialogue and schemas as behaviors that could also be manipulated. The cognitive–behavioral movement maintained the importance of functional analysis (i.e., identifying beliefs or maladaptive self-statements) and behavioral manipulations (i.e., evaluating alternative schemas or altering the self-statements) with the demonstration of efficacy relying on changes in behavioral and self-reported symptoms. A basic assumption of this approach has been that an individual's internal dialogue or interpretive schemas directly lead to maladaptive mood states. Thus, there is the implication that the "mind" functions as a single unified entity. More recently (e.g., Beck, 1996), there has been some acknowledgment that affective and mood-based orientations can influence whether a belief will be activated, though these "orientations" are viewed as more primal in nature as opposed to being associated with higher cognitive functioning.

The most obvious contrasting theoretical proposal to the behavioral and cognitive–behavioral unitary mind view is the psychodynamic one that proposed a duality, the conscious and unconscious minds. The separation of emotion and cognition has also been noted by experiential therapists (e.g., Greenberg, 2002), with emphasis being placed on the need to elicit affect during the course of effective treatment.

There has been a growing interest in psychotherapy integration over the past few decades. Despite pursuits to develop more comprehensive theories that both explain how psychological problems originate and how suggested treatments address those problems, there has been a surprising absence of theories based on neuropsychological models. Although no professional would argue with the fact that the brain is the source for all of these problems, integrative proposals have largely ignored the need to have a comprehensive model of cortical and subcortical functioning that can explain findings. When biological factors have been addressed, research is typically done in a correlational manner in which specific brain areas demonstrate increased or decreased activities as a function of specific disorders. Perhaps the best known neurobiological models are those related to the impact of unresolved trauma (Siegel, 1999; van der Kolk, 2002). Although these impressive models cite specific brain areas and structures, there is an absence of logical explanations of how subjective symptoms result. At its worst, correlational and nonspecific formulations have led to the current "chemical imbalance" explanations of practically all psychological problems. As typically used in clinical practice, chemical imbalance is sadly reminiscent of the 5th century Greek B. C. explanation of an imbalance of bodily humors.

Luria (1966) proposed a model of higher cortical functions that has been applied to the understanding of syndromes in brain injury, and more recently in the area of learning disabilities (Culbertson & Edmonds, 1996). Moss (2001; 2006) has suggested an expanded Lurian model that would appear to have utility in explaining how specific psychological problems are associated with specific cortical activity. This clinical biopsychological model (CBM) considers the two cortices to be semi-independent functioning minds. Within the suggested parallel processing design, whichever side can best respond to an ongoing situation is the side that assumes control and coordination of the ensuing response. Both hemispheres receive similar sensory input. The posterior lobes (i.e., parietal, temporal, and occipital) are involved with processing and memory storage tied to incoming sensory information, while the frontal lobes are involved with analysis, planning, and response initiation. The left cortex processes sensory information in a detailed manner, resulting in its being slower than the right. The right cortex processes the information much faster, but in a global, less detailed manner. There is exchange of information between the sides,

though this exchange can be both excitatory and inhibitory. From a developmental perspective, it is proposed that there is initially only very limited information exchange between lobes within and between the hemispheres. This allows each cortical area to develop fully its memories and associated processing prior to influence from more distal areas. Additionally, left hemisphere functions (e.g., receptive and expressive speech) develop slower than those of the right hemisphere (e.g., emotional analyses and responses). A final point is that the right hemisphere's global processing allows for faster responses if confronted with outside danger, thus suggesting this side is phylogenetically best equipped to respond and assume behavioral control while in a negative emotional state.

Based on the CBM, the left cortex is involved in language functions. The left posterior areas handle the understanding and memory storage of both spoken and written language, while the left frontal lobe controls the expression of spoken language, including the motor memories of language. The process of thinking verbally and forming interpretive schemas reflect left cortical processing. In contrast, the right cortex is involved in many less detailed global functions, including emotional analyses and responses. The right posterior areas are involved in understanding emotional behaviors shown by others, as well as storage of external (e.g., sight, sound) and internal (e.g., visceral responses) sensory memories tied to emotions. The right frontal lobe controls the nonlanguage emotional expressions, including the motor memories of such expressions.

