A COMPARATIVE EXPERIMENTAL TREATMENT OUTCOME STUDY: FEMALE SURVIVORS OF SEXUAL ASSAULT SUFFERING FROM POSTTRAUMATIC STRESS DISORDER, DEPRESSION, AND TRAUMA-RELATED GUILT – SELF-REPORT AND PSYCHOPHYSIOLOGICAL MEASURES

by

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ABSTRACT

Diverse psychotherapeutic approaches for treating trauma-related sequelae have emerged over the last several decades in response to the widespread prevalence of sexual assault and resultant posttraumatic stress disorder among women (PTSD). In a recent formal study (Grace, 2003), a newer treatment called one eye integration (OEI) has been shown to be effective for traumatized individuals. The purpose of this study was to build upon those findings by comparing the effectiveness of two treatments for reducing PTSD symptoms with a breathing, relaxation, autogenics, imagery, and grounding (BRAIN) control condition. Twenty-seven female rape or sexual assault survivors who met the criteria for PTSD according to the *Diagnostic and Statistical Manual of Mental Disorders-Text-Revision*, (DSM-IV-TR; APA, 2000) were randomly assigned to three groups: (a) a neurologically-based therapy called OEI, (b) an information processing model referred to as cognitive processing therapy-revised (CPT-R), or (c) a control condition (BRAIN). PTSD, depression, and trauma-related guilt symptoms were assessed pretreatment, posttreatment and at 3-month follow up, and quantitative electroencephalography (qEEG) brainwave patterns on two regions of the scalp (frontal and parietal) were measured pre and posttreatment. The following dependent measures were used: Clinician-Administered PTSD Scale (CAPS), Beck Depression Inventory II (BDI-II), and the Trauma-Related Guilt Inventory (TRGI). Though there were no significant differences in PTSD symptoms between groups from pretreatment to posttreatment assessments, a significant difference occurred between pretreatment and 3-month follow up, with OEI manifesting greater reductions than CPT-R or BRAIN. There were no significant differences between groups in depression, but there was a reduction

in BDI-II scores over time. Reduction in guilt-related symptoms occurred on several scales and subscales for all three groups over time from pretreatment to posttreatment assessments, though not significantly different by group. A significant difference was found for the Global Guilt subscale at 3-month follow up, with greater improvement for the OEI group. Preliminary results from cortical brain activity assessments indicate typical qEEG asymmetry patterns for PTSD and depression, though there were no significant group differences apart from minor post hoc analyses. Implications of these findings for clinical work and directions for future research are discussed.

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CHAPTER I: INTRODUCTION

Over the last several decades there has been an increasing awareness of the psychological effects of trauma. Sexual assault, in particular, is a prevalent reality in the lives of substantial numbers of women in North America. According to 1993 Canadian statistics (Statistics Canada, 2000), one half of all Canadian women have experienced at least one incident of sexual or physical violence. One in four Canadian women (Women Against Violence Against Women, 2006), and one in six American women (Rennison & Rand, 2003) will be sexually assaulted during their lifetimes. In 1999, Canadian women reported 23,872 sexual assaults to the police (Statistics Canada, 2001). This figure is thought to represent only 6% of the occurrences of sexual assaults each year. According to the Bureau of Justice Statistics National Crime Victimization Survey (Catalano, 2005), there were 209,880 American victims of rape, attempted rape or sexual assault in 2004, with 58% unreported. Gender differences were also found in epidemiological data. Women experienced more interpersonal violence (e.g., rape, partner violence), and higher rates of PTSD, particularly chronic PTSD (Breslau, Kessler, Chilcoat, Schultz, Davis, & Andreski, 1998; Kessler, Sonnega, Bromet, Hughes, & Nelson, 1995). Considering that this is one of the most underreported crimes, and despite reported differences in rates of sexual assaults, it remains one of the most dominant abuses in our society.

A traumatic event such as sexual assault/rape may produce wide and varied psychological symptoms such as fear, anxiety, depression, guilt (Yehuda, 2002c), physiological and biochemical brain changes (Schore, 2003), decreased cortisol levels, (Yehuda, 1999), and sociological symptoms and effects such as stigmatization (Foa, Keane, & Friedman, 2000). These symptoms can lead to stress or anxiety disorders (e.g.,

panic, social phobia, and borderline personality), and particularly to PTSD (Kessler et al., 1995). Furthermore, comorbid disorders such as depression and substance abuse often occur in individuals with PTSD. Primary risk factors that may influence the severity and longevity of PTSD include the interpersonal nature and severity of traumas, characteristics of individuals, and post trauma factors (e.g., social support). Although symptom reduction is experienced by most victims at 3 months post assault, many of the negative effects, including fear (i.e., re-experiencing traumas in flashbacks), anxiety, depression, decreased self-esteem, and guilt continue for a substantial minority, over many years (Ballenger et al., 2004; Foa et al.; Resnick & Kilpatrick, 1994; Spinazzola, Blaustein, & van der Kolk, 2005). PTSD comprises three symptom clusters: re-experiencing, avoidance and hyperarousal (APA, 2000). One of the most disturbing features of PTSD involves intrusive "flashback" memories. To better understand trauma, memory processes, and emotional dysfunctions with patterns of brain response, neuropsychological and cognitive science models have been formulated. Pathological responses to stress are evident in amygdaloid arousal which intensifies and fragments memory processes, and impedes extinction of fear behaviours (Le Doux, 1995; Schore, 2003; van der Kolk & Fisler, 1995). To determine what distinguishes traumatic memories from ordinary experiences, studies were conducted by van der Kolk and associates (Rauch et al., 1996; van der Kolk, Hopper, & Osterman, 2001; Hopper & van der Kolk, 2001), using traumatic scripts. Their findings reveal that due to extreme conditions of stress (e.g., intense fear), the elicited sensory input is stored as fragments of sensory elements (e.g., visual images, smells, sounds, affective states and bodily sensations), rather than constructed into autobiographical narratives. Chris Brewin (2001) has created

a dual representation theory, differentiating two types of traumatic memories: verbally accessible memories (or VAMs) and situationally accessible memories (or SAMs). The SAM system is associated with the phenomenon of flashbacks. According to this model, therapy assists in the construction of detailed, consciously accessible memories in the VAM system, which then exert inhibitory control over amygdala activation (in the fear center of the brain).

In comparison to treatment research for other mental disorders, the study of treatment efficacy for PTSD (which was just introduced to the DSM-III in 1980) is still in its infancy. Several diverse and interesting treatment applications for use with traumatized clients include cognitive-behavioural therapy (CBT), pharmacotherapy, eye movement desensitization and reprocessing (EMDR), psychodynamic therapy, and creative therapies (Foa et al., 2000). The most widely researched and efficacious treatment interventions that target PTSD sequelae for female sexual assault survivors are CBT including exposure, stress inoculation training (SIT), and Cognitive Processing Therapy(CPT) and EMDR (Shapiro, 1995). Recent treatment outcome studies involving these approaches include Davidson and Parker (2001), Ironson, Freund, Strauss, and Williams (2002), and Rothbaum, Astin and Marsteller (2005). CPT developed by Resick and Schnicke (1996), addresses schema discrepancies that result from new information (i.e., rape incidents) clashing with prior schemata (e.g., “The world is a safe place,” “ Good things happen to good people and bad things happen to bad people”). Identifying, challenging, and modifying distorted beliefs (addressing themes of trust, safety, power and control, esteem, and intimacy) about sexual assault traumas has resulted in reduction of PTSD symptoms (including guilt and shame) in several studies (Resick & Griffin,

2002; Resick & Schnicke, 1992, 1996). EMDR has been used to access traumatic memories, and promote reduction and integration of associated intensity, using concurrent bilateral stimulation of the brain, often involving movement of both eyes. EMDR has been shown to be highly effective, particularly with trauma survivors, in relieving PTSD-related symptoms. One of the most distinguished features of this therapeutic approach is its use of saccadic eye movements. There has been controversy over the use of eye movements (Pitman et al., 1996; Wilson, Silver, Covi, & Foster, 1996). Disagreements also exist between trauma specialists relative to claims of fewer sessions and faster reduction of subjective distress. In spite of these criticisms, the use of repeated, brief, focused attention to traumatic material in EMDR is currently viewed as contributing to efficacious treatment (Rubin, 2003). One hypothesis to explain how alternate dual attention stimuli facilitates neural activity, and integration of disconnected sensory elements of traumatic memories is called "dual brain theory." Schiffer (1998) and his colleagues formulated their theory of "brain lateralization" based on findings from numerous studies with patients (Schiffer, 1997; Schiffer, Teicher, & Papanicolaou, 1995). They found that alternate stimulation of the eyes (lateral visual fields) produces shifts in cerebral dominance (restoring communication between hemispheres), resulting in expressed cognitive and affective changes. More recently, a newer therapy called one eye integration (OEI) has emerged, which also involves selected bilateral techniques, similar to both EMDR and dual-brain psychology. Audrey Cook (Cook & Bradshaw, 2002) originally developed this approach in response to dissociative clients who were unable to tolerate the intensity of processing with two eyes concurrently. Through tens of thousands of hours of clinical experience, and a recent formal study in 2003 to establish

empirical validity regarding changes in PTSD symptoms (see Appendix A), OEI shows promising results. Extensive trauma research over the last 2 decades calls for published reviews regarding empirically supported treatments and practice guidelines for PTSD (Foa et al., 2000; Nathan, 1998). Literature concerning practice guidelines for empirically-validated treatment includes criticisms of inert control groups and lack of experimental follow up assessments. It was recommended that rigorous research studies include: (a) comparisons with well-established treatments (or at least "probably efficacious" treatments), and (b) posttreatment follow up assessments. In response to these research guidelines and building upon Grace's (2003) study, the present study includes: (a) treatment comparison between OEI and a revised form of cognitive processing therapy (CPT-R), (b) a 3-month follow up assessment, and (c) a more active control condition. It has also been documented that self-report of emotional experiences alone is limited. Additional measures of change, particularly psychophysiological measures (e.g., heart rate, skin conductance and qEEG brain wave patterns) will produce more robust studies (Keane et al., 1998). The present study is the first to examine a sample of female sexual assault survivors with PTSD, depressive, and guilt symptoms using self-report questionnaires, interviews, and psychophysiological measures (qEEG brainwave patterns). Readers are referred to the Methods section for a detailed explanation of the research design.

CHAPTER II: LITERATURE REVIEW

Overview

This chapter begins with a review of epidemiological findings concerning sexual assault, gender differences and the development of PTSD, along with diagnostic criteria for PTSD according to the *DSM-IV-TR* (APA, 2000). The primary focus of this section is to explore psychological and neurophysiological explanations of PTSD, involving memory and emotional dysregulation due to impaired brain responses. Next, is an overview of the most efficacious treatment approaches for PTSD, specifically for female sexual assault survivors. Theoretical underpinnings of each treatment approach are discussed, concentrating on the components of CPT, EMDR, dual brain psychology, and OEI. The end of the chapter constitutes a transition into the focal points of the present research .

Epidemiology and Symptoms of Sexual Assault and Posttraumatic Stress Disorder Among Women

Sexual Assault

According to research evidence, the likelihood of encountering clients who experience PTSD symptoms is very high. Breslau and colleagues' (1998) research findings revealed that 9 to 12 % of the general population has experienced PTSD symptoms. In particular, assaultive violence (including rape) resulted in the highest rates of PTSD of all traumatic events considered (assaultive violence = 20.9% vs. learning about traumatic events experienced by others = 2.2%). More recent studies by Ozer, Weiss, Best, and Lipsey (2003) and Bennice, Resick, Mechanic, and Astin (2003) also suggest that sexual violence is a greater risk factor for developing PTSD than physical

violence in general. Further, interpersonal victimization (e.g., sexual assault, torture) correlate with the highest rates of chronic PTSD (Yehuda, 1999). The lifetime prevalence for rape among women is 9.2%, consistent with the National Comorbidity Survey (Kessler et al., 1995). Needless to say, this is a significant percentage of the population to be affected by such a violent crime. A full 49% of these women develop PTSD. In comparison, 30% of combat veterans develop PTSD, and 6 % of individuals involved in common traumatic events such as automobile accidents.

Gender Differences

Gender differences were observed both in types of trauma exposure, and in rates for development of PTSD. Research findings from the 1996 Detroit Area Survey of Trauma (Breslau et al., 1998) indicate that women, in general, are more likely to experience most types of interpersonal violence (e.g., child sexual abuse, partner violence, rape and sexual assault) compared to men (e.g., physical attack, combat experience, and threat with a weapon). As a result, women compared to men were more than twice as likely to have lifetime histories of PTSD: Kessler et al., (1995) reported a 10.4 vs. 5.0 % prevelance, respectively, and Breslau et al., (1998) found a difference of 11.3 vs. 6 %, respectively. Similar findings have been documented in more recent studies, as well (Alonso et al., 2004; Frans, Rimmö, Aberg, & Fredrickson, 2005). Women were also found to suffer longer durations of PTSD symptoms (Breslau et al.; Nemeroff et al., 2006). In 74% of cases, PTSD symptoms lasted longer than 6 months (Breslau et al.), with an average duration of 48.1 months in women versus 12 months in men, particularly when the traumatic event was directly rather than indirectly experienced (i.e., not merely witnessing violence).

Post Traumatic Stress Disorder

The *DSM-IV-TR* (APA, 2000) lists the following six clinical features for PTSD diagnosis:

1. Individuals must have been exposed to an actual or threatened traumatic event in which they personally suffered, witnessed or encountered a situation or occurrence that constituted actual death or serious injury, and resulted in intense fear, helplessness, and/or horror.
2. A person must persistently re-experience the traumatic event in which they encounter intrusive thoughts, nightmares, flashbacks, and intense emotional and physical reactions when exposed to internal or external cues that reflect similar aspects of the trauma.
3. Individuals persistently avoid stimuli correlated with the incident, and/or they must experience a numbing of their emotions, as specified by the following: Extending effort to evade feelings, cognitions, or conversations related with the traumatic event; recoiling away from activities, places or people that are reminders of the trauma; inability to remember essential elements of the trauma; significant decrease in interest or participation in important events; feelings of separation or dissociation from others; limited expression of affect; or unsettled feelings about the future.
4. Individuals must experience persistent symptoms of hyper-arousal, which may include the following: Trouble falling or staying asleep; easily provoked to anger, agitated or irritated; trouble concentrating; exaggerated startle reflex; or hyper-alertness.

5. These symptoms must last longer than one month, but less than three months to be considered acute, and longer than six months after the event (which may include delayed onset), to be considered chronic.
6. The distress that these symptoms cause must interfere with their psychosocial functioning (e.g., working, parenting, studying, etc.).

Comorbidity with Posttraumatic Stress Disorder

PTSD, categorized as an anxiety disorder in the *DSM-IV-TR*, is highly comorbid with depression (Metzger et al., 2004; Novac, 2001; and Yehuda, 2002a). Approximately 50 % of individuals who suffer from PTSD are concurrently diagnosed with major depressive disorder (Kessler et al. 1995). Trauma survivors also frequently experience guilt in some way following traumatic events. Guilt symptoms are commonly found among childhood sexual abuse survivors (Little & Hamby, 1999); battered women (Kubany et al., 2004); road accident survivors (Lowinger & Solomon, 2004); combat veterans (Keane et al., 1998; Kozaric-Kovacic, Marusic, & Ljubin, 1999; and Kubany et al., 1996); surviving family members of victims of suicide (Kaslow & Aronson, 2004); and sexual assault victims (Resick & Schnicke, 1992; Kubany et al., 1996). In the case of rape/sexual assault victims, guilt is often associated with conflicted beliefs, feelings, and cognitions concerning their roles in the incidents. Survivors of rape may experience guilt when their bodies felt pleasure, or they were unable to fight off the perpetrator despite threats to their lives. Additionally, social factors such as stigmatization increase the likelihood that women who have been sexually assaulted will develop PTSD. They are not only victimized by the perpetrator, but also by non-supportive society members (e.g., judgmental family members, friends, co-workers, and members of the police force and

legal system; Foa et al., 2000). It has been recognized that trauma-related guilt may be influential in the development and persistence of PTSD and posttraumatic depression.

Though a single specific factor has not been identified for the development of PTSD, it is clear that there are various psychological, social and biological factors linked to susceptibility to PTSD (Foa et al., 2000; Ozer & Weiss, 2004; Yehuda et al., 2000).

Neurobiological Explanation of Posttraumatic Stress Disorder

Despite the realization that neurobiology research is not fully understood or conclusive, numerous brain imaging studies have provided valuable insight into the brain structures that play a role in this condition (Britton, Phan, Taylor, Fig, & Liberzon, 2005; Kim & Jung, 2006; Lanius, Hopper, & Menon, 2003; LeDoux, 1995; Rauch, et al. 2000; Rosenzweig, Breedlove, & Watson, 2005; Shin, Orr et al., 2004; Shin, Shin et al., 2004; van der Kolk, 2001; van der Kolk, Burbridge, & Suzuki, 2001; Williams et al., 2006; Winter & Irle, 2004). More details on this topic will be provided in the Method section. Accumulated evidence from a wide variety of brain imaging studies directs attention specifically to the roles of the limbic, paralimbic and prefrontal areas in PTSD symptoms. A number of brain structures are involved in the pathogenic processes of PTSD (van der Kolk, 2001): (a) The parietal lobes, which are used in integrating sensory and perceptual information; (b) the right amygdala, which plays an important role in perceptions of self and others, particularly in affective domains; (c) the hippocampus, which plays an essential role in the integration of new learning and memory; (d) the corpus callosum, the major pathway of communication between left and right hemispheres; (e) the cingulate gyri, which are involved in ruminative and perseverative

responses; and (f) the prefrontal cortices, responsible for executive functioning processes, such as organization, planning, attention, and judgment.

Brain Processes Involved in Processing Traumatic Material

A leading clinician-scientist, Allan Schore (2003), presents multidisciplinary evidence to facilitate a more comprehensive understanding of affect dysregulation and the complex dynamic systems of the brain. Special emphasis is placed upon the vertical organization of the right brain, especially the "higher" orbitofrontal areas (dorsalateral prefrontal cortices) which have been implicated in regulation, inhibition, and facilitation of lower levels of the vertically-arranged, right-lateralized limbic system (involving the amygdala, hypothalamus, thalamus, and hippocampus).

When adequately functioning, normal processing occurs from the right midbrain (limbic system) to the right dorsolateral prefrontal cortex with the left prefrontal dorsal cortex modulating the intensity of arousal. Similar to thermostat regulation, when the right side heats up, the left side cools it down. In optimal functioning, the orbitofrontal cortex mitigates the effects of the amygdala (the major fear center of the brain) by exerting inhibitory control over intense emotional arousal. In contrast, the state of PTSD involves over-firing of the limbic system, resulting in excitation of the hypothalamic-pituitary-adrenal axis, which sends out corticotropin-releasing factor (CRF), increases the number of glucocorticoid receptors, and inhibits the left dorsolateral prefrontal cortex (impairing the ability of those structures to modulate emotional intensity). Impairment of those interconnections permits amygdala-driven fear-and-flight states to be expressed without cortical inhibition. It is currently recognized that pathological responses to stress (i.e., PTSD, phobic or panic disorders) demonstrate the operations of hyperexcitable

amygdalas. Memory processes are intensified and fragmented by extreme stress. Because trauma inhibits the processing of the left dorsolateral prefrontal cortex (orbitofrontal areas are no longer correcting or adjusting emotional responses), painful, childhood emotional experiences that are imprinted into the amygdalar-hypothalamic circuits, maintain intense fear-freeze responses. The consequences of a dysfunctional orbitofrontal system, according to Ledoux and his colleagues (1995) will involve failure to shift cognitive strategies, and resultant decreases in behavioural flexibility. This "emotional preservation" produces greater resistance to extinction of fear behaviours (such as those found in anxiety, phobic, panic and posttraumatic stress disorders).