If accurate, the model can explain how it is possible to verbally think one way about a situation, and yet feel differently about the same situation. In reference to the potential treatment foci, this would suggest there are three areas: verbal-thinking, emotional-thinking, and interhemispheric congruence. Interhemispheric congruence refers to the ability to label verbally in an accurate manner all ongoing emotional reactions, and to have consistency in thoughts and feelings in reference to internal states and external stimuli. For example, an individual in a negative emotional state would accurately identify and perceive the emotions as reasonable from a verbal-thinking standpoint.

The CBM would also suggest there are three different ways negative emotional states can occur. These would be from (1) an ongoing situation (e.g., argument) or state (e.g., pain); (2) the stimulation of negative emotional memories (e.g., trauma); and (3) the failure to activate positive emotional memories (e.g., life losses, such as a desired relationship). Since the sensory aspects of emotional processing occur in the right posterior hemisphere, the left frontal lobe would have no means (i.e., via interconnecting neural tracts) to directly access or control emotional reactions resulting from activation of negative memories. In other words, it is frequently not possible to verbally, logically control emotional perceptions

and reactions. In contrast to some other theoretical formulations, the CBM views negative emotional memories to be stored at the cortical, not subcortical, level.

In reference to negative emotional memories, these can be considered at both a static (i.e., those previously stored) and a fluid (i.e., those that are or will be consolidated) level. When viewed in this context, it is possible to not only suggest what to assess in a client's past, but to also use this as a guide in determining what aspects of treatment and therapists' characteristics may positively or negatively influence desirable treatment outcome. Following a discussion of support for the model, the current article will elaborate on these concepts.

SUPPORT FOR THE CBM

There is ample support for the theoretical view that the cortical hemispheres act as semi-independently functioning units, each of which has the ability to control ongoing experiences and behavior (Lezak, Howieson, & Loring, 2004). Semmes (1968) suggested the right hemisphere has a more diffuse network of neurons. The purported analytical processing style of the left hemisphere is also consistent with previous authors (e.g., Bradshaw & Nettleton, 1981; Levy, 1969). Although the hemispheres are similar in appearance, it is well documented that they are not biologically identical and have different information properties and propensities. Hellige (2002) notes several points consistent with the CBM. First, each hemisphere is likely to take the lead for those components of processing that it handles best. Second, there are both biological and behavioral asymmetries. For example, in studies of the identification of visual patterns, there is evidence of the right hemisphere's global processing (e.g., superiority in outer facial contour and emotional tone analysis) and the left hemisphere's detail processing (e.g., small features on a face and semantic analysis). Third, interhemispheric communication can be both inhibitory and complementary. Finally, each side appears to have its own perceptions, cognitions, and memories.

Consistent with Gazzaniga's (2002) view of consciousness in which the left hemisphere contains the "interpreter," Moss (2001) suggests the left hemisphere controls the "verbal-thinking" aspects of human cortical functioning. This side's detailed, analytical processing would be responsible for receptive and expressive language, reading, writing, and careful planning. Gazzaniga (2002) notes that split brain research has demonstrated that the "interpreter" will give explanations regarding emotional experiences tied to the right hemisphere, although these explanations may well be errone-

ous. Such observations are certainly consistent with the existence of two semi-independently functioning minds.

The right hemisphere is a faster, more diffuse processor that would allow it to be involved in speech prosody, melody analysis/production, and novel mechanical tasks. Importantly, the right hemisphere is involved with emotional analysis and expression. Adolphs and Heberlein (2002) cite both clinical and experimental studies that suggest the right hemisphere is preferentially involved in processing emotions in humans and other primates. They note that recent lesion and functional imaging studies have corroborated the role of the right hemisphere in emotion recognition from facial expressions and prosody.

Integral to the CBM is the view that each hemisphere stores its own memories tied to the processing for which it is responsible. Certainly, the model recognizes that many tasks require interhemispheric transfer of information, though it is speculated that more complex emotional memories housed in the right cortex are not necessarily directly accessible to or interpretable by the left. This would be particularly true in reference to clients with exposure to past and present environments in which there is inconsistency (i.e., invalidating) of verbal and emotional communications by important others (e.g., parents, spouse). This would lead to the client's tendency to mislabel verbally his or her own emotions, thereby increasing interhemispheric incongruence.

The frontal lobes are responsible for the response organization and expression (Kemenoff, Miller, & Kramer, 2002). The posterior cortical regions are involved with sensory reception and analysis (Lezak et al., 2004; Luria, 1966). There are intrahemispheric tracts that allow communication between the frontal and posterior aspects of each side (Petrides & Pandya, 2002), as well as interhemispheric tracts allowing communication between hemispheres (Carpenter, 1976; Lezak et al., 2004). However, there are no major tracts that interconnect the frontal area of one hemisphere to the posterior area of the opposing hemisphere.

Support for the proposition that negative emotional memories are stored in the right posterior lobes comes from several studies. Metzger et al. (2004) reported increased right parietal electroencephalogram (EEG) activity associated with posttraumatic stress disorder (PTSD) arousal symptoms. A functional magnetic resonance imaging (fMRI) study comparing small animal phobics with nonphobic controls revealed significantly greater right insular cortical activity when viewing fearful versus neutral faces (Wright, Mantis, McMullin, Shin, and Rauch, 2003). In a single positron emission computed tomography and MRI study (Bonne et al., 2003) of recent (6 months) PTSD patients compared to controls, increased resting state regional blood flow differences were noted for the patient group in the right precentral, superior temporal, and fusiform gyri. In a

neuroimaging study, Rauch et al. (1996) evaluated individuals with PTSD. Results showed that script-driven imagery led to increased activation of the right secondary visual, temporal, insular, and orbitofrontal cortex, as well as the right amygdala. There was also a decrease in the left hemisphere speech production region.

From a logical level, it also seems reasonable that the right hemisphere would be involved in negative emotional processing. First, responses to environmental threats would be expected to require quick responses, which could be best accomplished by the purported global processing of the right hemisphere. Additionally, vocal and behavioral emotional expressions are relatively undetailed (e.g., loudness and abruptness of onset of speech, fearful or angry facial expressions), similar to music sounds. As mentioned, faster, less detailed processing is performed by the right cortex. This is similar to the conclusions of Tervaniemi and Hugdahl (2003) who reviewed recent findings and current views about the structural and functional basis of human brain lateralization in the auditory modality. They note that the human brain has a strong predisposition to process speech sounds in the left and music sounds in the right auditory cortex of the temporal lobe (most notably the planum temporale). They propose the predisposition is not bound to the informational sound content, but to the rapid temporal information more common in speech than in music. By rapid temporal information, they are describing the higher volume of information analyses required in speech.

The foregoing information supports the proposition that negative emotional memories are a function of complex and integrated cortical functioning, and these memories are not readily accessible to the verbal-thinking process of the left hemisphere. This would indicate the need to identify systematically any influential negative emotional memories and to use specific techniques to address these in treatment.

IDENTIFYING RELEVANT NEGATIVE EMOTIONAL MEMORIES

Since individuals form a large number of negative emotional memories, at face value it would appear to be difficult to determine which ones lead to adaptive versus maladaptive reactions. In this case, adaptive would refer to the emotional memory having value in determining appropriate and desirable internal and external responses while interacting with one's environment, including relationships. Moss (2001) has suggested two distinct characteristics that singly or in combination lead to maladaptive reactions tied to negative memories. These are perceptions of loss of control and personal responsibility/inadequacy.