Biochemical Responses to Trauma

Abnormalities in regulation of the hypothalamic-pituitary-adrenal axis (HPA) and coritsol levels have also been found in studies of adults exposed to traumas who did, or did not, develop PTSD (Bremner, 1999; Davidson, Stein, Shalev, & Yehuda, 2004; Golier et al., 2005; Heber, Kelfner, & Yehuda, 2002; Resnick, Yehuda, Pitman, & Foy, 1995; Rosenzweig et al., 2005; Yehuda, 2002b; Yehuda, Boisoneau, Lowy, & Giller, 1995; Yehuda et al.,1993). Patients with histories of previous assaults (chronic PTSD), and those who experienced severe rapes, were observed to have low cortisol levels, compared to healthy adults faced with psychological stressors, who demonstrated powerful increases in cortisol levels. In the current study, the psychophysiological focus will be on qEEG alpha asymmetry patterns in the frontal and parietal lobes, which is why the following section is provided.

Alpha Asymmetry

Theories of neurobiology of emotion involving frontal lobe EEG asymmetries were initially derived from naturalistic observations in mood reactions with patients who had suffered brain injuries and lesions (i.e., cerebrovascular accidents or strokes). Deficits in positive and negative emotional regulation were observed by Gainotti (1972) and Sackheim et al.,(1982). They noted that patients with cortical damage to the left hemisphere frequently experienced catastrophic reactions such as tears, despair or anger, while patients with right cortical lesions often experienced mania (pathological laughing or socially inappropriate behaviours).

From these naturalistic observations regarding differential roles of the hemispheres, EEG investigations of asymmetries evolved. Quantitative qEEG studies of emotion focus primarily on power in the alpha frequency band. Evidence suggests that anterior alpha (8 to 13 Hz) asymmetry reflects relative differences in activity between left and right hemispheres and is inversely related to brain activation (Davidson, 1992). Accordingly, alpha brainwaves are associated with hypo- (rather than hyper-) activation states, particularly in the left hemisphere.

Alpha asymmetry patterns have been explored in a number of well documented studies, particularly by Davidson and his colleagues (Davidson, 1984; Davidson, 1988; Davidson, 1995; Davidson, Ekman, Saron, Senulis, & Friesen, 1990; Davidson, Schaffer, & Saron, 1979; Davidson, Schaffer, & Saron, 1985; Davidson, Taylor, Saron, & Stenger, 1980; Davidson & Tomarken, 1989; Henriques & Davidson, 1991; Tomarken, Davidson, & Henriques, 1990). Based on previous theories, along with more recent studies and observations, Davidson (1992) and other researchers hypothesized that the hemispheres

specialize in either approach or withdrawal processes. He has suggested that activation frequencies higher than alpha in the left anterior region are responsible for approach-related emotions such as happiness, excitement, and elevation (even to extremes of mania with inappropriate laughter and grandiosity). In contrast, activation in the right anterior region is linked to withdrawal-related emotions, such as fear, disgust, anxiety, sadness or depression. Thus, deficits in an approach system (e.g., decreased positive affect) are more reflective of depressed individuals.

It is important to note that the specialized approach and withdrawal systems are not considered to be independent processes, but rather linked with underlying subcortical structures (Davidson, 1998a). Mentioned earlier, the brain regions and structures that constitute these systems include the dorsalateral prefrontal cortices, the ventral/medial prefrontal cortices, the nucleus accumbens and other parts of the basal ganglia, the amygdalae, the anterior prefrontal cortex, the parietal cortex and the hypothalamus. Involvement of some of these regions is pronounced in both systems, while other structures have more latent influence in one system than the other (e.g., the nucleus accumbens in the approach system; the amygdala in the withdrawal system).

Baseline differences of hemispheric functioning in depression. A number of baseline studies have contributed to this knowledge of hemispheric functioning, some of which include the investigations conducted by Davidson and colleagues (Davidson, 1998a; Henriques & Davidson, 1990; Henriques & Davidson 1991; Henriques & Davidson, 1997; Tomarken et al., 1990; Tomarken, Davidson, Wheeler, & Doss, 1992; Wheeler, Davidson, & Tomarken, 1993). Baseline differences in EEG activity were recorded and examined in previously depressed and never depressed subjects, and with

depressed and healthy control subjects. Baseline recordings were measured and compared with emotional reactions produced after viewing positive (i.e., happy) and negative (i.e., disgust) film clips. Both depressed and previously depressed subjects demonstrated a similar pattern of decreased left-sided frontal activation (i.e., more alpha) or greater right frontal activation (i.e., less alpha) in comparison to normal controls. Participants' asymmetries were found to predict their levels of negative response to viewing the negatively-eliciting films and were unrelated to their baseline moods. Though there may be individual differences (Davidson, 1992), the authors concluded that left frontal hypo-activation may be an independent marker of vulnerability to depression. Individuals who display this pattern of asymmetry in the resting state are more vulnerable to certain negative affective states and depressive disorders, particularly when exposed to negative life circumstances occurring over an extended period of time (Davidson, 1998b).

Other researchers have also provided strong support for the association of frontal EEG asymmetry and vulnerability to depression (Baehr, Rosenfeld, Baehr, & Earnest, 1998; Bruder et al., 1997; Pizzagalli et al., 2002). Gotlib, Ranganath and Rosenfeld, (1999) further extended the findings of Davidson and associates by comparing alpha asymmetry patterns in currently depressed, previously depressed, and never depressed persons. Left hypo-activation was found to be similar in both currently depressed and previously depressed subjects, despite differences in current levels of depressed mood.

Davidson and Fox (1982, 1989) found differences between frontal asymmetry and emotional reactivity in their studies with 10-month old infants, similar to those observed in studies with depressed adults. Predictions could be made with baseline measures of frontal activation of which infants would cry and which would not when

exposed to a brief period of maternal separation. Criers had greater right-sided and less left-sided frontal activation compared with the non-criers.

Treatment changes in frontal alpha asymmetry. Based on the substantial research pertaining to frontal alpha asymmetry and correlations with emotional states, numerous investigators have explored and demonstrated the manipulability of right-left hemispheric activity through treatment applications (biofeedback, and OEI). The clinical application of an EEG neurotherapy protocol focuses on retraining the brain by reversing the frontal brainwave asymmetry. Findings of several studies involving neurofeedback treatment for depression indicate that by increasing activation of the left hemisphere and/or decreasing activation of the right hemisphere, depressive symptoms are significantly reduced (Baehr, Rosenfeld, Baehr, & Earnest, 1999; Corydon, 2000; Rosenfeld , Baehr, Baehr, Gotlib, & Ranganath, 1996). In an exploratory study using OEI for participants experiencing PTSD from trauma-related incidents, Grace (2003) found that increased left frontal activity and decreased right activation (i.e., more alpha) correlated with reported decreases in PTSD symptoms and depression, confirming results of other studies.

Differences in hemispheric functioning in anxiety and depression. Recent studies (Davidson, Abercrombie, Lanius, Nitschke, & Putnam, 1999; Heller & Nitschke, 1998; Heller, Nitschke, & Miller, 1998; Heller, Nitschke, Etienne, & Miller, 1997; Lanius, 2003; Metzger et al., 2004; Pizzagalli et al., 2002) have involved investigation of the link between brain activity and symptoms of depression and anxiety. It has been shown that some depressed individuals with comorbid anxiety display the opposite asymmetry. According to Heller and Nitschke, individual differences in posterior activation asymmetry should vary with symptoms of anxious arousal (with those showing more

anxiety having greater right-sided parietal activation). Lanius and her colleagues (2004) also noted changes in the right inferior parietal area with traumatized subjects, in response to script-driven provocation.

In Metzger et al.'s (2004) study, the relationship between measures of overall PTSD symptom severity and EEG alpha asymmetry was examined in female nurse veterans with PTSD and those without. Classified as an anxiety disorder in the *DSM-IV-TR* (APA, 2000), PTSD shares symptoms of anxious arousal (i.e., hyper-vigilance, irritability, exaggerated startle reflex) and some symptoms of major depressive disorder, such as loss of interest or pleasure, detachment or estrangement from others, and the sense of a foreshortened future. Results from this study provide evidence that there is a relationship between clinical measures of PTSD arousal symptoms and increased right-sided parietal asymmetry. The combination of increased arousal and depressive symptoms was associated with greater right-sided parietal asymmetry than with arousal alone. These results suggest that depression diagnosed within the context of PTSD is biologically different from ordinary depression.

The strong link between major depressive disorder and anxiety with right frontal activation has been further explored by Pizzagalli and colleagues (2002). They compared patterns of brain activity associated with symptom severity, anxiety, and melancholic features of depression in melancholic and nonmelancholic subjects. Both subject groups had relative hyperactivity in right frontal regions. Hyperactivity was more pronounced, however, in melancholic subjects experiencing greater depression. Furthermore, consistent with previous findings (Bremner, Narayan, Staib, Southwick, McGlashan, & Charney, 1999; Davidson, 1998a; Rauch et al., 1996) there was a positive correlation

between right frontal activity and anxiety with depression severity in melancholic subjects only.

In summary, an asymmetry pattern has been found in which previously depressed patients showed more alpha on the left than right at frontals and more right than left at parietals (Henriques & Davidson, 1990). Patients with major depression only (i.e., without anxiety) had higher alpha on left than right in the frontals and higher right in parietals. When patients had major depression with anxiety, the same pattern was evidenced in the frontals (left alpha higher than right), but the pattern in the parietals was left parietal alpha higher than right (Davidson et al., 1999; Metzger et al., 2004).

Some of these findings have not been consistently replicated across studies. In Heller et al's (1998) review of asymmetry studies, some findings regarding anxiety were associated with increased right hemisphere activation, while results of other studies indicated increased left hemisphere activation. Inconsistencies in results may be explained by differences in statistical procedures, variations in understanding the constructs of depression and anxiety (and their comorbidity associated with brain activity), and methodological approaches investigating asymmetric patterns (e.g., lack of baseline samples and test-retest data). Another explanation for these apparent inconsistencies in findings could be that individuals vary in hemisphere lateralization with eye dominance (Schiffer, Stinchfield, & Pascal-Leone, 2002).

Memory Processes in Posttraumatic Stress Disorder

Research evidence suggests that individuals who develop PTSD seem unable to integrate the details of their traumatic memories, including associated thoughts, emotions, and somatic sensations into their larger autobiographical memory stores (Brewin, 2001;

van der Kolk, 2002). This inability to integrate all the elements of the experience into a unified whole is referred to as dissociation. Separate pieces of information are subsequently kept outside an individual's conscious awareness, but may continue to impact present behaviours. It is postulated that individuals who develop PTSD have numerous encoded sensory and emotional elements in memory storage that are trauma-associated. When confronted with reminders of trauma incidents, the entire neural network is triggered, causing re-experiencing of past, frightening events, as if they are happening in the present.

Brewin (2001) explains this phenomena in his dual representation theory, distinguishing between two distinct types of memories of traumatically-experienced events: verbally accessible memories, or VAMs, and situationally accessible memories, or SAMs. SAMs constitute the more disturbing features of PTSD, including panic attacks, flashbacks, nightmares and exaggerated startle reflex. Affective states of fear, helplessness, horror, and shame are also often produced during activation of SAMs.

To support the neural basis of SAMs during recall of traumatic events, a study was conducted by Rauch and his colleagues (1996) involving neuroimaging (Positron Emission Tomography scans) of patients with PTSD. In exposing PTSD patients to audiotapes of graphic detailed narratives which they had written about their personal traumatic experiences, decreased activation of Broca's area (thought to be responsible for translating personal experiences into communicable language) and increased activation of the limbic system in the right hemisphere of the brain, occurred. This suggests that when people with PTSD relive their traumas, they have great difficulty putting their experiences into words. Furthermore, the relative increased activity of the right

hemisphere may indicate that when people re-experience their traumas, they are actually experiencing them as if they are currently happening, but are unable to place them appropriately in time and space. According to van der Kolk (2002), people struggle to verbally express their traumas while in the process of reliving them. Remembering the details of each trauma can be upsetting, and may cause people to avoid confronting them. A challenge when treating PTSD is to help people process and integrate their traumatic memories without re-traumatizing them. By understanding these brain processes, psychotherapeutic interventions can be refined, thereby promoting more effective trauma recovery.

Because PTSD appears to co-exist with dissociation, it has been recommended that treatment involve association (van der Kolk, 2002; van der Kolk, van der Hart, & Burbridge, 1995). Traumatic memory fragments that need to be reintegrated are not limited to verbal descriptions of the incidents. It is reasoned that trying to verbally express sensations or emotions from the past in the present may result in ascribing the source to an incorrect stimulus, promoting faulty cognitions. In contrast, by reconnecting the sensory or emotional aspects of trauma incidents, memory fragments are reintegrated with verbal explanations.

Current Therapy for Posttraumatic Stress Disorder

In attempting to identify the most successful therapies and treatments for PTSD, many studies have been conducted. Results indicate that CBT and EMDR are the most widely researched and efficacious treatments for PTSD (Davidson & Parker, 2001; Livanou, 2001; Nemeroff et al., 2006).

Cognitive Behavioural Techniques

CBT incorporates a diverse collection of techniques, including prolonged or imaginal exposure, systematic desensitization, SIT, CPT, cognitive therapy, assertiveness training, biofeedback, relaxation training, and combinations thereof (Foa et al., 2000; Livanou, 2001). For the purpose of this study, however, only the most well-researched variants of CBT (EX, SIT, and CPT) will be examined and discussed, as they have been used for treating female sexual assault survivors with PTSD.

Exposure therapy. Various names, including flooding, imaginal exposure, in vivo exposure, prolonged exposure and directed exposure have been used alternately to label prolonged exposure. It has been applied to anxiety- provoking stimuli, and may or may not include relaxation or educational components. Regardless of the variety of names, these therapies are collectively known as exposure therapies (EX; Foa et al., 2000). EX procedures commonly involve confronting clients with their frightening traumatic memories continuously (e.g., 45-60 minutes per session) until the accompanied high levels of anxiety are reduced. Persistent exposure is thought to result in decreased escape and avoidance behaviours that were originally established through negative reinforcement. Length of sessions ranges from 30 to 120 minutes, and number of sessions ranges from 4 to 29.

Exposure is grounded in emotion processing theory, in which it is hypothesized that PTSD emerges due to the development of a fear network in memory that elicits escape and avoidance behaviour. Such mental fear structures include any information connected with traumatic events, such as responses to stimuli, and meaning elements. Because trauma survivors with PTSD are likely to have many stimulus triggers, they are

more easily accessed. Avoidance and numbing symptoms occur when deliberate attempts are made to evade this activation. For emotional processing to be effective in reducing fear, it is important that the fear structure be aroused. New information must then replace, and therefore correct, the pathological elements of the traumatic recollection.

According to exposure theorists, in order for treatments to be effective, prolonged exposure (rather than brief exposure, as in EMDR) is necessary because habituation is a gradual process (Foa et al., 2000). Repeated exposure of the frightening memory is thought to result in the following changes: (a) Habituation of clients' fears, reducing associated anxiety; (b) confrontation of feared memory blocks (initially established by negative reinforcement) and trauma-related thoughts and feelings that were being avoided; (c) provision of a safe environment to help clients realize there is nothing to be afraid of, when remembering the feared memory; (d) differentiation between traumatic events and non-traumatic events; (e) find meaning, through courageously confronting memories of traumas; and (f) modifying previous negative evaluations participants have of themselves.

Despite some of the limitations of EX (e.g., too intense, unable to efficiently address guilt and anger) it has presently received the most empirical support in terms of treatment interventions for PTSD among rape and other sexual assault victims (e.g., Foa, Zoeller, Feeny, Hembree, & Alverez-Conrad, 2002).

Stress inoculation training. SIT is a treatment that was developed by Donald Meichenbaum in 1974 (cited in Foa et al., 2000), in which clients are taught skills to effectively manage their anxiety arousal levels. Some of the techniques consist of muscle relaxation training, breathing retraining, role-playing, thought-stopping, covert modeling,

guided self-dialog, and education. The principle underlying SIT is that anxiety becomes conditioned at the time of traumas and then subsequently is generalized to many other situations. By learning to manage their anxieties through the use of newly acquired skills, clients are less likely to experience avoidance and anxiety. Studies of SIT have only investigated female sexual abuse victims, and therefore, treatment efficacy lacks generalizability to other types of trauma. Though research results regarding SIT have demonstrated efficacy for treating PTSD symptoms, the relaxation element may aggravate anxiety symptoms, rather than reduce them, for some participants. Furthermore, multiple techniques require a significant amount of therapist training.

Cognitive processing therapy. Resick and Schnicke (1992) developed CPT to treat PTSD symptoms in rape victims. This protocol is comprised of educational, cognitive and exposure components. The educational component involves teaching clients about PTSD symptoms, depression, and information processing therapy, while providing opportunities for questions to be answered that may arise. The cognitive component includes training in identifying thoughts and feelings, cognitive restructuring techniques for challenging dysfunctional cognitions, and addressing the five themes of safety, trust, power, esteem and intimacy. In contrast to induced imagery in exposure therapy, the EX component consists of writing and reading detailed narratives of the rapes. The exposure component is designed to elicit the expression of emotions and related beliefs and will help reveal "stuck points" involving the traumatic material.

CPT is called an "information processing model" (Resick & Schnicke, 1996). Based on Brewin's dual-representation theory (Brewin, Dalgleish, & Joseph, 1996), CPT incorporates techniques found in both cognitive and exposure therapy. At the same time,

it bears resemblance to emotional processing therapy (the EX element), and CT (confronting and correcting dysfunctional thinking patterns). It also departs from EX and CT in several other respects. Although prolonged exposure involves inducing imaginal re-experiencing of trauma memories, it does not directly provide corrective information concerning misattributions or other dysfunctional beliefs. Results of earlier studies indicate that rape victims experience a range of emotions such as anger, guilt, disgust, or humiliation, in addition to fear. When rape experiences conflict with previous beliefs, victims are less able to reconcile these events with their previous beliefs and have greater difficulty recovering. CPT practitioners and researchers postulate that PTSD symptoms (intrusion, avoidance, hyper-arousal) are usually caused by conflicts between this new information and prior schemata. These conflicts may be represented within themes of trust, safety, power and control, esteem, and intimacy. The goal of CPT is to identify and shift the "stuck points," (conflicts between prior schemata and this new rape-related information), through application of the EX element.

CPT is considered one of the leading treatments for rape victims to date (Chard, 2005; Nishith, Nixon, & Resick, 2005; Resick & Griffin, 2002; Resick, Nishith, Weaver, Astin, & Feuer, 2002). However, more research is necessary to establish its efficacy for different traumas, and to compare it with other treatments, using researchers other than those who developed the procedure (Foa et al., 2000).

Cognitive behavioural studies. CBT studies have involved a number of trauma populations, including Vietnam veterans (Orr, Pitman, Lasko, & Lawrence, 1993), survivors of mixed traumas such as loss of loved ones or automobile accidents (Devilly & Spence, 1999; Foa et al., 1999), child sexual abuse victims (McNally, Clancy, Schacter,

& Pitman, 2000), female sexual assault and physical trauma victims (Foa, Hearst-Ikeda, & Perry, 1995; Foa, Ehlers, Clark, Tolin, & Orsillo, 1999; Foa, Rothbaum, Riggs, & Murdock, 1991; Foa et al., 2002), and rape trauma (Resick & Schnicke, 1992, 1996; Resick & Griffin, 2002; Resick et al., 2002; Rothbaum, Meadows, Resick, & Foy, 2000; Rothbaum & Schwartz, 2002).

In several well-controlled studies, significant reductions of PTSD, depression, and anxiety symptoms have been documented relative to control conditions (Foa et al., 1991; Foa et al., 1999; Foa et al., 2002). Two studies of particular interest involved the investigation of prolonged exposure (PE) with female survivors of sexual assault. In Foa et al.'s 1991 study, PE was compared to SIT, supportive counseling and a waitlist control group for 45 females with PTSD. The 1999 study involved comparisons between PE and SIT, and a combination of PE with SIT, to a waitlist control group of 78 female victims of sexual assault. Results of these two studies indicated that although SIT showed greater improvement immediately after treatment, PE was more beneficial than SIT overall in reducing PTSD related symptoms.

While there is a strong supportive foundation for the efficacy of prolonged exposure therapy, concerns remain about potential exacerbation of PTSD and anxiety symptoms during the process of treatment or following (Rothbaum & Schwartz, 2002; Foa et al., 2000). Results of some studies have indicated that there has been a temporary increase in anxiety or avoidance symptoms after the introduction of PE in a small number of patients (Foa et al, 2002; McNally et al., 2000). Though this increase in anxiety symptoms was temporary and did not interfere with the treatment's effectiveness, some trauma survivors are still reluctant to encounter details of their traumatic events and

endure these transient increases in anxiety symptoms. Consequently, not everyone is suitable for EX. Some preliminary evidence further suggests that therapeutic procedures for fear such as EX may even be harmful, or at least not conducive to the alleviation of guilt or other disturbing emotions. It has been suggested that cognitive therapies may better address pathological guilt evident in rape survivors (Foa et al., 2002).

Additional treatment outcome research studies addressed samples of female rape or sexual assault survivors, and compared CPT with a waitlist condition in a group setting (Resick & Schnicke,1992); PE with CPT (McNally et al., 2000; Nishith, Resick & Griffin, 2002); and CPT with PE and a waitlist condition for chronic PTSD (Resick et al., 2002). In the 1992 study, CPT resulted in significant improvements in both PTSD and depressive symptomatology, and these were maintained over 6 months when implemented in a group setting. Both CPT and PE were significantly effective in treating PTSD and depressive symptoms in the latter two studies. However, in Resick et al.'s (2002) study, though CPT and PE were equally successful in reducing PTSD and depressive symptoms, CPT was considered superior. Despite the fact that CPT participants did only half as much homework and had only two sessions of the exposure component (recounting the trauma memory with writing and reading of the account), CPT was more effective in correcting faulty guilt cognitions on two of the four Trauma-Related Guilt Inventory (TRGI) subscales (Kubany et al., 1996).

Eye Movement Desensitization and Reprocessing

In the last decade, a comparatively new treatment for PTSD, referred to as EMDR, has been used to access traumatic memories and promote reduction and integration of the associated intensity. It has been postulated that PTSD symptoms are

conditioned emotional responses to trauma experiences that require a different form of intervention. Initially introduced in 1989 by Francine Shapiro (Shapiro, 1995), EMDR is currently considered a standard form of treatment for a variety of populations and conditions, particularly trauma survivors with PTSD-related symptoms.

EMDR includes several elements that are similar to exposure therapy (e.g., confronting traumatic material, cognitions). However, unlike the structured prolonged exposure process to hinder avoidance, EMDR uses frequent brief (20-50 second) exposures, interrupted with free association (Rogers & Silver, 2002; Shapiro, 1995, 1999, 2002c). Bohart and Greenberg (2002) have referred to EMDR as a self-healing approach. Healing is generated through the client's own spontaneous insights or solutions, as stuck points are worked through, rather than through corrective feedback typically provided by psychodynamic, cognitive, or behavioural therapists. Furthermore, in contrast to exposure therapies, EMDR uses eye movements as its most distinguished feature with or without other alternate bilateral stimulation (Shapiro, 1995, 1999, 2002c). Eye movements are a treatment element. Patients are instructed to move their eyes back and forth rhythmically side to side, much like the saccades of rapid eye movement during sleep, while thinking of aspects of their traumatic memories. EMDR entails an 8-phase approach, guided by an information processing model in which pathology is viewed as perceptual information that has been dysfunctionally stored.

Initially, the client is directed to simultaneously focus on a mental (visual) image, along with the related cognitions and sensations (Shapiro, 1995, 2002c). The client has the flexibility to report whatever details are considered important, with freedom to move back and forth from one emotion to another. The result of this non-directive process is

that clients are frequently able to achieve reductions in anxiety without purposeful focus on the complex details of traumatic events, and changes in cognition, affect, and sensation appear concurrently.

There are three goals of this integrative approach: (a) to facilitate assimilation and accommodation of memories (i.e., alter perspectives and meaning, restructure cognitions); (b) to desensitize stimuli that trigger present distress, as outcomes of this second order conditioning; and (c) to incorporate adaptive attitudes, skills, and behaviours for enhanced psychosocial functioning (Shapiro, 1995, 2002b).

Eye movement desensitization and reprocessing studies. Numerous studies have demonstrated EMDR's relative efficacy in relieving PTSD symptoms (Davidson & Parker, 2001; Edmond, Rubin, & Wambach, 1999; Edmond, Sloan, & McCarty, 2004; Ironson et al., 2002; Lee, Gavriel, Drummond, Richards, & Greenwald, 2002; Rogers & Silver, 2002). At the same time, current literature reveals variances in clinical significance achieved, though this may be largely attributed to methodological flaws (Davidson & Parker, 2001; Maxfield & Hyer, 2002; Rubin, 2003; Sikes & Sikes, 2003). Questions also remain regarding whether eye movements are necessary for the improvement of PTSD (Pitman et al., 1996), and if EMDR's effectiveness occurs as quickly as has been claimed in terms of speed of reducing PTSD symptoms (i.e., three to six sessions; Rothbaum, 1997). Nonetheless, more recent empirical support provides recognition that EMDR is an efficacious treatment for a variety of populations and measures (Davidson & Parker, 2001; Perkins & Rouanzoin, 2002; Rubin, 2003; van Etten & Taylor, 1998). As independent reviewers, Davidson and Parker (2001) investigated 34 published controlled studies and determined that EMDR 's effectiveness greatly exceeded

no-treatment and non-specific treatment controls, and had equally significant effects to exposure and cognitive behavioural therapies. Likewise, Perkins and Rouanzoin. (2002) and van Etten and Taylor (1998) concluded that EMDR was more efficient in achieving therapeutic changes with fewer sessions.

To date, EMDR has been compared in studies to a number of treatments and controls that have resulted in significant reduction in PTSD symptoms. Moreover, according to Rubin (2003), the number of controlled studies for establishing the efficacy of EMDR with non-combat single trauma PTSD has been greater than for any other treatment approach for PTSD. Studies of EMDR have included: civilians (Devilly & Spence, 1999; Ironson et al., 2002; Lee et al., 2002; Rothbaum, 1997; Wilson, Becker, & Tinker, 1997), combat veterans (Boudewyns & Hyer, 1996; Shapiro, 1995, 1999; Rogers & Silver, 2002), battered women prisoners (Colosetti & Thyer, 2000), sexual assault victims (Rothbaum, 1997; Rothbaum, et al., 2005), sexual abuse survivors (Edmond et al., 2004; Edmond et al., 1999), internalized shame (Balcom, Call, & Pearlman, 2000), depression (Shapiro, 2002a), attachment disorder (Siegal, 2002), generalized anxiety disorder (Lazarus & Lazarus, 2002), marital discord (Kaslow, Nurse, & Thompson, 2002), existential angst (Krsytal, Prendergast, Krystal, Fenner, Shapiro, & Shapiro, 2002), and phobias (DeJongh & Ten Broeke, 1998; DeJongh, Ten Broeke, & Renssen, 1999; DeJongh, van den Oord, & Ten Broeke, 2002).

Reports by clinicians treating combat veterans (Rogers & Silver, 2002) suggest that EMDR may be effective with PTSD presentations of anger, guilt, and shame. In a preliminary study it was found that EMDR minimized symptoms of guilt in combat-

related PTSD (Cerone, 2001). Van Etten and Taylor (1998) reported equivalent outcomes for exposure therapy and EMDR for reducing guilt and anger symptoms.

EMDR has been compared to waitlist controls (Rothbaum, 1997; Wilson et al., 1995; Wilson, Becker, & Tinker, 1997), in randomized comparative clinical trials to exposure therapies (Ironson et al., 2002; Rothbaum et al., 2005; Taylor et al., 2003), to cognitive therapies and exposure techniques (Lee et al., 2002; Power et al., 2002), to eclectic therapy and delayed treatment controls (Edmond et al., 2004), and to comparative controlled studies of cognitive therapy without randomization (Devilly & Spence, 1999).

In direct randomized comparisons of EMDR to CBT treatment of PTSD (Ironson et al., 2002; Lee et al., 2002; Power et al., 2002; Rogers & Silver., 2002; Taylor et al., 2003), it has been reported that EMDR is equivalent, with EMDR producing greater effectiveness on measures of PTSD intrusion symptoms in two studies, and CBT proving superior for the PTSD symptoms of intrusion and avoidance in one study (Taylor et al., 2003).

In a controlled study without randomization (Devilly & Spence 1999), researchers reported that the CBT-based approach was significantly more effective than EMDR in reducing PTSD and associated symptoms, increasing in relative efficacy over the course of time, with EMDR deteriorating in efficacy. However, in a literature review by Perkins and Rouanzoin (2002) clear deviations from the standardized EMDR protocol (Shapiro, 1995) were found. Inaccurate instructions were given during assessment, rating the negative rather than the positive cognition, and there was an inappropriate focus on the

positive cognition during eye movements, before it was paired with the picture or trauma incident.

In other studies, preliminary evidence has indicated that EMDR shows greater efficiency and requires fewer treatment sessions and/or homework to produce significant reductions in PTSD symptoms (Ironson et al., 2002; Power et al., 2002; Rothbaum, 1997; Wilson et al., 1995). In the study conducted by Ironson and his associates (2002), EMDR was compared with PE, in a civilian sample of PTSD clients. The outcome measures for this study indicated that both PE and EMDR significantly reduced PTSD symptoms and depression scores, but that EMDR participants appeared to improve more quickly (7 out of 10 had a 70% reduction of PTSD symptoms compared to 2 of 12 with PE), and better tolerated treatments more easily compared to those in the PE condition, evidenced by lower dropout rates (0 out of 10 vs. 3 out of 10) and lower subjective units of distress (SUD). After the first treatment session, there was greater reduction of SUDs scores with EMDR (average change = -46.9) than for PE (average change = + 6.5) indicating that it may have been more upsetting undergoing PE and that habituation was not achieved during the initial PE session. Similarly, results from Power et al.'s (2002) study comparing exposure plus cognitive restructuring (EXCR) and waitlist control with EMDR suggested that though both EXCR and EMDR were equally effective treatments for reducing PTSD symptoms at posttreatment, patients in the EMDR condition additionally reported greater decreases in depression scores and increased social functioning at the 15-month follow up than those in the other two conditions. It was further observed in studies conducted by Wilson et al. (1995, 1997) that the average post-EMDR treatment score on the Impact of Event Scale (Weiss & Marmar, 1997) dropped

to a level comparable with the mean of the normal population after a single 90 minute session. Scores continued to decrease with two additional sessions. The same benefits were noted at 3- and 15-month follow up assessments, and were confirmed by other measures of treatment effects.

Improved toleration, fewer sessions, and faster reduction of subjective distress for PTSD symptoms suggest the possibility that EMDR's use of repeated, brief, focused attention involves a different mechanism of action than exposure therapy with its extended, continuous periods of exposure.

Some studies suggest that eye movements may be an intrinsic part of EMDR's utility (Barrowcliff, Gray, MacCulloch, Freeman, & MacCulloch, 2003; Shapiro, 2002c; Wilson, et al., 1996), while others do not (e.g., Boudewyns & Hyer, 1996; Pitman et al., 1996). Wilson and her colleagues concluded that eye movements were associated with physiological correlates of relaxation, such as reductions in blood pressure, heart rate, and galvanic skin response.

It was further reported in a meta-analysis that comparative studies of EMDR with and without eye movements (Davidson & Parker, 2001) that EMDR with eye movements was significantly superior to EMDR without eye movements. With continued controversy regarding the mechanics of EMDR, eye movements, efficiency, and better toleration, there is a call for more rigorous study.

Neurobiological aspects of eye movement desensitization reprocessing. In the last 20 years, research findings have confirmed that trauma generates dissociative symptoms (van der Kolk, 2002).The traumatic impact of a single event (e.g., rape) can cause thoughts, feelings, and physical sensations that split the mind into separate

representations. The resulting memory fragments are no longer remembered together, and some fragments may be recalled with intensity equal to the original experience. Although information imprinted in dissociative states may be blocked from conscious awareness, it is believed that it still influences behaviour (van der Kolk, 1994).

It has been hypothesized that rhythmic eye movements (or alternative dual attention stimuli) occurring while a patient is re-exposed to one aspect of the dissociative memory may produce neural activity across and within brain hemispheres. If this is true, EMDR could facilitate reintegration of disconnected elements of memories by re-establishing synchrony between them. It makes sense that alternating stimulation at the beginning of the therapeutic process frequently triggers powerful abreactions in trauma patients. Continued stimulation accelerates this neural process, reducing the emotional impact of associations, with verbal material restored in proper perspective (Schiffer et al., 2002).

Dual-Brain Psychology

Additional research conducted by Schiffer and colleagues (Schiffer et al., 1995; Schiffer, 1997, 1998, 2000; Schiffer et al., 2002; Schiffer et al., 2004) supports the growing evidence of differences in emotional experiences correlated with lateralized sensory stimulation. Schiffer's theory of two distinct "minds" was largely grounded on the early German experiments which involved the activation of emotions and corresponding diversity between hemispheres (2000). These dualities were hypothesized to be the result of disruption of communication between hemispheres. To identify brain laterality, Schiffer developed a set of eye glasses that limited vision to either the extreme left side or the extreme right, and a therapeutic approach that aided in accessing

information from each of the hemispheres separately. Schiffer has established links between visual stimulation and verbal reports, and the degree of activity in the hemispheres of the brain. Through many trials, he discovered that the magnitude of affective states such as anger, fear, shame, sadness, and anxiety significantly changes, depending on which eye (or lateral portion of each eye) is open to light. During traumatic recall, increased right hemispheric activity and corresponding decreases in activity in the left hemisphere were noted in PTSD patients, compared to those in a control condition in which no improvement was found. These results suggest that accessing experiences one eye at a time facilitates integration of higher cortical functioning.

Dual-brain psychology: Schiffer's formal studies. In 1995, Schiffer and his colleagues conducted their first attempt to investigate hemispheric activity in 10 subjects with childhood traumas compared to 10 subjects without significant trauma histories, during the recall of a neutral memory and then a traumatic memory. Only the traumatized group displayed a significant left dominant asymmetry during the neutral memory that significantly shifted to the right during the distressing memory. In comparison, the normal control group did not exhibit asymmetry during either the neutral or traumatic recollections. These findings support the hypothesis that early trauma may lead to deficient left/right hemispheric integration.

Studies of lateral visual field stimulation further pursued by Schiffer and his associates have included measuring differences between the lateral visual fields in outpatients with a variety of psychiatric disorders (e.g., dysthymic disorder, anxiety disorder, depression, schizophrenia, bipolar I disorder and PTSD) compared to a patient control group (1997). They also assessed severely depressed patients for lateral visual

field dominance and used that information to predict success in the lateralized application of transcranial magnetic stimulation (Schiffer et al., 2002). Schiffer also compared EEG measurements, bilateral ear temperatures and affective responses from LVF glasses and monocular vision glasses (Schiffer, Anderson, & Teicher, 1999). More recently, they examined lateral visual field effects from unilateral sensory or motor stimulation (i.e., gazing at an artistic picture with eyes open or with eyes closed; Schiffer et al., 2004). Findings from these studies support the hypothesis that when there is a shift in cerebral dominance due to lateral visual stimulation, cognitive and affective changes occur.

One Eye Integration

A new treatment involving selected bilateral techniques, similar to both EMDR and dual-brain psychology, is called OEI. As mentioned earlier, Audrey Cook (Cook & Bradshaw, 2002), originated these techniques as alternatives (or complements) to EMDR. She found these procedures more bearable for clients who were unable to tolerate the intensity of processing with two eyes at the same time. Cook also co-wrote the current clinical manual for OEI (Cook & Bradshaw, 2002) and has continued to develop OEI with Bradshaw, including research and training protocols. Cook and Bradshaw have proposed that by processing one eye at time, clients have more control over the integration process than with EMDR. Their vast clinical experience with OEI supports findings in Schiffer's studies: There are perceived differences in levels of emotional intensity and control, depending on whether the left or right visual fields are stimulated. The distinction between Cook and Bradshaw's (2002) OEI techniques and Schiffer's research lies in the amount of each visual field being accessed. The OEI protocol directs clients to cover one eye, while the other eye is left completely uncovered, providing a full

(rather than partial) view across both sides of the visual field. Schiffer‘s dual brain model, on the other hand, restricts access to light for all but the lateral visual field (by having one eye glass lens taped completely and the other lens partially taped, leaving the outer half of the lens open).

Differences between one eye integration and eye movement desensitization reprocessing. Although OEI has its roots in EMDR, which means that the aforementioned conceptual explanations and empirical evidence in support of EMDR may also apply to OEI, some of the underlying mechanisms and procedures of OEI reveal that the therapy is not simply a variation of EMDR (Bradshaw, 2002; see Appendixes B and C for detailed information). For example, while EMDR procedures can be used without stimulation of eyes, OEI requires the ability to perceive light and track objects moving across the visual fields of both eyes. Additionally, while individuals track their therapist’s fingers and focus on traumatic memories in both EMDR and OEI, OEI is unique in that it requires therapists to look for any pauses, “glitches” or “locks” in the movement of their clients’ eyes. These glitches are thought to be associated with a discontinuity of experience, both visually and emotionally. While EMDR primarily involves guiding the eyes back and forth horizontally in the center of the eyes, OEI involves directing the eyes in every conceivable direction and location (horizontally, vertically, diagonally, elliptically in corners, arcing, etc.; R. A. Bradshaw, personal communication, April 2, 2006). In contrast to EMDR, OEI includes “transference checking and clearance” procedures for resolving immediate visual and affective distortions triggered by others, or by self-in-mirror. OEI also includes “release points” for intense trauma symptoms (chest compression, throat constriction, hyperventilation,

cessation of breathing, jaw clamping and nausea), and procedures for resolving somatic discomfort, including headaches, drowsiness, and visual distortions.