Support of the detrimental influence of such memory characteristics comes from the PTSD literature. In a meta-analysis of predictors of PTSD, Ozer, Best, Lipsey, and Weiss (2003) indicate that peritraumatic emotional responses of fear, helplessness, horror, guilt, and shame were statistically significant despite there only being a small number of studies that have evaluated these factors. Although loss of control has been generally accepted as an influential variable in PTSD, personal responsibility/inadequacy aspects have not. Perhaps the studies of shame are the ones closest to the current concept of personal responsibility/inadequacy. In this regard, Andrews (1995, 1997) has noted that shame associated with child abuse is associated with later psychopathology. In a prospective study of 157 crime victims, Andrews, Brewin, Rose, and Kirk (2000) found that attributions of blame to oneself in relation to the trauma in the initial month predicted PTSD severity 6 months later.

McGaugh's (1983) work has demonstrated peripheral adrenergic enhancement of learning in rats. More recently, there has been support of the role of enhanced human memory consolidation associated with increased arousal at encoding (Cahill, Gorski & Le, 2003). In a recent meta-analytic review of laboratory studies of stress, Dickerson and Kemeny (2004) concluded that lack of control and social evaluation were associated with the most intense and longest duration of arousal. Tasks containing both uncontrollable and social-evaluative elements were associated with the largest cortisol and adrenocorticotropin hormone changes and the longest time to recovery. Taken in total, there appears to be sufficient evidence that these two characteristics could logically be of value in determining which negative emotional memories should serve as targets in treatment.

The goal of assessment is to identify all areas in which the client may have detrimental negative emotional memories. As noted by Dalenberg (2002), there may be a tendency for therapists to attend only to identifiable trauma without the awareness that other factors may exist of which both the client and therapist are unaware. Following a more structured approach in the initial assessment will minimize the possibility of neglecting influential areas. From a logical perspective, it appears that the most common area in which detrimental memories occur involves past and current relationships. This is particularly true of those memories associated with feelings of personal responsibility/inadequacy. Thus, assessment should necessarily include a survey of all possible problematic relationships.

Moss (2001) recommends the routine assessment of the following relationships: parents or parental figures, siblings, school peers and teachers, close interpersonal relationships (including friendships resulting in feelings of betrayal), and work relationships. Only a few specific questions are required to identify behaviors in others that would lead to detrimental negative emotional memories in the client. There is also brief questioning

of any past potentially traumatic events, including death of close loved ones, rape, severe illness, and so on. The questions lack extensive detail since this allows the therapist to gain an overview of the areas that may need addressing, while limiting the degree to which the negative memories activate. In other words, detailed discussions would lead to the memory activation and increase negative emotions with no therapeutic benefit. Following this format, the assessment of influential areas can be completed within 30 to 45 minutes in most cases.

Once identified, there can be an explanation to the client as to how and why these memories continue to influence current functioning. Using the CBM, it becomes possible to predict current emotional reactions based on past negative memories and explain why these are not under verbal-thinking control. For example, parental behaviors leading to the client experiencing feelings of fear, loss of control, and personal inadequacy would predictably cause the adult client to experience anxiety in the presence of authority figures (e.g., boss, doctor, etc.). Similarly, being picked on or teased frequently (i.e., loss of control) by peers in school while being unable to draw limits (i.e., personal inadequacy), such as fighting back, would result in apprehension with peer level individuals in one's adult life. This conceptualization serves to introduce a new schema to the client, which explains the logical development of current psychological problems.

TREATMENT OF SIGNIFICANT NEGATIVE EMOTIONAL MEMORIES

Based on the two factors identified as resulting in detrimental negative memories, as well as the storage of these memories in the right posterior cortex, there are logical extensions in relation to both therapist characteristics/behavior and treatment approaches that can be made. These will serve to highlight the potential importance of the information discussed to this point.