Furthermore, while EMDR incorporates cognitive elements during the initial phase of the treatment, OEI examines such factors toward the end of the therapy. The rationale behind this different emphasis is based on the clinical finding that dissociation associated with traumatic memories prevents most trauma victims from making meaningful and valuable assessments of both their negative (SUDs rated 1 to 10) and positive (VoC—Validity of Positive Cognition, rated 1 to7) cognitions, as they are required to do in the EMDR protocol. Particularly during the first phase of therapy, OEI therapists instead emphasize somatic, affective, and visual aspects of traumatic memories and highlight differences in trauma memory recollections, depending on which eye is covered. Even though OEI was originally developed to reduce the intensity of arousal during eye movements, in some patients it induces rather high intensity or agitation states during the initial phase of treatment. As a result, it is essential that the eye movements facilitate fast relief and de-escalation of arousal, and that clients learn how to maintain dual focus (past and present), even in the process of retrieving extremely distressing memories (see Appendixes B and D for more explanation). Interestingly enough, as OEI presumably promotes bilateral integration of the hemispheres (which, again, could involve the left hemisphere regaining control over the right hemisphere), changes in either positive or negative cognitions tend to occur automatically or spontaneously (R. A. Bradshaw, personal communication, March 11, 2006; Levin, Lazrove, & van der Kolk, 1999). For this reason, instead of focusing on cognitive elements at the outset of the therapy (which is reported by Bradshaw as clinically making no difference in clients'

ability to improve), accurate appraisal of cognitions tends to occur later in treatment, spontaneously.

One eye integration techniques. The following three techniques are used in OEI: (a) "switching" which consists of having clients cover and uncover one eye at a time while remembering a distressing memory or focusing on a somatic sensation; (b) "tracking" for glitches where clients are focusing on traumatic memories, and as they track stimuli across the visual fields, hesitations (i.e., glitches) are observed in movements of the eye reflecting "stuck points" in memory, and then are "massaged" by guiding the clients' eyes back and forth until these hesitations smooth out; and (c) "sweeping," which involves a combination of the two previous techniques, without focusing on thoughts or sensations of the trauma. Sweeping is used to clear resistant somatic sensations known as "dissociative artifacts" (i.e., headaches, visual distortions, dizziness, drowsiness, and loss of balance) (see Appendix E).

One eye integration studies. The first formal attempts to assess the effectiveness of OEI through changes in PTSD and headache symptoms include three studies conducted between the Fall of 2002 and the end of 2004 (Austin, 2003; Grace 2003, Lefebvre, 2004). All showed promising results for the efficacy of these trauma therapy procedures. Lefebvre (2004) had 16 participants self-administer the OEI technique of switching (i.e., covering and uncovering each eye) for their headache symptoms, first noticing the intensity of the pain, location and type (migraine vs. tension). In the second part of the intervention, participants were instructed to rapidly cover and uncover each eye for approximately 2 minutes until the participants' SUDs scores became equalized with each eye uncovered. This procedure was conducted over a period of 2 weeks, each

time participants experienced headaches. Thirteen of the 16 participants reported significant reductions in both migraine and non-migraine headaches. Preliminary evidence suggests that switching is effective for relief from somatic symptoms such as headaches.

In a controlled study conducted by Grace (2003), mean scores for an OEI treatment group and a delayed-treatment control group were compared. The treatment group received three 60-minute treatment sessions over a two-week period. The simplest OEI technique, called switching was employed. As mentioned above, this involved covering and uncovering one eye at a time while recalling traumatic memories or focusing on somatic disturbances. The Clinician-Administered PTSD Scale (Blake et al., 1995) and the Impact of Event Scale-Revised (Weiss & Marmar, 1997) were used to assess the impact of one specific traumatic event, and document reductions in PTSD symptoms from pre- to posttreatment assessments. The findings indicated that there were significant reductions in PTSD symptoms, with 9 of the 10 participants experiencing elimination of symptoms to the point that they no longer met the criteria for PTSD after three 1 hour OEI treatment sessions (Bradshaw, Grace, & Swingle, 2004). Significant results were achieved, despite the study's small sample size. Since there was not another active therapy comparison group, and assessors were not blind, it was recommended that future studies should involve greater numbers of participants to increase the statistical power of the results, blind assessors, a comparison treatment, and random assignment to one of two therapists.

Rationale for the Present Study

The present research constitutes an application of the scientist-practitioner model; specifically, implementation of Principle 3 proposed by the Division 17 Special Task Group of the American Psychological Association (Wampold, Lichtenberg, & Waehler, 2002). Principle 3 addresses the question: "Does this particular treatment work with this specific disorder, given this population?" In the present study, the researcher will explore the question "What treatment works more effectively with female sexual assault survivors experiencing PTSD?"

The primary reason for researching and developing OEI further is that there has been evidence that a number of clients suffering from PTSD have been unable to tolerate the emotional intensity of EX therapies (Foa et al., 2000; Foa et al., 2002; Nishith, Resick, & Griffin, 2002; Rothbaum & Schwartz., 2002). For this reason, more efficient and less painful therapies are required. Though EMDR studies have indicated more rapid and less emotionally intense processing of PTSD-related memories than PE (Ironson et al., 2002), some clients find the emotional intensity of processing with two eyes together in EMDR difficult to experience. Cook and Bradshaw's own clinical experience with both EMDR and OEI has led them to suggest that OEI is even less disturbing to clients than EMDR (Cook & Bradshaw, 2002). Therefore, there is great promise for application to clients with complex PTSD and various trauma-related dissociative disorders.

High prevalence of sexual assault and resulting PTSD in females influenced the decision to study a homogenous sample of female sexual assault survivors in the present project. This initial study involves comparison with a cognitive therapy rather than one of the more intense behavioural exposure therapies, since it was considered less disturbing.

Furthermore, clients with PTSD or other dissociative disorders have been known to be more sensitized to distress, and panic attacks can be easily triggered.

CPT, developed by Resick and Schnicke (1992) was chosen because it is one of the leading treatments for rape victims, and studies have shown it to be superior to PE in reducing guilt cognitions (Resick et al., 2002). Moreover, because CPT is grounded in a very different theory than OEI, it was expected that it would be easier to identify differences in treatment effect. The five main post-rape cognitive issues addressed in CPT include: safety, trust, power and control, esteem, and intimacy. None of the rape victims in Resick & Schnicke's (1992) study were found to have PTSD or depressive symptoms remaining, either at the time of the posttreatment assessment or at the 6-month follow up. It is therefore hypothesized for the present study that immediate posttreatment and 3-month follow up scores for active therapist-administered treatments (OEI and CPT-R) will be lower than scores for a self-administered (control) treatment. PTSD, depression, and trauma-related guilt symptoms were operationalized by the CAPS (Blake et al., 1995), BDI-II (Plake, Impara, & Murphy, 1999) and TRGI (Kubany et al., 1996), respectively.

Research further indicates that baseline recordings of previously depressed and currently depressed individuals display similar EEG patterns of decreased left-sided frontal activation (higher alpha) or greater right frontal activation (lower alpha) in comparison to normal controls (Baehr et al., 1998; Bruder et al., 1997; Davidson, 1984, 1988, 1992, 1995; Davidson, Abercrombie, Lanius, Nitschke, & Putnam, 1999; Davidson et al., 1990; Davidson & Irwin, 1999; Davidson et al., 1979; Davidson et al., 1985; Davidson & Sutton, 1995; Davidson et al., 1980; Davidson & Tomarken, 1989; Gotlib et

al., 1999; Henriques & Davidson, 1991; Pizzagalli et al., 2002; Tomarken et al., 1990). Positive scores indicate greater alpha on the right compared with the left electrode site, which is assumed to reflect greater left hemisphere brain activation. Increased right frontal alpha was found to correlate with reported decreases in PTSD symptoms and depression in an investigative study using OEI intervention (Grace, 2003).

Research evidence from various studies exploring the correlation between brain activity, depression and anxiety symptoms indicate that anxious arousal symptoms including PTSD are associated with increased right-sided parietal activation (Davidson et al., 1999; Heller & Nitschke, 1998; Heller, Nitschke, & Miller 1998; Heller et al., 1997; Lanius et al., 2004; Metzger et al., 2004; Pizzagalli et al., 2002). Findings from Metzger et al.'s (2004) study revealed that the combination of anxiety and depressive symptoms yielded asymmetry in the form of greater right-sided parietal activation. Negative scores are assumed to reflect greater right-sided brain activation (lower alpha).

For the purpose of the present study, frontal, parietal and frontal/parietal asymmetry patterns were explored. In the current study it was hypothesized that there would be greater reductions in psychophysiological symptoms for the therapist-administered treatments than for the self-administered (control) condition, and that these patterns would be evident in qEEG readings at frontal (f3, f4) and parietal (p3, p4) regions, and the combination of frontal and parietal regions.

CHAPTER III: METHOD

Research Design

The current study is part of an 18-month randomized controlled trial to examine the relative efficacy of psychotherapeutic treatments in women who have developed PTSD as a result of experiencing sexual assault. After potential participants were recruited and screened, those who matched the criteria for the study were randomly assigned to one of three treatment groups, and they each began a 7-step assessment and treatment process that included five occasions when psychometric and/or psychophysiological measurements were taken. During each assessment, the intent was to determine how disturbing the target sexual assault event was for participants to think and talk about.

This study is the first phase of a larger study of 27 participants. It includes information gathered and observed on all participants from the recruitment phase through the pretreatment, posttreatment, and 3-month follow up assessments. Evaluations included mean differences between the effects of OEI, CPT-R, and BRAIN treatment groups. Dependent measures included PTSD symptoms as measured by the CAPS, depressive symptoms as measured by the BDI-II, guilt symptoms as measured by the TRGI, and qEEG assessments at 2 regions of the scalp (frontals and parietals). Participants from the self-administering relaxation (control) group (BRAIN) received additional treatment and assessment sessions in the second phase of the larger study (see Appendix F). A series of 2 x 3 repeated (mixed between-within subjects) Analyses of Variance (ANOVAs) and One Way ANOVAs were used in this study.

Participants

For the purposes of this study exclusion criteria included: (a) absence of current alcohol or drug abuse (and, if history of substance abuse was indicated, more than 1 year without addiction); (b) not exposed to severe, chronic or continuous childhood abuse or trauma; (c) not under the age of 19; and (d) not having experienced more than three sexual assaults (focus was on assaults during adolescent or adult years). Eligibility for the study was determined through interviews with Masters-level Counselling Psychology graduate researchers, with consultation from a PhD-level psychologist.

Of all potential participants assessed for possible participation, 36 were selected who experienced at least one discrete incident of completed rape or sexual assault (oral, anal, or vaginal) and met the *DSM-IV-TR* criteria for PTSD (APA, 2000). Participants were recruited from: local professionals (i.e., physicians, naturopaths, chiropractors, psychologists, counsellors, and social workers); victim assistance agencies; local newspaper, radio, and television media; university and college campuses; and advertisements (i.e., posters and brochures) placed in the community (see Appendix G for recruitment efforts). The notice included an outline of the study and a list of PTSD symptoms (see Appendix H). A telephone number was provided for initial contact with respondents. The list of all respondents was collected over a period of 12 months. Potential participants were contacted, and pre-screened in telephone interviews. If respondents met criteria (a) through (d) above, appointments were scheduled for formal written assessments and structured interviews.

Of the 137 women who responded to recruitment efforts, 72 were screened out by phone on the basis of selection requirements for the study due to other trauma-related

incidents (e.g., car accidents, physical attacks, child sexual abuse), were unable to participate, or were not interested in the study after receiving more information. A total of 29 volunteers were disqualified during pretesting. Of the remaining 36 volunteers, 3 dropped out between the pre- and posttreatment assessments for this portion of the study because they moved to other locations, 3 were unable to endure the high intensity of the testing procedures, and 3 had interfering work schedules. Accordingly, 73.7 % of all recruited volunteers did not fit the study's requirements, 6.6 % dropped out either before or shortly after the study started, and 19.7 % participated in all assessments to the point when the posttreatment assessments for this portion of the larger project were conducted. The 27 participants were randomly assigned to one of the three groups (Control: n = 10; CPT-R: n = 8; OEI: n = 9). By the 3-month follow up assessment, 2 more participants were unable to continue due to spousal abuse and unemployment/financial stress (see Appendix I for individual trauma histories). This left 25 volunteers (Control: n = 9; CPT-R: n = 8; OEI: n = 8).

Participant Characteristics

The 27 female participants who completed this study ranged in age from 28 to 67 years (M = 42, SD = 11). The mean number of years between the time of their sexual assaults and the time of the study was 18.2 years (SD = 14). The most recent incident for any of the participants happened 26 months prior to the study, and the earliest had taken place more than 51 years prior to the study. Eleven of the 27 participants had previous histories of substance abuse, but were all at least 1 year substance free prior to commencing the study. Three participants reported that prior to the study they had experienced automobile accidents that resulted in head injuries. Ten participants were

using anti-depressants during the study, and one participant was taking both an antidepressant (Prozac) and an antipsychotic (Seroquel) (see Table 1 for details of prescription drugs). Of all prescribed antidepressants, 37.5 % were selective serotonin reuptake inhibitors (SSRIs), 31.25 % serotonin noradrenaline inhibitors (SRNIs), and 31.25 % other types (e.g., bupropion). In addition, all but one participant had received psychotherapy at least once prior to the study. Ethnicity included 25 Caucasians, 1 Indo-Canadian, and 1 participant with mix-race (Caribbean-Caucasian) ancestry. The majority of participants were single (40.7%) or married (29.6%), full-time employed (59.3%) or unemployed (18.5%), and college (40.7%) or high school (25.9%) graduates. The qualified participants had largely moderate to severe PTSD and reported one to two sexual assault incidents. Though a careful screening protocol was adhered to, it became apparent after consultation with the therapists of the study that a significant number of participants reported additional interpersonal traumas during therapy that they had not reported or, in some cases, even remembered earlier.

Insert Table 1 here

Prescreening and Screening

Participants were briefly interviewed over the telephone to ensure they met the minimum entrance criteria for the study (as mentioned above; see Appendix J for pre-screening telephone intake protocol). If entrance criteria were met, appointments were scheduled to formally assess suitability for the study. The following inclusion and exclusion criteria were applied using an information form, standardized tests, and a structured interview:

1. Experienced at least one sexual assault or rape (preferably not more than three incidents). According to the Criminal Code of Canada, sexual assault is defined as any form of unwanted touch between individuals that is sexual in nature (e.g., kissing, fondling, intercourse, oral sex). There are three levels of severity: (a) sexual assault where someone purposefully touches another directly or indirectly without consent; (b) sexual assault with a weapon or threats to self or a third party that may or may not cause bodily harm; and (c) aggravated sexual assault that results in serious injury (e.g., maims, wounds, disfigures or endangers the life of a person). For this study it was preferred that the sexual assault(s) occurred in adolescent or adult years due to the brief nature of the therapy provided.
2. Free of active substance abuse (e.g., alcohol, drugs) for at least 1 year. No extensive history (severe, chronic or continuous) of childhood abuse (neglect, physical abuse, or sexual abuse).
3. Currently experiencing the *DSM-IV-TR* (APA, 2000) symptoms of PTSD.
4. At least 19 years of age.

The Traumatic Antecedent Questionnaire (TAQ; van der Kolk & Hopper, 2001), a 42-item self-report instrument was administered as a screening assessment tool to ensure that those with histories of severe early childhood abuse, trauma, neglect and/or safety issues were not included in the study. Those found to have high scores for trauma in the 0 to 6 and 7 to 12 year old categories were eliminated from the study. In addition, the Dissociative Experiences Scale (DES) was used to exclude participants who experienced high levels of dissociation (a cut off score greater than 39 was used for this study).

If potential participants met the above criteria, the CAPS was administered, to assess whether participants met the *DSM-IV-TR* diagnostic criteria for PTSD. If participants met the diagnostic cutoff (score greater than 45), they were given the informed consent form to read and sign (see Appendix K). Once participants had been accepted into the study they completed the trauma scene form (TSF), which included a written account of each individuals' most currently disturbing recollection of sexual assault or rape. Before the first treatment appointment, a researcher created trauma scripts (audiotapes) that were approximately 45 seconds in duration. This procedure is called "script-driven symptom provocation," and was used by Ruth Lanius and her colleagues (Lanius et al, 2001). All 27 participants recorded their traumatic incidents on TSF forms (see Appendix L). Each tape included a short, emotionally intense, descriptive review of the traumatic experience (including statements about emotional, or physical pain, sensations, and experiences). Once recorded, the same audiotapes were played whenever brainwave measurements were taken.

Pre- and posttreatment assessments consisted of clinical interviews conducted by independent assessors who were blind to treatment conditions, and self-report questionnaires. PTSD-related symptoms were assessed using the CAPS. Depression was assessed using the BDI-II. The TRGI was used to measure PTSD-related guilt cognitions, and physiological (brainwave) changes were assessed through qEEG measurements.

Psychometric Measures

Screening Instruments

The Traumatic Antecedents Questionnaire. This is a self-report instrument consisting of 42 items pertaining to lifetime experiences, categorized into 10 subscales

including competence, safety, neglect, separation, family secrets, physical abuse, sexual abuse, emotional abuse, other traumas, witnessing traumas, and exposure to drugs and alcohol. These life experiences are assessed for frequency and severity across four different age periods, including: (a) birth to 6 years, (b) 7 to 12 years, (c) 13 to 18 years, and (d) adulthood. Each experience is rated on a scale from 0 to 3 during each developmental stage. Although reliability and validity have not yet been established, earlier research in which the TAQ was employed, has yielded promising results. Research findings include demonstrations that scores on the TAQ are significantly correlated with PTSD symptoms, specifically trauma experienced in the birth to 6 years developmental category (van der Kolk, Spinazzola, & Hopper, 2001). See Appendixes M and N for instrument and rationale.

The Dissociative Experiences Scale. This measure was created to establish a reliable and valid measure of dissociation in both normal and clinical populations. With previous high rates of misdiagnoses, a more efficient instrument to assess and diagnose dissociative disorders was needed. The DES consists of 28 items in which clients rate the percentage of waking time they may experience each dissociative symptom. Test-retest reliability of the DES (r = .84; Bernstein & Putnam, 1986) was established with a variety of population samples, including: 31 college students, 34 normal adults, 14 alcoholics, 24 phobic patients, 29 agoraphobics, 10 PTSD patients, 20 schizophrenics and 20 multiple personality disordered patients. In this study, the median scores were also examined and a steady progression was observed, showing increasing median DES scores from normal participants to multiple personality disordered patients (Bernstein, Carlson, & Putnam,

1993). Convergent validity of the DES II was sufficient (i.e., r = .96, Bernstein & Putnam,1996; see Appendix O).

Self-Report Measures

The Clinician-Administered PTSD Scale. This structured interview by Blake et al. (1995) was developed to assess whether individuals met the *DSM-IV-TR* (APA, 2000) diagnostic criteria for PTSD. A total severity score of greater than 45 (frequency and intensity scores summed across all 17 PTSD symptoms) was chosen for inclusion in the study. Orr (1997) found that a total CAPS score of 45 corresponded with physiological reactivity to script-driven imagery in adult female survivors of childhood sexual abuse. The CAPS is a structured interview used to evaluate participants' reactions to exposure to "Criterion A" events (e.g., past week or month, or over the course of a lifetime). The CAPS is used to measure frequency and intensity of 17 possible symptoms, the impact of each symptom on social and occupational activities, and the overall severity of those PTSD symptoms. Questions are behaviourally anchored with five interval rating scales corresponding to the frequencies and intensities of each symptom. The CAPS has been widely administered and used in research studies. Research evidence with combat veterans has indicated that the CAPS has good to excellent reliability (Cronbach alpha total symptom severity, r = .94; test-retest reliability for total severity scores ranged from r = .90 to .98.), yielding consistent scores across items, raters, and testing occasions with strong evidence of validity (Blake et al., 1990; Weathers, Ruscio, & Keane, 1999; see Appendix P).

The Beck Depression Inventory-II. The revised BDI-II was reviewed by Plake et al. (1999). It is included in the study as a measure of subjective distress, to supplement

scores from other measures (e.g., CAPS), and also because depression has been found to frequently coexist with PTSD symptoms (Devilly & Spence, 1999; Foa et al., 1991). This revised instrument was developed to improve the assessment of symptoms in relation to *DSM-IV-TR* criteria for diagnosing depressive disorders. The original BDI was developed by Beck, Ward, Mendelson, Mock, and Erbaugh (1961), and has been a widely used measure for depressed mood. Each of the 21 items is rated on intensity or severity scales from 0 (not present) to 3 (severe). Several BDI items were replaced in the BDI-II (e.g., body image change, work difficulty, weight loss, somatic preoccupation with agitation, worthlessness, loss of energy, and concentration difficulty). In addition, the time period in this self-report instrument was increased from one week to a period of two weeks, consistent with *DSM-IV-TR* criteria. Coefficient alpha estimates of reliability with outpatients were .92 and .93 for the initial non-clinical sample. Test-retest reliability over a 1 week period was high, at .93. The BDI-II also has strong concurrent validity, and moderate discriminative validity. This questionnaire can be easily administered and completed in 5 to 10 minutes. One limitation, however, is the possibility of response bias. Scoring procedures in this study followed Beck, Steer and Brown's (1996) BDI-II manual.

The Trauma-Related Guilt Inventory. This instrument, developed by Kubany et al. (1996), and further researched by Nishith et al. (2002) and Resick and Schnicke (1992, 1996) for measuring dysfunctional cognitions (e.g., guilt, low self-esteem, self-blame). It has been used effectively with rape victims (Resick et al., 1992). This instrument contains 32 Likert scale items subsumed into three scales and three subscales. The three scales include: distress (6 items), global guilt (4 items), and guilt cognitions (22 items). The

guilt cognitions scale is further divided into three subscales: hindsight bias (7 items), wrongdoing (5 items), and lack of justification (4 items). Test-retest correlations for the subscales range from .73 to .86. Alpha coefficients for the scales range from .73 to .91. Construct, criterion related and discriminant validities were confirmed with samples of Vietnam combat veterans and battered women (See Appendix Q).

Credibility of Treatment Questionnaire. This instrument was developed by Borkovec and Nau (1972) and consists of six questions. The first five questions rate the therapies on 10-point credibility/expectancy-for-improvement scales. The sixth question balances out the relative strengths and characteristics of therapies by rating how scientific each one is. In the current study, internal consistency was high for such a short scale (Cronbach's alpha = .818). The scale was found to deviate from a normal distribution, so was transformed with a square root and reflect conversion, satisfying the Kolmogorov-Smirnov test of normality, and assumption of homoscedasticity (Levene's test $p > .05$) (see Appendix R for rationale).

Psychophysiological Measures

Rationale for Inclusion of Psychophysiological Measures

Incorporation of both subjective and objective measures in research is crucial for establishing empirical validity (Davidson, 1998a; Orr & Roth, 2000). Orr and Roth's review of psychophysiological assessment for PTSD included arguments that subjective reports of emotional experiences were less accurate, complete, and reliable than studies that included physiological measures. If we take into consideration that a distinct marker of PTSD (according to *DSM-IV-TR* PTSD Criterion B.5) is "physiological reactivity on exposure to internal or external cues that symbolize or resemble an aspect of the

traumatic event," and that emotions can be measured in three ways (via overt actions, self-report, and physiological change, according to Lang, 1988), then it stands to reason that omitting one or more of these forms of emotional expression in assessments constitutes incomplete information. To produce a more robust study, therefore, self-report, observations, and physiological measures were included in the present investigation.

In addition to self-reported psychological effects, individuals with PTSD display numerous biological changes (van der Kolk, 2002; Yehuda, 2002b). In a large number of studies, it has been reported that individuals with PTSD show greater physiological reactivity to trauma-related cues than individuals without PTSD. Heightened responsivity has been demonstrated across a variety of psychophysiological measurements, including (a) heart rate and skin conductance (Orr et al., 1993); (b) electromyograms (i.e., muscle tension-EMG) (Forbes, Creamer, & Rycroft, 1994; Orr et al., 1993); (c) neuropsychological tasks sensitive to frontal lobe damage (Koenen, Driver, & Oscar-Berman, 2001); (d) cerebral blood flow changes in the basal cerebral arteries, assessed using transcranial doppler sonography (Marinko, Dragutin, Basic-Kes, Seric, & Demarin, 2001); (e) regional cerebral blood flow (rCBF) using single photon emission computerized tomography (SPECT) (Liberzon, Taylor, & Amdeer, 1999; Mirzaei et al., 2001; Schuff et al., 2001); (f) regional cerebral blood flow (rCBF) during traumatic imagery (Shin, Shin et al., 2004; Shin, Orr et al., 2004); (g) rCBF changes in conjunction with positron emission tomography (Bremner, et al., 1999; Bremner, Staib, Kaloupek, Southwick, Soufer, & Charney, 1999; Bremner, Vythilingham, Vermetten, Southwick, McGlashan, & Nazeer, 2003; Liotti, Mayberg, McGinnis, Brannan, & Jerabek, 2002;

Osuch et al., 2001; Rauch et al, 1996); (h) salivary cortisol responses (Golier et al., 2005; Goenjian et al, 1996; Resnick et al., 1995); (i) auditory evoked potentials (Schiffer et al., 1995); (j) magnetic resonance imaging (Lanius et al., 2003; Lanius et al., 2001; Villarreal & King, 2001); and (k) hemispheric asymmetry, using qEEG methods (Davidson, 1998a; Liotto & Tucker, 1995; Sterman, 1977).

To investigate the relationship between brain asymmetries and underlying emotions, qEEG (brainwave patterns) was the choice of psychophysiological method for this study. Davidson (1998a), one of the world's leading experts regarding cerebral asymmetry, submits several essential considerations when choosing a method for examining the biological bases for emotion: Because emotions are brief, have unpredictable mounting intensities, with individual differences producing fluctuating responses to the same emotional stimuli, it is important that measures have rapid time resolution. Davidson further stressed that it is imperative that such measures are relatively noninvasive in order to avoid interference with emotional stimulation, while permitting observation of individuals over time, as they experience a series of emotional states. According to Davidson, the encephalogram (qEEG, and particularly the wearing of an electrode-cap) satisfies these requirements.

Brainwave Measurements

Amplitudes and frequency ranges of brainwaves were assessed using a BrainMaster Standard 2E qEEG unit (Model No. AT – 1-1.9A, BrainMaster Technologies) with a MINI-Q (MQ-1) adapter to permit toggling between 4 pairs of electrodes (BrainMaster Technologies), on an elastic spandex-type electro cap (Electro-Cap International). The cap is placed on the scalp according to the International 10-20-

method of electrode placement. Together with the BrainMaster 2E module, and the MINI-Q toggle device, the corresponding software was used to take 15 second readings of participants' EEG states during both "eyes open" and "eyes closed" conditions, and throughout three different conditions: baseline (BL), trauma script (TS), and trauma memory (TM). Because the BrainMaster device has only two channels, the MINI-Q system provided an easy and reliable method for taking 15 second EEG snapshots from each of 4 consecutive pairs of electrodes (e.g., F3 and F4). By abraiding the electrodes at Fz/Cz, F3/F4, P3/P4, and O1/O2 on clients' scalps (international 10-20 system) and placing an electrode on each ear lobe to provide reference measures, the MINI-Q device was used to toggle between 30 different 15-second runs (e.g., eyes open for Fz/Cz during baseline, eyes closed for Fz/Cz during baseline, etc.). In order to counterbalance the order of measured activity over the different brain locations, participants were randomly assigned to one of three Electro-Cap recording protocols (see Appendix S). Data were recorded directly onto the hard drive of a laptop computer (see Appendix T for operating the Brainwave computer program). In order to filter out major artifacts, the artifact rejection threshold was set to 140 μV. In addition, before lab technicians began the assessments, impedance values on participants' scalps were assessed using an impedance monitor (Checktrode) and abraided to a level below 5 kΩ (left-right differences < 500 ohms; see Appendix U). The frequency bandwidths used during these recordings are presented in Table 2.

Insert Table 2 here

In light of evidence in the professional literature, including EEG studies of emotion primarily focused on the power in the alpha band (8 to 13Hz), the analyses for

this portion of the study were confined to alpha frequencies. For details pertaining to data preparation for statistical analyses of the qEEG brainwave runs, see Appendix T referenced earlier.

Script-Driven Symptom Provocation

Lang and his colleagues were the first to develop and publish a bioinformational theory of emotion. They asserted that the brain stores image structures that cause emotion, somatosensory responses, and meaning associated with the stimuli (Lang, Levin, Miller, & Kozak, 1983; Levin, Cook, & Lang, 1982). To access emotion networks, Lang and his associates pioneered the original experimental technique involving script-driven mental imagery.

This methodological design was applied and validated in a laboratory setting by Pitman, Orr, Forgue, deJong and Claiborn (1987) for the physiological assessment of PTSD in "normal" versus "PTSD" Vietnam combat veterans. Subsequent manipulation of this research paradigm has been extended to other anxiety disorders (e.g., Pitman, Orr, Forgue, Altman, deJong, & Hertz, 1990). Resulting data yields support for the hypothesis that traumatic recollections in PTSD veterans from different eras (i.e., World War II and Korean War) demonstrate that one characteristic of PTSD (i.e., emotion networks) causes preservation of emotional intensity over time. The re-experiencing of distressing memories with this Script-Driven Symptom Provocation procedure has been applied in more recent examples (e.g., Grace, 2003; Lanius et al., 2001; Lanius et al., 2004; Pitman, Shin, & Rauch, 2001; Rauch et al., 1996; Shin et al., 1999, van der Kolk, 2001).

In the present study, to determine how disturbing the target sexual assault event was to think and talk about, and to ensure that there was consistency in these

measurements over time, script-driven symptom provocation was used. It provided a standardized (yet individualized, in terms of content) stimulus summarizing the worst moments and physical reactions these women had experienced during and immediately after their assaults (see Appendix V for information on trauma script tapes).

Procedure

Once the CAPS was administered to assess whether participants met the *DSM-IV-TR* (APA, 2000) criteria and overall scores were calculated. Those whose scores were over 45 were informed that they met the entrance criteria and were suitable candidates for the study (providing their DES scores were less than 40 and they did not evidence severe or continuous childhood trauma according to the TAQ). Each potential participant was then given a consent form to read and sign that outlined their individual rights as participants in the study and the terms of research (e.g., how many sessions were involved, the terms of confidentiality, preparation for qEEG assessment, etc.; see Appendixes W and X). Participants were then measured for the electro-cap size required for their individual assessment sessions. The TSF was then completed, and later summarized for audiotapes, to be played at both pretreatment and posttreatment brainwave assessments.

After the screening questionnaires were completed, the 27 participants were randomly assigned to one of the three treatment conditions (OEI = 9; CPT-R = 8; BRAIN =10) and to one of the two therapists by "wave" assignment, using the following procedure: Participants who met the entrance criteria for the study were assigned in groups of three in the order in which individuals responded to the recruitment notice. Once participants were assigned to their groups, they were scheduled for a breathing,

relaxation, autogenics, imagery, and grounding group session (B.R.A.I.N), one additional group treatment and psychoeducation group session (topic depended on group assignment), one pretreatment assessment and, if not in the control group, to three individual treatment appointments. Each participant then completed an immediate posttreatment assessment and a 3-month follow up appointment.

Psychoeducation Session

Each group received a different 2-hour group preliminary session after the initial B.R.A.I.N grounding/relaxation exercises, for participants to practice and use at home during the study. The stress reduction training was provided to ensure that all participants would have the necessary resources to tolerate and cope with the script-driven symptom provocation procedure. Some of those techniques included: Progressive muscular relaxation, diaphragmatic breathing, autogenics, imagery, and grounding techniques (see Appendixes Y and Z for overviews of the exercises, and the take-home relaxation rating chart). Participants were then given group session questionnaires (i.e., Credibility of Treatment Questionnaires) to complete on the credibility of each treatment. In order to evaluate the extent to which therapies had been presented as equally credible in the current study, the Credibility of Treatment Questionnaire was used. Evaluations of the three (BRAIN, CPT and OEI) therapies in the first (psychoeducation) sessions were compared for each respective group, using one way ANOVAs. Results indicated that there were no differences in perceived credibility of the three therapies, for either average item score, $F(2, 24) = 2.35$, $p = .117$, $\eta^2 = .155$, or total scale score, $F(2, 24) = 2.03$, $p = .153$, $\eta^2 = .155$. The effect size for the initial equivalence of the two active therapy groups (CPT-R and OEI), using a t-test for independent samples indicated that there was no

difference in perceived credibility of the two active treatments: CPT-R (M = 7.86, SD = .771) and OEI (M = 7.63, SD = 1.35), $t(16) = .429$, $p = .674$, $\eta^2 = .011$. The magnitude of the difference in the means was very small. This provides sound evidence for an argument against differential expectancy of success as a major contributing factor in treatment outcome, later in the study. In addition, to avoid an order bias in the items on the Credibility of Treatment Questionniares, three different rotations were created (see Appendix AA).

At the completion of these sessions, an assessment appointment was scheduled, in which the researcher administered the following tests:

1. All participants completed a TSF form which involved descriptions of their traumas and related emotions, cognitions, and feelings, as well as any physical pains, sensations, or injuries experienced or remembered by participants.
2. The DES was administered to determine participants' current levels of dissociation. Those with scores of 40 or higher were excluded (van der Kolk, 2001).
3. The BDI-II was administered to assess participants' current levels of depression.
4. The TRGI was administered to assess dysfunctional shame cognitions participants were experiencing.

Pretreatment Quantitative Electroencephalography Assessment Preparation

The sequence of self-report questionnaires and interviews administered was counterbalanced across all participants for the larger study (see Appendix BB). To prevent experimenter bias effects, both pretreatment, posttreatment, and 3-month follow up treatment assessments were done by "blind" investigators. A preassessment intake

interview was first conducted to record relevant participant information such as medication history, present stress or pain, and medication changes (see Appendix CC). Once paper instruments had been filled out, each participant was placed in a private room for the preparation and implementation of the qEEG analyses. Researchers followed the specifications for the placement of the electro-cap and the checklist for qEEG assessment, outlined in Appendixes DD and EE.

Pretreatment Quantitative Electroencephalography Assessment Run

Throughout the 15 second qEEG runs, participants were asked to refrain from (a) talking, moving, or blinking, (b) to sit straight up against the backs of their chairs with their feet flat on the floor, (c) to have their mouths "softly open," (d) to avoid clenching their jaws or grinding their teeth, and (e) to relax their shoulders and necks (rather than raising their shoulders). During the "eyes open" condition, participants were instructed to gaze at a drawing of a circle that was attached to the wall immediately in front of them. As mentioned earlier, qEEG recordings were made during three conditions of 10 runs each. During the BL runs, participants were asked to closely follow the aforementioned guidelines, and to relax without thinking about anything in particular. The subsequent TS runs involved the playing of a trauma script audiotape that was prepared and recorded in advance by one of the researchers prior to the assessments, containing a 45- to 50-second summary of the worst moments and physical reactions during, and immediately after, the assault (based on participants' reports on the TSF). After participants had listened to their trauma script tapes, the second runs of qEEG recordings commenced. Participants were asked to continue thinking as vividly as possible about the contents of their tapes while the second set of qEEG readings was being taken. During the third set of runs, a trained

interviewer administered the TMI-PS up to the first cognitive question (see Appendix FF) to assess the intensity and content of participants' remembrances. After participants answered the questions, the third set of qEEG runs occurred. After these recordings, the E-Cap was removed, and participants answered the remaining questions on the TMI-PS. In addition, the interviewer asked participants about dissociative symptoms and supported participants with calming procedures (diaphragmatic breathing, relaxation, autogenics, imagery, and grounding, BRAIN techniques).

Treatment, Posttreatment and Follow-up Assessments

All immediate posttreatment assessment appointments were scheduled after most of the active treatment group participants had completed their three treatment sessions and replicated the same assessment procedures mentioned earlier. Once all three groups had received their posttreatment assessments, a 3-month follow up waiting period ensued, during which participants were all directed to simply continue using the techniques they had been shown (particularly BRAIN). Finally, a 3-month follow up assessment was scheduled. Those appointments were almost identical to the posttreatment assessments.

Self-Administered Treatment

Control condition (BRAIN). Participants in this. group were given an additional 2-hour group session in which they reviewed and practiced the stress reduction and relaxation techniques already shown in the previous psychoeducation session for the study. Feedback was provided by instructors who helped each of the participants discover what techniques worked best for them. Participants were instructed to spend 20 minutes a day using the relaxation tape or combination of relaxation techniques, and then to

document their overall distress levels, and emotional and physical states, before and after each relaxation session (for more details, see Appendixes Y and Z, referenced earlier).

Therapists

Two female Masters-level therapists administered both CPT-R and OEI treatments. Both had several years of experience administering cognitive-behavioural therapies and were Level II trained and certified in OEI, with at least 35 hours of supervised co-therapy. They administered manualized treatment protocols. According to Foa et al's (2000) gold standard for well-conducted studies, having more than one therapist for each treatment provides greater treatment generalizability. Each therapist was assigned to approximately half of the participants. PowerPoint presentations with photos, illustrations, and video clips were used by the therapists in 2-hour group psychoeducation sessions. The same female actors were used in role-plays for CPT-R and OEI, and the scripts for most of the CPT-R role-plays were taken directly from the CPT treatment manual developed by Patricia Resick (Resick & Schnicke, 1996). Guidelines for the therapists were prepared for individual therapy sessions (see Appendixes GG and HH for rationales for therapists and manualized treatments, and overviews for therapist-directed active treatments: OEI and CPT-R).

Active Therapist-Administered Treatments

One eye integration. The protocol for OEI, a 2-hour DVD, was based on Cook and Bradshaw's (2002) therapeutic procedure and employed all three OEI techniques: switching, 'glitch' massaging, and sweeping. After discussing the aspects of the sexual assault which currently elicited the most negative intensity (sadness, fear, anger, shame or physical tension) participants focused on the traumatic event, while covering and

uncovering their eyes alternately. Next, the therapists tracked through the visual fields of participants' eyes (while their opposite eyes remained covered), and massaged any glitches or hesitations in eye movements, often associated with specific physical or emotional experiences. If dissociative symptoms persisted, the sweep technique was implemented to clear those symptoms (see Appendixes II and JJ for OEI rationales and treatment comparability).