Therapist Behaviors/Characteristics

The model suggests several factors tied to the behavior of treating professionals can have detrimental effects with clients having traumatic and other negative emotional memories. Comments that minimize the impact of trauma or suggest an overreaction by the client would increase the feelings of personal responsibility/inadequacy. In like manner, any

suggestion of the client's own role in causing the problems can increase the personal responsibility feelings.[1] Abrasive and confrontive behaviors by therapists would increase feelings of lost control and personal inadequacy. Suggestions that the client needs simply to get on with their lives or that he or she will bring up discussions in therapy tied to trauma "when you are ready" would give permission to avoid addressing the negative emotional memories. Comments that a lack of faith in God is the problem would certainly reinforce feelings of personal inadequacy. Forcing or coercing reluctant individuals to do group discussions about traumatic events can cause loss of control feelings. In addition to the formation of new negative emotional memories, each of the aforementioned behaviors would theoretically increase interhemispheric incongruence and perceived internal conflict in a client. As can be seen, the identification of the defining characteristics of detrimental negative memories would appear to have potential utility in guiding therapists in the avoidance of iatrogenic treatment behaviors.

The more directive the behavior of the therapist, there would appear to be a greater likelihood that a client may feel personally inadequate. However, if a therapist is nondirective, a client may feel more out of control. Novice therapists are less likely to be sensitive to differences in clients, at both verbal-thinking and emotion-thinking levels. The more experienced the therapist, the more left and right hemisphere memories he or she would have in dealing with a variety of clients and diminish the use of "one size fits all" in session behaviors. Since the therapist stores memories in the right cortex, these are predictably the ones allowing the therapist to mold his or her own behavior to the client. This can theoretically occur in the absence of any verbal knowledge of what he or she is doing behaviorally that is of therapeutic value to a particular client.

Additionally, the impact of the process variables of warmth, genuineness, and empathy can be one of decreasing the client's feelings of loss of control and personal inadequacy/responsibility. These largely rely on nonverbal communication of the therapist, which the CBM attributes to right frontal cortical function. Clinical experience would be the only means of forming these expressive experiential memories. This leads to the logical conclusion that many experienced, practicing clinicians have more exten-

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[1] This is not to suggest that clients do not engage in behaviors that may lead to negative situations/interactions. However, it would seem logical to first address the negative emotional memories with the goals being to render these more neutral and, in the case of past problematic relationships, lead to less resentment (forgiveness of others). Additionally, there would hopefully be the realization by the client that he/she did not have the current insight/knowledge to have done differently (forgiveness of self). Afterwards, dealing with the client's own role in the situations/interactions can be done in the therapeutic context with less likelihood of his/her perceiving loss of control and personal responsibility/inadequacy.

sive therapy-related experiential right hemisphere receptive and expressive memories than do many academic clinicians. Manualized ESTs cannot teach therapists these right cortical memories since these can only develop as a result of experience with "real world" clients. However, it is possible to use manuals to make therapists verbally aware (i.e., left cortex) of important in-session behaviors that can influence treatment outcome. Additionally, modeled behaviors can be rehearsed by novice therapists with videotaped feedback. Making therapists verbally aware and utilizing experiential training techniques could increase the speed with which these important skills are learned. Having a theoretical explanation to justify the importance of such factors would assist "engineering minded" clinicians to accept the relevance of developing these nonverbal therapist behavioral skills.

Regardless of therapeutic approach, some therapists will have communication skills to evoke mental imagery in patients. When images are evoked, theoretically the right hemisphere is engaged. This is one way different therapists using the same EST could have completely different impact with a client. For example, one cognitive therapist might focus strictly on the self-statements with no imagery being evoked. This would likely lead to a change only at the verbal-thinking level. A different therapist might focus on the same self-statements, while self-disclosing specific situations where he or she has made the same maladaptive statements in the past. This evokes an image in the mind of the client tied to the situation described by the therapist. This can lead to that client feeling less personally inadequate (i.e., more normal) at both the verbal-thinking and emotional levels. A third therapist might use a variety of "it is as if" or "it is like" statements with vivid descriptions of scenes the client pictures in his or her mind, thereby providing consistent verbal and nonverbal communication about the point of focus. This would predictably increase interhemispheric congruence.