Cognitive processing therapy-revised. The procedure for this protocol (Resick & Schnicke 1996) was a condensed version of the original 12 sessions. All three components (i.e., education, exposure, and cognitive therapy) were employed. To keep both treatments (CPT-R and OEI) similar in all aspects except the purported mechanisms of change, the exposure component was partialed out of the CPT program and approximated for all participants in the study (including those in the OEI and Control groups) using the trauma script paradigm. In that way, it was possible to separate the information processing component (identifying and correcting dysfunctional beliefs) from the exposure component of CPT, to permit a clear analysis of the respective components of influence for CPT-R and OEI, respectively (see Appendixes KK to NN for rationales and revisions of CPT and the 5-theme worksheets).

For more information pertaining to rationales and training procedures for each procedure in the study, see Appendixes OO.

CHAPTER IV: RESULTS

Preliminary Analyses

Parametric analyses have underlying assumptions such as reliability, normality, and homogeneity of variance. All data initially underwent a visual examination of scatterplots, histograms and statistical analyses to check normality, and to determine that outliers did not inordinately affect the results. Reliability analyses (i.e., internal consistency – Cronbach alpha) were conducted for total scores and subscales (as appropriate) for all three psychometric instruments (CAPS, BDI-II and TRGI) and test-retest reliability for BDI-II and TRGI. Inter-rater reliability was computed for the CAPS. The obtained reliabilities were similar to established reliabilities for these instruments (see Table 3 for the Cronbach alphas, and other reliability scores).

Insert Table 3 here

A series of ANOVAs of pretreatment scores for the three groups were conducted to check for initial equivalence of groups. Differences were found for the pretreatment administration of the TRGI distress scale (4 items). The difference between groups was $F = 5.59$, $p = .009$. Tukey's HSD (Honest Significance Difference) test was run for the contrasts between groups. There was a significant difference between the control and OEI groups ($p = .048$) and a significant difference between CPT-R and OEI ($p = .008$). Eta squared values for the TRGI scales and subscales (excluding global guilt) indicated small effect sizes for initial equivalence checks (values ranged from .000 to .035), and eta squared values for the TRGI global guilt scale, CAPS and BDI-II indicated medium effect sizes (values ranged from .07 to .085). Pretest patterns for initial equivalence were

not taken into account in the final analyses of results (see Table 4 for one way ANOVAs for initial equivalence power and effect sizes).

Insert Table 4 here

The assumption of normality was tested for each instrument (each test administration, total scales and subscale scores for the CAPS, BDI-II, TRGI and each condition for the qEEG session runs). All total scores of the BDI-II, and total scores and subscales of the CAPS satisfied the Kolmogorov –Smirnov (*D*) test of normality with the exception of the posttreatment administration of CAPS avoidance subscale (*D*, $p = .03$). All scales and subscales of the TRGI satisfied the Kolmogorov–Smirnov test of normality with the exception of the pretreatment administration of the global guilt scale (*D*, $p = .04$) and the posttreatment administration of the lack of justification subscale (*D*, $p = .01$). It was further evident that the assumption of normality was not met for the following qEEG variables: PostTMFEO2AlphaRightMinusLeft (*D*, p = .01); PostTMPEO1AlphaRightMinusLeft (*D,* $p = .01$); PrepostTMPEO2AlphaRightMinusLeft (*D*, $p = .00$), and PostTSFEO1AlphaRightMinusLeft (*D*, $p= .04$) (see Table PP1 for qEEG variable Symbol key).

It was decided to continue to use these variables despite the fact that the test of normality was not met since it has been noted in literature (see Pallant, 2005) that this does not necessarily reflect a problem with the scale, but may be more to do with the underlying nature of the construct being measured. In the case of depression and anxiety for example, it would be expected that the trend for sexual assault survivors with PTSD scores would be negatively skewed.

Levene's test for equality of error variances (homoscedasticity) was applied. All scales and subscales for all administrations of instruments satisfied the assumption of homoscedasticity ($p > .05$) with the exception of the pretreatment administration of the TRGI Global Guilt Scale ($p = .021$). According to Stevens (1996), if group sizes are not very different (less than a 1.5 to 1.0 ratio), ANOVA is robust to the violation of the assumption of homoscedasticity. The repeated measures analyses for hypotheses one and two were conducted as a series of univariate analyses to avoid the use of doubly multivariate MANOVAs (see Weinfurt, 1995).

Hypothesis 1

It was hypothesized that there would be lower affective scores for active-therapist administered treatments than for the self-administered control group. Regarding the first hypothesis, differences were found between active therapist-administered treatment groups (OEI, CPT-R) and the self-administered (control) treatment group, at time of assessment (pretreatment, immediate posttreatment and 3-month follow up) for PTSD symptoms (CAPS scores), and one of the Trauma-Related Guilt Scale scores (global guilt).

Clinician-Administered PTSD Scale

Descriptive statistics for the CAPS by treatment group and time of assessment for pretreatment and posttreatment are presented in Table 4. Pretreatment to 3-month follow up results are presented in Table 5.

Insert Table 5 here

Descriptive statistics for the CAPS by treatment group and time of assessment for pretreatment and 3-month follow up are presented in Table 6.

Insert Table 6 here

Two 2 x 3 repeated measures (mixed between-within subjects) ANOVAs were conducted to examine the differences between treatment (OEI, CPT-R) and control (BRAIN) groups, and time of assessment (pretreatment to post-treatment, and pretreatment to 3-month follow up) on CAPS total scores. There was a main effect for time. Results were similar for Pretreatment to 3-month follow up with a main effect for time, $F(1, 22) = 95.73$, $p = .000$, $\eta^2 = .813$. A large effect size was found for group differences, $F(2, 22) = 2.72$, $p = .088$, $\eta^2 = .198$. Post hoc tests using Tukey's honest significant difference test were run, and the contrasts that contributed the most to overall effect size were between control and OEI groups. There was a statistically significant Time x Group interaction ($p < .05$) from pretreatment through to 3-month follow up, $F(2,22) = 4.11$, $p = .030$; $\eta^2 = .272$ (see Figure 1 for the means plot from pretreatment through to 3-month follow up, and Table 7 for Lambda *F* and *p* values).

Insert Figure 1 here

Insert Table 7 here

A significant 3 way interaction was found for time from pretreatment to posttreatment, through pretreatment to 3-month follow up: $F(2,21) = 49.62$, $p = .000$, $\eta^2 = .825$, and for Time x Group, $F(4,42) = 2.96$, $p = .030$, $\eta^2 = .220$ (see Figure 2)

Insert Figure 2 here

Beck Depression Inventory-II

Descriptive statistics for BDI-II by treatment group and time of assessment (pretreatment, posttreatment, 3-month follow up) are presented in Table 4 and 5. Depression scores were calculated and categorized into level of severity for all 3 times of administrations (pretreatment, posttreatment, and 3-month follow up) for individual participants (see Table QQ2).

Two 2 x 3 repeated measures (mixed between-within subjects) ANOVAs were conducted, to examine the differences between the two active treatment groups (OEI, CPT-R) and the control group (BRAIN) and time of assessment (pretreatment to post-treatment, and pretreatment to 3-month follow up) on total scores for the BDI II. There was a main effect for time. Pretreatment to 3-month follow up results were similar, with a significant effect for time but no significant effects for group differences or interactions (See Table 7 for the Lambda *F* and *p* values)

A table presenting both the CAPS and BDI-II total scores from pretreatment to posttreatment was created for readers interested in comparing the psychometric scores with the physiological qEEG outcomes (see Table RR3).

Trauma-Related Guilt Inventory

Descriptive statistics for the TRGI by group and time of assessment (pretreatment, posttreatment, 3-month follow up) are found in Tables 5 and 6. Table 6 presents descriptive statistics for the TRGI pretreatment to 3-month follow up. All results of these ANOVAs are displayed in Table 6. Highlights of the results are reported below.

Two 2 x 3 repeated measures (mixed between-within subjects) ANOVAs were conducted to examine differences between treatment (OEI, CPT-R) and control (BRAIN)

groups and time of assessment (pretreatment, posttreatment, 3-month follow up) on subscale and scale scores for the TRGI. Pretreatment to posttreatment analysis revealed that there was a significant main effect for time for the global guilt subscale, hindsight-bias/responsibility subscale, wrongdoing subscale, distress scale, and guilt cognitions scale at the $p < .05$ significance level. There was no main effect for group differences except for the distress scale. The distress scale was found to be significant for Time x Group, $F(2,24) = 3.35$, $p = .052$, $\eta^2 = .218$, and group, $F(2,24) = .70$, $p = .005$, $\eta^2 = 356$.

It was mentioned earlier that initial equivalence was not established between groups for the pretreatment distress scale. Therefore, those findings need to be interpreted with caution. The pretreatment global guilt subscale failed to meet the assumption of homoscedasticity but, for reasons mentioned earlier, this is not a serious problem with ANOVAs. In a case such as this one, where group sizes are comparable, ANOVA is robust to such violations. For all other variables in these tables, *p* values were greater than .05 (see Table 7 for ANOVA results).

Pretreatment to 3-month follow up assessment results indicate that there were main effects for time on the global guilt subscale, hindsight-bias/responsibility subscale, guilt cognitions scale, and distress scale. There was a main effect for group differences on the distress scale, $F(2,22) = 4.78$, $p = .019$, $\eta^2 = .313$.

There was a significant Time x Group interaction effect for the global guilt subscale, $F(2,22) = 4.22$, $p = .028$, $\eta^2 = .277$. There was also a large effect size for group $F(2,22) = 3.11$, $p = .065$, $\eta^2 = .221$ (see Table 6 for Lambda *F* and *p* values for all 3 time periods). Results for the global guilt subscale from pretreatment to 3-month follow up are presented in Figure 5.

Insert Figure 3 here

A 3 x 3 repeated measures (mixed between-within subjects) ANOVA was run between all 3 levels of time, and for all 3 groups. A main effect for time, $F(2,21) = 6.25$, $p = .007$, $\eta^2 = .373$, and a 3 way interaction was found to be significant for Time x Group for the global guilt subscale, $F(4,42) = 3.34$, $p = .018$, $\eta^2 = .242$ (see Figure 6). There was no significant effect for group, $F(2,22) = 2.34$, $p = .119$, $\eta^2 = .176$.

Insert Figure 4 here

Hypothesis 2

It was hypothesized that there would be psychophysiological score changes for active-therapist administered treatment groups that were more indicative of PTSD resolution than for the self-administered control group. The qEEG data for 1 participant were eliminated due to excessive muscle tension artifact in the TS and TM conditions. See Table SS4 and TT5 for descriptive summaries of brainwave asymmetry patterns for groups and individuals.

Differences between group mean scores for active therapist-administered treatments (in terms of psychophysiological symptoms) were compared to those for the self-administered treatment (control) BRAIN condition. The qEEG readings in frontal and parietal regions were included. Means and standard deviations for each qEEG condition, at each of the 3 levels of provocation (BL, TS, TM), are presented in Tables 8 and 9.

Insert Table 8 here

Insert Table 9 here

A global ANOVA was conducted between within variables: site- (frontals, parietals); run-(eyes open 1, eyes open 2); time (pretreatment, posttreatment); and condition (baseline, trauma script, trauma memory) and between variables - group (BRAIN, CPT-R, OEI). As a result of this analysis, the interaction was found to be close to significant, or significant for Time x Group, $F(2,23) = 2.81$, $p = .081$, $\eta^2 = .196$ and Condition x Group, $F(4,44) = 2.57$, $p = .050$, $\eta^2 = .189$.

Following the global ANOVA pattern, follow-up ANOVAs were run for Time x Group and Condition x Group. A mixed between–within ANOVA was conducted across the three treatment groups in the frontal region (F3, F4) before, and after, receiving treatment, and results did not show significant differences between groups or conditions (BL, TS, TM). There were no significant main effects for time, group or Time x Group (see Tables 10 and 11 for results of ANOVAs).

Insert Table 10 here

Insert Table 11 here

A mixed between-within ANOVA was run across the three treatment groups in the parietal region (P3, P4) at pretreatment and posttreatment and did not show significant differences between groups or conditions (BL, TS, TM). There was no significant main effect for Time x Group, Group or time except for the parietal

measurements PostBLPEO2, Post TSPEO2, PostTMPEO2, with a significant main effect for condition, $F(2,23) = 3.87$, $p = .04$, $\eta^2 = .251$, and group, $F(2,24) = 3.46$, $p = .05$, η^2 .224 (see Tables 10 and 11 for results of the significant and nonsignificant ANOVAs).

Frontal/parietal asymmetry patterns were explored pre- to posttreatment, across all 3 groups (BRAIN, CPT-R, OEI) and all three qEEG provocation conditions (BL, TS, TM). McNemar tests for comparing proportions before and after treatment were computed and all were found to be non-significant for the total sample for each qEEG condition. Z-tests were computed to test for differences in proportions of the presence of f/p asymmetry between the active treatment groups and the control group. No significant differences were found at pretreatment between BRAIN and either active therapy groups, for any of the three provocation conditions; however, both CPT-R and OEI had significantly higher relative proportions of frontal-plus-parietal asymmetries at posttreatment than the control group. CPT-R was significantly different, $z = 2.14$, p = .016 , n1 = 10, n2 = 8, p1 = 0%, p2 = 63%.

CHAPTER V: DISCUSSION

Summary of Findings

Hypothesis 1

It was hypothesized that there would be greater symptom reductions for the active therapist-administered treatment groups (OEI, CPT-R) than for the self- administered (BRAIN control) treatment group, from pretreatment through to 3-month follow up assessments. This pattern was found for PTSD symptoms and one of the trauma-related guilt scores (global guilt subscale), but not for depression or other trauma-related guilt scores. Though there was a reduction in PTSD symptoms for all three groups on the CAPS total score from pretreatment to posttreatment, there were no significant differences between groups during this time period. There was, however, a significant difference in mean scores between groups for reduction of PTSD symptoms, from pretreatment to 3-month follow up and a significant Time x Group interaction effect for pretreatment, through posttreatment to 3-month follow up (as observed previously in Figure 2). It appears that OEI therapy continued to benefit participants during the 3-month follow up period, while the control and CPT-R groups plateaued.

In Grace's (2003) study, immediate pre-post differences were likely more evident because the delayed treatment group involved an inert control condition. In contrast, the control group in the present study received training in relaxation and grounding techniques, psychoeducation regarding PTSD, and support and validation from leaders during 4 hours of group intervention. These components are frequently part of SIT. SIT has been shown to be better at reducing severity of PTSD and depression than waitlist controls (Foa et al., 1999). The findings in the present study seem consistent with

previous studies of EMDR (which is similar to OEI, and also considered a neurologically-based therapy). EMDR proved equal, or superior, to PE in ameliorating PTSD symptoms from pretreatment to posttreatment compared to EX, CBT or waitlist control (e.g., Taylor et al., 2003; van der Kolk, 2001). Therapeutic gains were maintained or continued to decrease for trauma-specific anxiety at 3-month follow up (Edmond, et al., 1999; Rogers & Silver, 2002; Wilson et al., 1995, 1997). A further observation is that the significantly lowered PTSD symptoms in the present study resulted from three treatment sessions which is similar to the treatment doses and outcomes in van der Kolk's (2001) and Grace's (2003) studies.

There were no major differences in mean depression scores between groups, either pretreatment to immediate posttreatment or pretreatment to 3-month follow up. There was a change over time, however, for all three groups involving reduction of BDI-II scores. The general pattern of change in depression was that participants' scores in the control group increased, while participants' scores in the OEI and CPT-R groups decreased (see Figure 4 above). Although there was some improvement for the active therapist-administered treatments, these findings are inconsistent with EMDR and CPT literature, in which depressive symptoms were significantly reduced between pretreatment and posttreatment assessments (Edmond et al., 1999; Power et al., 2002; Resick, 1992; Resick et al, 2002).

Though there were no significant differences between groups from pretreatment to posttreatment assessments for guilt-related symptoms, there were reductions for all three groups in trauma-related guilt symptoms on the global guilt subscale, hindsight-bias/responsibility subscale, wrongdoing scale, distress scale, and guilt cognitions scales

over time. Findings were similar for the latter TRGI subscales and scales (excluding the wrongdoing subscale) from pretreatment to 3-month follow up. In addition, there was a significant difference found between groups, and a significant Time x Group interaction effect for the global guilt subscale from pretreatment to posttreatment, and across pretreatment, through posttreatment, to 3-month follow up assessments (see Figure 6, referenced in Results chapter, for means plot of the pre, through post, to 3-month follow up interaction). Thus, it appears (as with PTSD symptoms), that participants in the OEI group continued to benefit at follow up, while CPT-R and control group participants plateaued. These results were unexpected, because findings from previous CPT studies indicated that cognitive treatment was more effective for correcting faulty guilt cognitions than PE or waitlist control conditions. CPT was not previously compared, however, to a neurologically-based treatment such as EMDR or OEI. The findings from the present study seem more consistent with several EMDR studies demonstrating effectiveness in reducing guilt symptoms (Cerone, 2002; Rogers et al., 2002; van Etten & Taylor, 1998).

Hypothesis 2

Psychophysiological symptoms (qEEG readings) were examined in frontal and parietal brain regions. Differences between active therapist-administered treatments and the self-administered treatment (BRAIN control) were expected. It was found that mean alpha power at both frontal and parietal regions changed, from pretreatment to posttreatment assessments. The majority of participants displayed no pretreatment asymmetries. After reviewing the findings from EEG studies for anxiety and the resulting inconsistencies (some indicating increased right hemisphere activation while others indicating left

hemisphere activation), Heller and Nitschke (1997) postulated that both of these bilateral increases and conditions would be observed as "no asymmetries." Pretreatment measurements for all participants evidenced some frontal asymmetry which has been associated with depression in previous research (Baehr et al., 1998; Davidson, 1992, 1998; Gotlib et al., 1996, 1998; Henriques & Davidson, 1991; Pizzagalli et al., 2002). Another pattern found for some of the participants in this study was greater right-sided parietal asymmetry alone. It has also been noted in several studies that individuals showing more anxiety reflect this pattern (Davidson et al., 1999; Heller & Nitschke, 1997, 1998a; Lanius et al., 2004; Pizzagalli et al., 2002). Pretreatment measurements for some participants revealed asymmetry patterns in both frontal and parietal regions. This finding is consistent with earlier studies in which higher anxiety comorbid with depression is associated with the display of such asymmetry patterns (e.g., Davidson et al., 1999; Heller & Nitschke, 1998a; Heller et al., 1998b; Metzger et al., 2004, Pizzagalli et al., 2002). It has been suggested that the combination of increased arousal with depressive symptoms results in a pattern more reflective of PTSD than arousal alone (Metzger et al., 2004). See Table 8 in the Results chapter for a summary of qEEG patterns. Discrepancies in the literature concerning brainwave patterns for anxiety and depression make it difficult to interpret the findings of the current study.