Another way many therapists inadvertently access right cortical involvement is through the use of in-session experiential techniques. Something as simple as asking the patient to explain the perspective of someone being discussed, or engaging in a brief role reversal, can lead to changes in feelings much faster than a logical analysis of why someone did what he or she did. As can be seen, it is seems possible to better define potentially valuable and detrimental therapist behaviors based on the purported location and defining features of negative emotional memories.

Treatments

In their review of ESTs in major depression, Chambless and Ollendick (2001) note four have the highest level of empirical support. These are

behavior therapy, behavioral marital therapy, cognitive–behavioral therapy, and interpersonal therapy. None of these include any component to address directly past negative emotional memories, although prescribed experiential (e.g., homework) aspects may impact such memories. If negative memories exist with feelings of personal inadequacy, these would predictably contribute to current poor self-esteem. The CBM would predict individuals with such memories would show less improvement and be at a much higher risk for relapse. Assessment for such potential moderating factors prior to treatment interventions would seem to be a relatively easy task. This might shed light on which clients best respond to specific ESTs.

Some exposure and desensitization techniques are specifically directed toward identified negative emotional memories. By and large, it appears that theme limited negative memories are targeted. Theme limited refers to a logical classification of the targeted memories, such as those occurring in a war. In this case multiple traumatic memories may be identified and addressed tied to the theme, though other influential memories may be overlooked. However, the CBM suggests the binding (i.e., activation of one memory by a similar memory) characteristics of negative memories go beyond what would appear as logical situational and temporal associations, and would include those with perceptions of loss of control and/or personal responsibility/inadequacy. In clients with such prior memories, versus those without, there would be the prediction of more extreme negative reactions. If accurate, failure to address the earlier life memories activated by the more recent negative memories would lessen the likelihood of any treatment's success in dealing with the more recent memories.

An example of this would be two individuals experiencing the same traumatic event. The first had very few detrimental negative emotional memories. In his case, he had calm, logical, and consistent parents, and he effectively drew limits with peers picking on him during his school years. He had healthy relationships while dating, and success in his dealing with coworkers and supervisors. In contrast, the other individual had one parent that physically and verbally abused him, while the other nonassertive parent failed to intervene. He was picked on frequently in school, but failed to stand up for himself. He had several problematic relationships, being left by his partners. In the work environment, he was often the butt of coworkers' jokes and had several demanding, unreasonable supervisors. In the first case, it would seem more reasonable to expect likely success by targeting only the recent traumatic memory. In the second case, the new memory would theoretically be intertwined with earlier memories based on the similarity of loss of control perceptions. This client would be less likely to respond to treatment targeting only the recent memory.

In its use of nondirective, free memory recall, eye movement desensitization and reprocessing (Shapiro, 2002) lends credence to the foregoing

possibilities. As described in case presentations, a client often experiences recall of past negative emotional experiences that are temporally and situationally unrelated to the traumatic memories of focus. These "unrelated" memories often have negative affect associated with them as well.

One other point of consideration is whether specific treatments can effectively address the personal responsibility/inadequacy aspect of negative memories. From a theoretical standpoint, the CBM would suggest that repeated exposure to past negative memories having a loss of control aspect only may well be effective in rendering these memories more neutral, as well as being perceived as more time limited in the client's life history. In reference to the neuropsychological literature, there is a general acceptance of two different, but interrelated, verbal memory stores: episodic/event and semantic. Lezak et al. (2004) note:

> The former refers to memories of one's own experience and is therefore unique and localizable in time and space. Semantic memory, that is, what is learned as knowledge, is "timeless and spaceless," as, for instance, the alphabet or historical data unrelated to a person's life. (p. 29)

The left temporal lobe, with its interconnections to the hippocampus, is implicated in episodic memories, while the more posterior association left cortex appears involved with semantic memories. Since the organization of primary, secondary, and tertiary cortical areas (Luria, 1966) is similar in both hemispheres, it would seem only logical there should be a similar organization of the nonlanguage memories of the right cortex. Thus, two emotional memory stores likely exist: one being personal/episodic and the other factual/generic. In PTSD patients, this seems very likely in that the traumatic memories are often perceived as "timeless and spaceless" (e.g., "flashbulb memories"). With successful treatment, these memories are perceived as much more time and space limited. Therefore, having a client repeatedly describe the detailed events and sensory reactions tied to a traumatic situation would not only lead to extinction of sympathetic arousal, but could actually result in its being encoded at the personal/episodic level.