There were no significant differences found between groups for either frontal or parietal regions during BL, TS or TM conditions before or after receiving active therapist-administered (CPT-R or OEI), or self-administered relaxation, (BRAIN) treatments. Measures of frontal and parietal asymmetry were not significantly associated with measures of severity for depressive and PTSD symptoms between groups (indicated

by BDI-II or CAPS scores, respectively). One reason that Grace's (2003) study may have produced positive changes in frontal asymmetry (left hypoactivation shifted to increased right alpha) after OEI treatment, and the present study did not, could be differences in trauma populations. Grace's study involved a heterogeneous trauma sample, including both genders, the majority of which were vehicle accidents, and witnessing deaths of others. The present study, on the other hand, involved a homogenous female sexual assault sample. It is well documented in the literature that interpersonal violence is one of the primary risk factors that increases the severity and longevity of PTSD (e.g. Breslau et al., 1998; Yehuda, 1999). Patterns varied considerably, both within the total sample, and within the three different groups. With such interindividual variability, it cannot be concluded that the different treatments had no effect on electroencephalographic anomalies observed in individual participants from each group. In fact, active therapist-administered frontal/parietal asymmetry scores increased rather than decreased. No significance was found for the BRAIN group, pre- to posttreatment (a result in favour of the control group). In contrast, both active therapist-administered group scores resulted in significant posttreatment differences compared to control group findings (relative proportions of cases were higher for posttreatment frontal-plus-parietal asymmetries in CPT-R and OEI groups than in the BRAIN group). These results make sense when we consider that other researchers have found more robust differences in brainwave patterns while participants are provoked or triggered by tasks related to affective measures. Lanius and her colleagues (2004), in particular, found that changes occurred in the right inferior parietals with traumatized subjects responding to script-driven symptom provocation. Clinically, with PTSD patients, it is often observed that individuals "get

worse before they get better" when engaged in active therapies. Particularly after a short course of three treatment sessions, it is not unreasonable to assume that these individuals were more "activated' (less dissociated from their emotions) than those in the more passive control group (R. Bradshaw, Ph.D., personal communication, July 19, 2006).

Consistency Between Psychophysiological and Psychometric Measures

In a cursory overview of the present data, several broad patterns were observed. Because these observations are beyond the scope of the current study, findings will only be mentioned briefly. Individual discrepancies were observed between what participants evidenced on the psychometric and psychophysiological measures. There were some indications that results of paper and pencil instruments correlated with brainwave patterns. Participants who had moderate to severe depression had more frontal and frontal-plus-parietal asymmetries. Other brainwave patterns, however, did not match with self-reports. For example, some depressed participants on the BDI-II displayed symmetrical responses in both frontal and parietal regions at the pretreatment assessment, but later reported a score of less than 7 on the BDI-II while their brain activity shifted to a frontal or parietal asymmetry pattern in the posttreatment assessment. Other participants with low scores on the BDI-II (indicating no depression) at pretreatment evidenced frontal asymmetries. Some of these incongruencies may be explainable by eye dominance patterns (Schiffer et al., 2002), while others may be due to high dissociation. See Table 8 in the Results section and Appendixes OO and PP for summaries of individual and group asymmetry patterns, and pre- and posttreatment scores for the CAPS and BDI-II, respectively.

Limitations of the Study

Several possible explanations have been offered for the limited findings in the current study. Despite tremendous efforts in recruiting participants (see Methods section), and the complexity and time-intensive information gathering in the study (self-report measures and qEEG physiological assessments), we had to limit the number of participants. The small number of participants in each group decreased the power to detect real group differences. Since a trend in improvement for each group was indicated, a larger sample size may have shown more statistically significant improvements or group differences. It may be argued, further, that the superiority of cognitive processing therapy was not supported for guilt-related cognitions because the original 12-session CPT group treatment was reduced to three sessions (not including the group educational session, exposure experiences, relaxation techniques, and homework which, combined, approximated the full CPT protocol). It is important to keep in mind that the purpose of the study was to test the relative efficiency of treatments for alleviating PTSD-related symptoms for sexual assault survivors, and to explore concommitant neurological changes in response to OEI and CPT-R. For this reason, careful attention was paid to ensure that the treatments were equivalent (PowerPoint presentations, video clips, the same actors in role play scenarios used for each group). Moreover, material was extracted directly from Patricia Resick's manual (5 of the 7 role plays, worksheets on trust, safety, power and control, intimacy and self-esteem, and exact disputations for cognitive worksheets). See rationale for CPT-R protocol referenced in previous chapter. Furthermore, though three sessions of OEI treatment resulted in significant reductions in PTSD and guilt symptoms, increased numbers of treatment sessions might have resulted

in greater reductions of depressive symptoms, and significant differences in mean alpha asymmetry scores between groups.

Initially, participants in the study reported having experienced one or two sexual assaults, and PTSD scores ranged from moderate to severe; however, it was revealed in later consultation with the therapists that a significant number of the participants reported additional interpersonal traumas during therapy. These increases in reported trauma incidents may have interfered with resolution of trauma symptoms. Another challenge of working with sexual assault trauma populations, is that in a study of this length, it is impossible to control for secondary stressors that frequently accompany the lives of these individuals. An initial review of the current records of some of the participants revealed that at least six women recorded current secondary stressors, including serious illnesses of close relatives, a suicide attempt of a friend, major financial distress, death of a loved one, and spousal abuse, between the three assessments (see the Method chapter and Appendix I). It has been acknowledged in the literature that negative posttrauma environments (secondary stressors, lack of community support) may be the greatest predictor of chronicity (e.g., Ballenger et al., 2004). Ongoing stressors in the lives of participant's in this study may have limited or negatively influenced the treatment outcome measures, although not likely differentially by group, due to randomized assignment to treatment conditions.

Recommendations for Future Research

Results of the present study have generated several areas for future investigations. The promising findings for the relative efficacy of OEI in reducing PTSD and guilt symptoms, supports the importance of continued investigation and clinical application of

OEI. It may be beneficial in future research to explore the relationship between brain asymmetries and underlying emotions by conducting more detailed examinations of individual patterns (case study approach) following each self-report, assessment time, and at each of the brain regions. As mentioned earlier in the clinical observations, noticeable differences in brainwave patterns were noted between laterality assumed qEEG scores (interpreted in this study) and qEEG scores when eye dominance was considered. Schiffer and his colleagues (2002) found differential responses to transcranial magnetic stimulation, depending on which lateral visual field had been associated with more physical and emotional intensity. This supports the need to consider eye dominance in assessing brainscan and brainwave findings.

Conclusion

Results of the present comparative experimental study indicate that OEI, a neurologically-based therapy, is superior to modified CPT therapy for reducing PTSD symptoms and posttraumatic guilt in adult female survivors of sexual assault. Despite the lack of group differences in cortical brain activity, results have shed light on the complexity of asymmetry patterns and the possible effects of individual differences. These results further attest to the importance of using both psychometric and neurophysiological measurements to refine our knowledge and understanding of treatment efficacy for PTSD–related sequelae. It is clear that continued exploration of the complex and debilitating effects of PTSD associated with interpersonal violence is essential.

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Table 1

Participant Prescription Drug

Category	Drug name	*n*
Antidepressants		
	Celexa (SSRI - citalopran hydrobromide)	3
	Proxac (SSRI - fluoxetine HCL)	2
	Paxil (SSRI - paroxetine)	1
	Effexor (SNRI venilafaxine)	5
	Wellbutrin (bupropion)	3
	Trazodon (triazolopyridine)	2
Antipsychotic		
	Seroquel[a]	1

Note: Some participants were taking more than two prescribed drugs, including multiple antidepressants.

Total number of participants taking an antidepressant = 10.

[a] Participant also takes Prozac.

Table 2

Frequency Bandwidths Used During Brainwave Recording.

Frequency	Bandwidth (Hz)
Delta	1.5 – 2.5
Theta	3.0 – 7.0
Alpha	8.0 – 12.0
LowBeta	13.0 – 15.0
Beta	16.0 – 25.0
HiBeta	26.0 – 28.0
Gamma	28.0 – 40.0

Table 3

Reliability Statistics for Psychometric Instruments

Measure	α	*n*	Test-retest	*n*
Beck Depression Inventory II				
Reliability check	.88	27	.76	26
Pretreatment	.92	27		
Posttreatment	.91	27		
3-month post	.93	25		
Trauma-Related Guilt Inventory				
Global guilt scale				
Reliability check	.95	27	.85	26
Pretreatment	.93	27		
Posttreatment	.96	27		
3-month post	.96	25		
Distress scale				
Reliability check	.87	27	.86	26
Pretreatment	.78	27		
Posttreatment	.82	27		
3-month post	.84	25		
Hindsight-bias/responsibility				
Reliability check	.92	27	.91	26
Pretreatment	.89	27		
Posttreatment	.93	27		
3-month post	.92	25		

(table continues)

Measure	α	*n*	Test-retest	*n*
Wrongdoing				
Reliability check	.60	27	.75	26
Pretreatment	.71	27		
Posttreatment	.80	27		
3-month post	.83	25		
Lack of justification subscale				
Reliability check	.71	27	.70	26
Pretreatment	.74	27		
Posttreatment	.84	27		
3-month post	.85	25		
Guilt cognitions scale				
Reliability check	.92	27	.89	26
Pretreatment	.90	27		
Posttreatment	.94	27		
3-month post	.95	25		
Clinician-Administered PTSD Scale				
Pretreatment total CAPS score	.71	25	.94	
Posttreatment total CAPS score	.83	25		
3-month total CAPS score	.86	25		

Note: Pretreatment CAPS total score in Reliability column is based on interrater reliabilities between seven assessors.

Table 4

Pretreatment Initial Equivalence Checks for All Instruments.

Variable	*F*	*df*	η^2	*p*
CAPS Total	1.216	1, 28	.085	.313
BDI-II Total	1.004	2, 26	.077	.381
TRGI				
Global guilt scale	1.161	2, 32	.071	.327
Hindsight-bias/responsibility	.552	2, 32	.035	.582
Wrongdoing scale	.478	2, 32	.030	.582
Lack of justification subscale	.377	2, 32	.024	.689
Distress scale	5.590	2, 32	.027	.009

Note: CAPS = Clinician-Administered PTSD Scale, BDI-II = Beck Depression Inventory, TRGI = Trauma-Related Guilt Inventory

Table 5

Descriptive Statistics for Comparison of Pretreatment to Posttreatment

		Pre		Post	
Group	*n*	*M*	*SD*	*M*	*SD*
BDI-II					
Control	10	21.80	14.39	21.30	14.39
CPT-R	8	27.38	12.00	17.75	12.00
OEI	9	19.11	9.32	15.89	9.32
Total	27	22.56	12.19	18.44	12.19
CAPS					
Control	10	66.20	14.56	49.60	22.13
CPT-R	8	71.75	18.52	42.63	27.17
OEI	9	57.56	13.21	41.11	15.10
Total	27	64.96	15.91	44.70	21.29
TRGI					
Global guilt scale					
Control	10	1.98	1.49	1.93	1.45
CPT-R	8	2.53	.86	1.66	1.16
OEI	9	1.53	1.00	1.00	.57
Total	27	1.99	1.20	1.54	1.17

(table continues)

		Pre		Post	
Group	*n*	*M*	*SD*	*M*	*SD*
Wrongdoing					
Control	10	2.00	.98	1.60	1.19
CPT-R	8	1.68	1.12	1.50	.68
OEI	9	2.16	.86	1.36	.84
Total	27	1.96	.97	1.49	.92
Lack of Justification Subscale					
Control	10	2.35	1.08	2.15	1.25
CPT-R	8	2.25	1.05	1.75	1.22
OEI	9	2.64	1.14	2.44	.69
Total	27	2.42	1.06	2.13	1.08
Distress Scale					
Control	10	3.07	.58	2.98	.68
CPT-R	8	3.27	.53	2.48	.81
OEI	9	2.26	.43	2.17	.51
Total	27	2.86	.67	2.56	.74
Hindsight-Bias /Responsibility					
Control	10	1.80	1.41	1.77	1.21
CPT-R	8	1.95	1.71	1.32	1.07
OEI	9	1.41	.88	.97	.67
Total	27	1.71	.99	1.37	1.04

(table continues)

		Pre		Post	
Group	*n*	*M*	*SD*	*M*	*SD*
CPT-R	8	1.85	.87	1.32	.76
OEI	9	1.83	.66	1.39	.53
Total	27	1.86	.76	1.49	.84

Note: BDI-II = Beck Depression Inventory – II, CAPS = Clinician Administered PTSD Scale, TRGI = Trauma Related Guilt Inventory, CPT-R = Cognitive Processing Therapy – Revised, OEI = One Eye Integration.

Table 6

Descriptive Statistics for Comparison of Pretreatment to 3-Month Follow up

		Pre		3-Month	
Group	*n*	*M*	*SD*	*M*	*SD*
BDI-II					
Control	9	20.44	14.57	22.44	12.87
CPT-R	8	27.38	12.00	15.38	13.03
OEI	8	19.63	9.83	13.13	9.61
Total	25	22.40	12.38	17.20	12.19
CAPS					
Control	9	66.22	15.44	48.00	17.52
CPT-R	8	71.75	18.52	37.63	27.96
OEI	8	59.00	13.34	20.50	11.46
Total	25	65.68	16.09	35.88	22.44
TRGI					
Global guilt scale					
Control	9	1.83	1.51	1.83	1.18
CPT-R	8	2.53	.86	1.91	1.26
OEI	8	1.53	1.06	.38	.50
Total	25	1.96	1.22	1.39	1.23

(table continues)

		Pre		3-Month	
Group	*n*	*M*	*SD*	*M*	*SD*
Wrongdoing					
Control	9	1.89	.96	1.33	1.33
CPT-R	8	1.68	1.12	1.68	.88
OEI	8	2.20	.91	1.40	.85
Total	25	1.92	.98	1.46	1.02
Lack of justification subscale					
Control	9	2.33	1.15	2.17	1.51
CPT-R	8	2.25	1.05	2.31	1.19
OEI	8	2.53	1.17	2.03	1.16
Total	25	2.37	1.08	2.17	1.26
Distress scale					
Control	9	3.02	.60	2.76	.92
CPT-R	8	3.27	.53	2.52	1.03
OEI	8	2.29	.45	1.79	.44
Total	25	2.87	.66	2.37	.91
Hindsight-bias responsibility					
Control	9	1.84	1.21	1.68	1.35
CPT-R	8	1.95	.93	1.80	1.22
OEI	8	1.54	.86	.82	.55
Total	25	1.78	1.00	1.45	1.15

(table continues)

		Pre		3-Month	
Group	*n*	*M*	*SD*	*M*	*SD*
Guilt cognitions scale					
Control	9	1.90	.87	1.57	1.21
CPT-R	8	1.85	.87	1.74	.97
OEI	8	1.87	.70	1.22	.64
Total	25	1.87	.77	1.51	.97

Note: BDI-II = Beck Depression Inventory – II, CAPS = Clinician Administered PTSD Scale, TRGI = Trauma Related Guilt Inventory, CPT-R = Cognitive Processing Therapy – Revised, OEI = One Eye Integration.

Table 7

ANOVAs for Psychometric Instruments (Pretreatment, Posttreatment, 3-Month Follow up)

Variable	Pre to Post				Pre to 3-Month				Pre to Post to 3-Month			
	F	*df*	η^2	*p*	*F*	*df*	η^2	*p*	*F*	*df*	η^2	*p*
BDI-II												
Time	5.60	1,24	.189	.026*	4.99	1,22	.185	.036*	-	-	-	-
Time x Group	2.01	2,24	.144	.156	2.81	2,22	.204	.082	-	-	-	-
Group	.57	2,24	.045	.574	.62	2,22	.054	.546	-	-	-	-
CAPS												
Time	47.15	1,24	.663	.000*	95.73	1,22	.813	.000*	49.62	2,21	.825	.000
Time x Group	1.83	2,24	.132	.182	4.11	2,22	.272	.030*	2.96	4,42	.220	.030*
Group	.70	2,24	.055	.509	2.72	2,22	.198	.088	1.32	2,22	.107	.287
TRGI												
Global guilt subscale												
Time	8.72	1,24	.267	.007*	13.00	1,22	.371	.002*	6.25	2,21	.373	.007
Time x Group	2.15	2,24	.152	.138	4.22	2,22	.277	.028*	3.34	4,42	.242	.018

(table continues)

Variable	Pre to Post				Pre to 3-Month				Pre to Post to 3-Month			
	F	*df*	η^2	*p*	*F*	*df*	η^2	*p*	*F*	*df*	η^2	*p*
Group	1.50	2,24	.111	.244	3.11	2,22	.221	.065	2.34	2,22	.176	.119
Hindsightbias/responsibility subscale												
Time	7.07	1,24	.228	.014*	4.43	1,22	.168	.047*	-	-	-	-
Time x Group	1.70	2,24	.124	.205	1.34	2,22	.109	.283	-	-	-	-
Group	.99	2,24	.076	.385	1.12	2,22	.095	.333	-	-	-	-
Wrongdoing subscale												
Time	9.99	1,24	.292	.004*	3.02	1,22	.126	.097	-	-	-	-
Time x Group	1.52	2,24	.112	.239	1.05	2,22	.091	.368	-	-	-	-
Group	.14	2,24	.011	.873	.05	2,22	.005	.951	-	-	-	-
Lack of justification subscale												
Time	2.00	1,24	.077	.170	.61	1,22	.028	.444	-	-	-	-
Time x Group	1.70	2,24	.018	.807	1.37	2,22	.115	.276	-	-	-	-
Group	.70	2,24	.055	.504	.00	2,22	.000	1.00	-	-	-	-

(table continues)

Pre to Post | Pre to 3-Month | Pre to Post to 3-Month

Variable	*F*	*df*	η^2	*p*	*F*	*df*	η^2	*p*	*F*	*df*	η^2	*p*
Distress subscale												
Time	6.68	1,24	.218	.016*	11.94	1,22	.362	.002*	-	-	-	-
Time x Group	3.35	2,24	.218	.052*	1 .00	2,22	.087	.387	-	-	-	-
Group	.70	2,24	.356	.005*	4.78	2,22	.313	.019*	-	-	-	-
Guilt cognitions scale												
Time	8.69	1,24	.266	.007*	7.35	1,22	.251	.013*	-	-	-	-
Time x Group	.79	2,24	.062	.464	1.33	2,22	.108	.284	-	-	-	-
Group	.24	2,24	.020	.789	.20	2,22	.018	.819	-	-	-	-

Note: Dashes indicate that the values were not calculated. BDI-II = Beck Depression Inventory – II, CAPS = Clinician Administered PTSD Scale, TRGI = Trauma Related Guilt Inventory.