If the negative memories have the personal responsibility/inadequacy aspect, as would be expected in past problematic relationships, then these would appear to already be encoded at the episodic level. Additionally, negative interactions over the course of a problematic relationship tend to be numerous, likely leading to the encoding of a factual/generic component. If treatment simply involves the client repeatedly describing negative situations, the feelings of "it's me" activate with the resultant reaction of increased guilt and poorer self-esteem. Additionally, it is probably impossible for the client to recall every negative situation. Therefore, it appears that imaginal exposure procedures may be helpful in decreasing the neg-

ative memories associated with perceptions of lost control, but unlikely to help in resolving negative memories involving relationships.

As seen in the foregoing discussion, there is certainly justification for considering all detrimental negative memories in treatment planning and outcome evaluation. Treatment should address all levels, including verbal-thinking, emotional-thinking, and interhemispheric congruence. Using the CBM as a guide, the best approach would involve: (a) assessment of all potential significant negative emotional memories, (b) a conceptualization that explains the influence of these memories on the client's current functioning, and (c) direct treatment to reduce or eliminate the negative effects of these memories while presenting the client with more adaptive schemas to interpret past, current, and future situations.

Moss (2001) has described a potentially useful method of dealing with memories of past negative relationships. Briefly, there are six or seven steps in this emotional restructuring (ER) procedure, with each session dealing with a specific relationship. In a session, the first step simply involves recollection of past negative situational memories tied to target individual. This is followed by an optional role played interaction with the therapist assuming the position of the target individual. The therapist next presents a description of why the target individual engaged in the detrimental behaviors affecting the client. Next, a role reversal is done, with the client assuming the position of the target individual. Then, an imagery scene is used to release anger and increase self-nurturance. The sixth step is to provide additional information about the target individual that explains why this was all he or she was capable of doing. The final stage is a brief role play in which the client acknowledges the harm caused by the target individual and the fact that he or she was incapable of doing otherwise, with a statement of forgiveness for the target individual.

This ER process combines new schemas, experiential techniques, abundant imagery, and verbal labeling of emotional experiences of the client. Thus, there are components that address each of the hypothesized areas requiring treatment tied to negative emotional memories. To date, this has been done only in a single clinical practice in an uncontrolled fashion. It appears effective with dramatic results in many cases of anxiety and depression. Clients often describe this leads to perceptions of increased internal peace and feeling internally stronger. However, every reader has heard claims of success before tied to treatments untested by multiple clinicians (both novice and experienced) in a controlled experimental fashion. It is mentioned here only to highlight that it does seem possible to design specific treatment procedures to address specific theorized factors.

It is important to remember that two other treatment areas deemed important by the CBM in addressing negative affective states have not been discussed. These are current/ongoing factors and the inability to

activate previously stored positive emotional memories. In a truly comprehensive approach, these would also be assessed and would be targets of treatments as well.

CONCLUSION

The view of the brain as a "black box" is rapidly disappearing. The box has been opened and will never be shut again. The current article encourages efforts to develop integrated EST theoretical approaches based on a neuropsychological model. Integrated approaches will never evolve by prescribing specific techniques/procedures for specific *DSM–IV* diagnoses. It can happen only when a unifying theory is capable of explaining all aspects of a client's particular problems, with each aspect being addressed in a comprehensive psychotherapy treatment plan. Such a theoretically based approach can feasibly provide a common ground for the unification of academic and practicing clinicians. It is hoped that the CBM can serve as a step in that direction.

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