* $\rho < .05$

Table 8

Descriptive Statistics for Quantitative Electroencephalography Runs for Pretreatment to Posttreatment

Variable	Group	*M*	*SD*	*n*
PreBLFEO1AlphaRminusL				
	Control	2.19	2.31	10
	CPT-R	5.24	4.62	8
	OEI	.75	5.04	9
	Total	2.61	4.34	27
PostBLFEO1AlphaRminusL				
	Control	7.45	3.74	10
	CPT-R	.75	5.44	8
	OEI	1.72	5.27	9
	Total	3.56	5.55	27
PreBLPEO1AlphaRminusL				
	Control	4.48	7.82	10
	CPT-R	.64	3.78	8
	OEI	3.39	10.44	9
	Total	2.98	7.82	27
PostBLPEO1AlphaRminusL				
	Control	4.21	5.33	10
	CPT-R	3.45	4.95	8
	OEI	.53	6.30	9
	Total	2.76	5.60	27

(table continues)

Variable	Group	*M*	*SD*	*n*
PreBLPEO2AlphaRminusL				
	Control	1.96	5.95	10
	CPT-R	2.06	6.53	8
	OEI	4.77	6.60	9
	Total	2.93	6.24	27
PostBLPEO2AlphaRminusL				
	Control	5.86	5.50	10
	CPT-R	.58	6.08	8
	OEI	-1.47	3.76	9
	Total	1.86	5.94	27
PreTSFEO1AlphaRminusL				
	Control	1.96	5.04	10
	CPT-R	3.40	3.44	7
	OEI	1.44	4.14	9
	Total	2.16	4.26	26
PostTSFEO1AlphaRminusL				
	Control	3.30	7.04	10
	CPT-R	3.48	6.63	7
	OEI	2.78	4.59	9
	Total	3.17	5.94	26

(table continues)

Variable	Group	*M*	*SD*	*n*
PreTSFEO2AlphaRMinusL				
	Control	3.80	3.90	10
	CPT-R	4.05	1.49	7
	OEI	.84	4.02	9
	Total	2.84	3.66	26
PostTSFEO2AlphaRminusL				
	Control	3.16	8.40	10
	CPT-R	3.93	7.53	7
	OEI	-.08	5.04	9
	Total	2.25	7.08	26
PreTSPEO1AlphaRminusL				
	Control	3.27	4.74	10
	CPT-R	.08	4.73	8
	OEI	1.91	5.86	9
	Total	1.8703	5.10	27
PostTSPEO1AlphaRminusL				
	Control	4.75	5.54	10
	CPT-R	5.06	6.24	8
	OEI	2.01	9.84	9
	Total	3.93	7.27	27

(table continues)

Variable	Group	*M*	*SD*	*n*
PreTSPEO2AlphaRminusL				
	Control	4.59	6.24	10
	CPT-R	4.52	7.31	8
	OEI	2.94	7.97	9
	Total	4.02	6.93	27
PostTSPEO2AlphaRminusL				
	Control	7.66	7.33	10
	CPT-R	7.84	4.28	8
	OEI	3.27	8.45	9
	All Groups	6.25	7.08	27
PreTMFEO1AlphaRminusL				
	Control	5.18	4.23	10
	CPT-R	3.98	5.19	7
	OEI	1.62	3.145	9
	Total	3.62	4.30	26
PostTMFEO1AlphaRminusL				
	Control	3.91	6.20	10
	CPT-R	.85	6.96	7
	OEI	-.14	5.06	9
	Total	1.68	6.09	26

(table continues)

Variable	Group	*M*	*SD*	*n*
PreTMFEO2AlphaRminusL				
	Control	2.32	5.64	10
	CPT-R	2.69	4.77	7
	OEI	1.92	4.52	9
	Total	2.28	4.85	26
PostTMFEO2AlphaRminusL				
	Control	4.34	4.49	10
	CPT-R	2.84	6.51	7
	OEI	2.73	5.93	9
	Total	3.38	5.41	26
PreTMPEO1AlphaRminusL				
	Control	1.19	9.91	10
	CPT-R	6.39	9.22	8
	OEI	6.44	10.25	9
	Total	3.60	10.16	27
PostTMPEO1AlphaRminusL				
	Control	2.90	2.99	10
	CPT-R	3.63	7.90	8
	OEI	.60	5.41	9
	Total	2.35	5.53	27

(table continues)

Variable	Group	*M*	*SD*	*n*
PreTMPEO2AlphaRminusL				
	Control	1.65	9.62	10
	CPT-R	4.12	4.74	8
	OEI	5.19	7.54	9
	Total	3.56	7.62	27
PostTMPEO2AlphaRminusL				
	Control	3.80	6.58	10
	CPT-R	5.81	8.18	8
	OEI	1.18	4.73	9
	Total	3.52	6.58	27

Note: BDI-II = Beck Depression Inventory – II, CAPS = Clinician Administered PTSD Scale, TRGI = Trauma Related Guilt Inventory, Pre = pretreatment, Post = posttreatment, BL = baseline, TS = trauma script, TM = trauma memory, F = frontals, P = parietals, EO1 = eyes open first run, EO2 = eyes open second run. Refer to Appendix KK for legend of EEG variables.

Table 9

Descriptives for Time of Treatment, Condition (BL, TS, TM), Site (Frontal, Parietal), Group (Control, CPT-R, OEI).

Variable	Group	*M*	*SD*	*n*
PreBLFEO1AlphaRminusL				
	Control	2.19	2.31	10
	CPT-R	4.98	4.92	7
	OEI	.75	5.04	9
	Total	2.44	4.33	26
PreTSFEO1AlphaRminusL				
	Control	1.96	5.04	10
	CPT-R	3.40	3.44	7
	OEI	1.44	4.14	9
	Total	2.17	4.26	26
PreTMFEO1AlphaRminusL				
	Control	5.18	4.23	10
	CPT-R	3.98	5.19	7
	OEI	1.63	3.14	9
	Total	3.62	4.30	26
PostBLFEO1AlphaRminusL				
	Control	7.45	3.74	10
	CPT-R	.75	5.44	8
	OEI	1.72	5.27	9
	Total	3.56	5.55	27

(table continues)

Variable	Group	*M*	*SD*	*n*
PostTSFEO1AlphaRminusL				
	Control	3.30	7.04	10
	CPT-R	2.18	7.15	8
	OEI	2.78	4.59	9
	Total	2.80	6.14	27
PostTMFEO1AlphaRminusL				
	Control	3.91	6.20	10
	CPT-R	1.22	6.53	8
	OEI	-.14	5.06	9
	Total	1.76	5.98	27
PreBLFEO2AlphaRminusL				
	Control	2.70	3.39	10
	CPT-R	5.02	5.05	7
	OEI	1.06	5.36	9
	Total	2.76	4.68	26
PreTSFEO2AlphaRminusL				
	Control	3.80	3.90	10
	CPT-R	4.05	1.49	7
	OEI	.84	4.02	9
	Total	2.84	3.66	26

(table continues)

Variable	Group	*M*	*SD*	*n*
PreTMFEO2AlphaRminusL				
	Control	2.32	5.64	10
	CPT-R	2.69	4.77	7
	OEI	1.92	4.52	9
	Total	2.28	4.85	26
PostBLFEO2AlphaRminusL				
	Control	2.55	5.70	10
	CPT-R	.25	7.50	8
	OEI	2.08	6.32	9
	Total	1.71	6.30	27
PostTSFEO2AlphaRminusL				
	Control	3.16	8.40	10
	CPT-R	3.48	7.08	8
	OEI	-.08	5.04	9
	Total	2.18	6.96	27
PostTMFEO2AlphaRminusL				
	Control	4.34	4.49	10
	CPT-R	1.87	6.62	8
	OEI	2.73	5.93	9
	Total	3.07	5.54	27

(table continues)

Variable	Group	*M*	*SD*	*n*
PreBLPEO1AlphaRminusL				
	Control	4.48	7.82	10
	CPT-R	.64	3.78	8
	OEI	3.39	10.44	9
	Total	2.98	7.82	27
PreTSPEO1AlphaRminusL				
	Control	3.27	4.74	10
	CPT-R	.08	4.70	8
	OEI	1.91	5.86	9
	Total	1.87	5.10	27
PreTMPEO1AlphaRminusL				
	Control	-1.19	9.91	10
	CPT-R	6.39	9.22	8
	OEI	6.44	10.25	9
	Total	3.60	10.16	27
PostBLPEO1AlphaRminusL				
	Control	4.21	5.33	10
	CPT-R	3.45	4.95	8
	OEI	.53	6.30	9
	Total	2.76	5.60	27

(table continues)

Variable	Group	*M*	*SD*	*n*
PostTSPEO1AlphaRminusL				
	Control	4.75	5.54	10
	CPT-R	5.06	6.24	8
	OEI	2.01	9.84	9
	Total	3.93	7.27	27
PostTMPEO1AlphaRminusL				
	Control	2.90	2.99	10
	CPT-R	3.63	7.90	8
	OEI	.60	5.41	9
	Total	2.35	5.53	27
PreBLPEO2AlphaRminusL				
	Control	1.96	5.95	10
	CPT-R	2.06	6.53	8
	OEI	4.77	6.60	9
	Total	2.93	6.24	27
PreTSPEO2AlphaRminusL				
	Control	4.59	6.24	10
	CPT-R	4.52	7.31	8
	OEI	2.94	7.97	9
	Total	4.02	6.93	27

(table continues)

Variable	Group	*M*	*SD*	*n*
PreTMPEO2AlphaRminusL				
	Control	1.65	9.62	10
	CPT-R	4.12	4.74	8
	OEI	5.19	7.54	9
	Total	3.56	7.62	27
PostBLPEO2AlphaRminusL				
	Control	5.87	5.50	10
	CPT-R	.58	6.08	8
	OEI	-1.47	3.76	9
	Total	1.86	5.94	27
PostTSPEO2AlphaRminusL				
	Control	7.66	7.33	10
	CPT-R	7.84	4.28	8
	OEI	3.27	8.45	9
	Total	6.25	7.08	27
PostTMPEO2AlphaRMinusL	Control	3.79	6.57	10
	CPT-R	5.80	8.18	8
	OEI	1.18	4.73	9
	Total	3.52	6.58	27

Note: BDI-II = Beck Depression Inventory – II, CAPS = Clinician Administered PTSD Scale, TRGI = Trauma Related Guilt Inventory, Pre = pretreatment, Post = posttreatment, BL = baseline, TS = trauma script, TM = trauma memory, F = frontals, P = parietals, EO1 = eyes open first run, EO2 = eyes open second run. Refer to Appendix KK for legend of EEG variables.

Table 10

Quantitative Electroencephalography ANOVA for Pretreatment to Posttreatment by Therapy Group Across Conditions

	Condition											
	Baseline				Trauma script provocation				Trauma memory			
Electrode location	*F*	*df*	η^2	*p*	*F*	*df*	η^2	*p*	*F*	*df*	η^2	*p*
Frontal O1												
Time	.24	1,24	.010	.626	.30	1,23	.013	.558	2.06	1,23	.082	.164
Time x Group	5.72	2,24	.323	.009*	.06	2,23	.005	.945	.14	2,23	.012	.869
Group	2.86	2,24	.192	.077	.33	2,23	.028	.723	2.46	2,23	.176	.108
Frontal O2												
Time	.88	1,24	.035	.359	.18	1,24	.008	.673	.357	123	.015	.556
Time x Group	1.54	2,24	.114	.235	.03	2,24	.003	.971	.109	2,23	.009	.897
Group	.18	2,24	.014	.840	1.57	2,24	.120	.229	.223	2,23	.019	.802
Parietal O1												
Time	.00	1,24	.000	.952	.97	1,24	.076	.174	.52	1,24	.021	.479
Time x Group	.90	2,24	.069	.422	.81	2,24	.063	.457	2.11	2,24	.150	.143

(table continues)

	Condition											
	Baseline				Trauma script provocation				Trauma memory			
Electrode location	*F*	*df*	η^2	*p*	*F*	*df*	η^2	*p*	*F*	*df*	η^2	*p*
Group	.18	2,24	.049	.55	.43	2,24	.035	.653	1.16	2,24	.088	.330
Parietal O2												
Time	.61	1,24	.025	.443	2.32	1,24	.088	.140	.00	1,24	.000	.971
Time x Group	3.45	2,24	.223	.048*	.42	2,24	.034	.661	1.51	2,24	.112	.241
Group	1.17	2,24	.089	.326	.78	2,24	.061	.472	.35	2,24	.029	.706

Note: All calculations are alpha right minus left

* $\rho < .05$

Table 11

Quantitative Electroencephalography ANOVA Summary for Condition by Group at Pretreatment and Posttreatment.

	Pretreatment				Posttreatment			
Variable	*F*	*df*	η^2	*p*	*F*	*df*	η^2	*p*
Frontal O1								
Condition	1.03	2,22	.086	.374	2.03	2,23	.150	.154
Cond x Group	.934	4,44	.078	.453	1.34	4,46	.104	.269
Group	2.19	2,23	.160	.135	1.76	2,24	.128	.193
Frontal O2								
Condition	.24	2,22	.021	.791	.58	2,23	.048	.568
Cond x Group	.57	4,44	.049	.688	.85	4,46	.069	.502
Group	1.51	2,23	.116	.242	.348	2,24	.028	.709
Parietal O1								
Condition	.75	2,23	.061	.485	.52	2,23	.043	.604
Cond x Group	2.11	4,46	.155	.095	.05	4,46	.005	.995
Group	.21	2,24	.017	.815	1.52	2,24	.112	.239
Parietal O2								
Condition	.27	2,23	.023	.764	3.86	2,23	.251	.036*
Cond x Group	.65	4,46	.053	.631	.82	4,46	.066	.522
Group	.19	2,24	.016	.826	3.46	2,24	.224	.048*

Note: All calculations are alpha right minus left

* $\rho<.05$

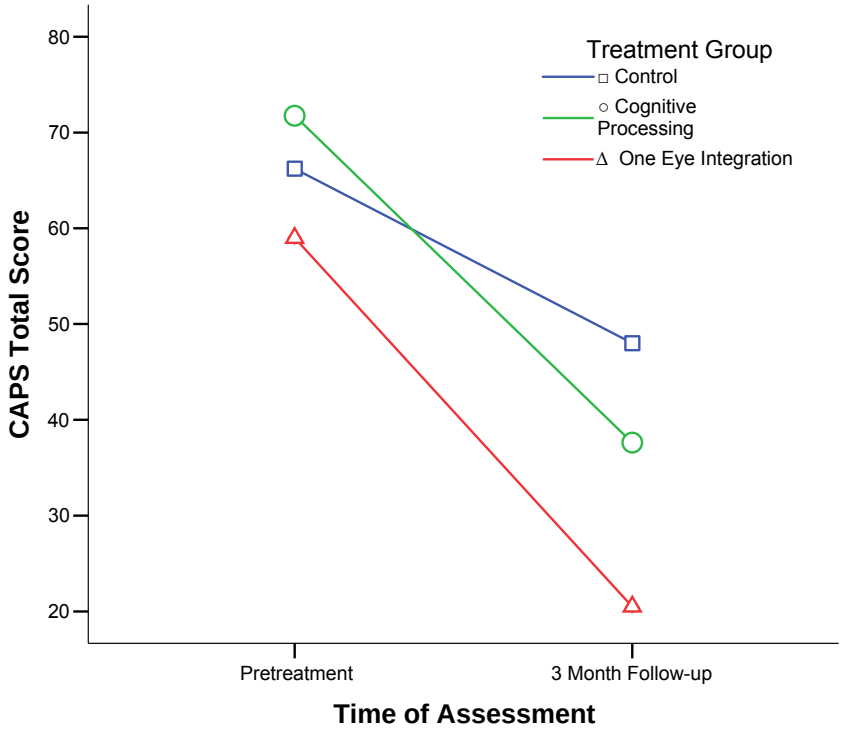


Figure 1. Clinician Administered PTSD Scale Total Score (Pretreatment to 3-Month Follow-up)

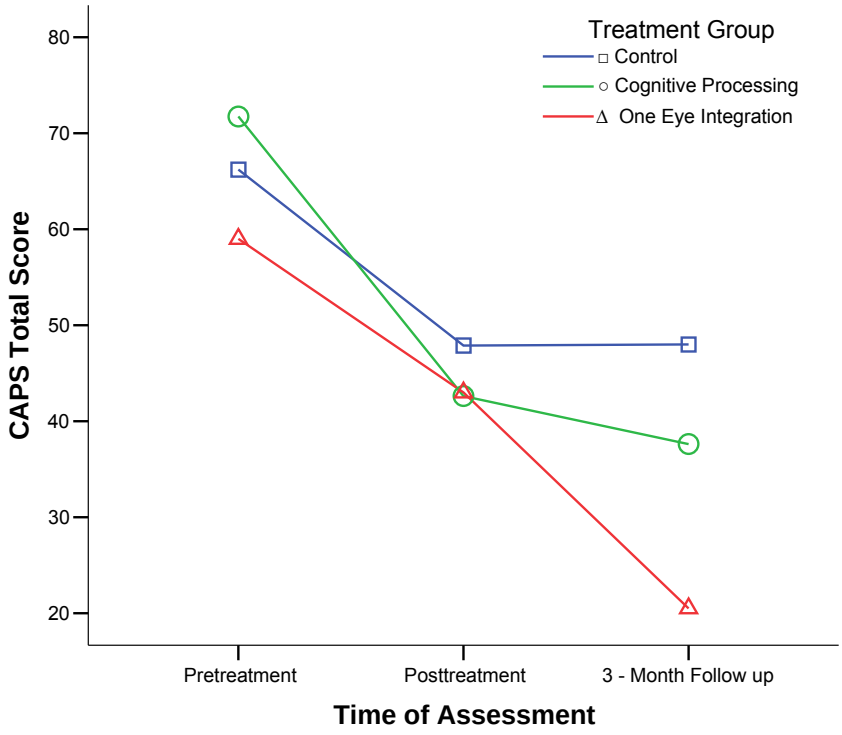


Figure 2. Clinician Administered PTSD Scale Total Score (Pretreatment, Posttreatment, and 3-Month Follow-up).

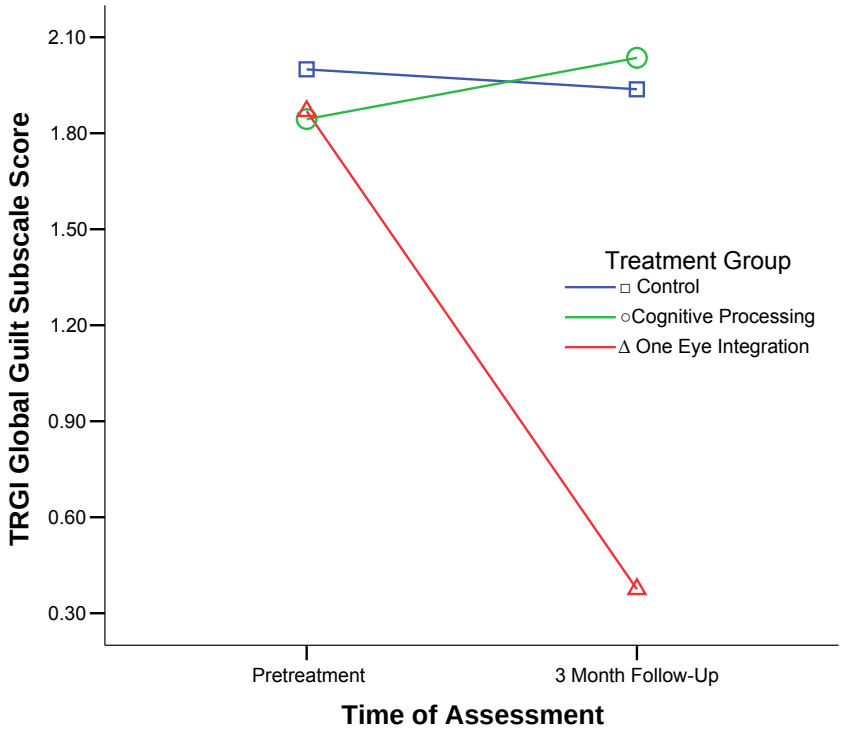


Figure 3. Trauma-Related Guilt Inventory Global Guilt Subscale (pretreatment to 3-month follow up).

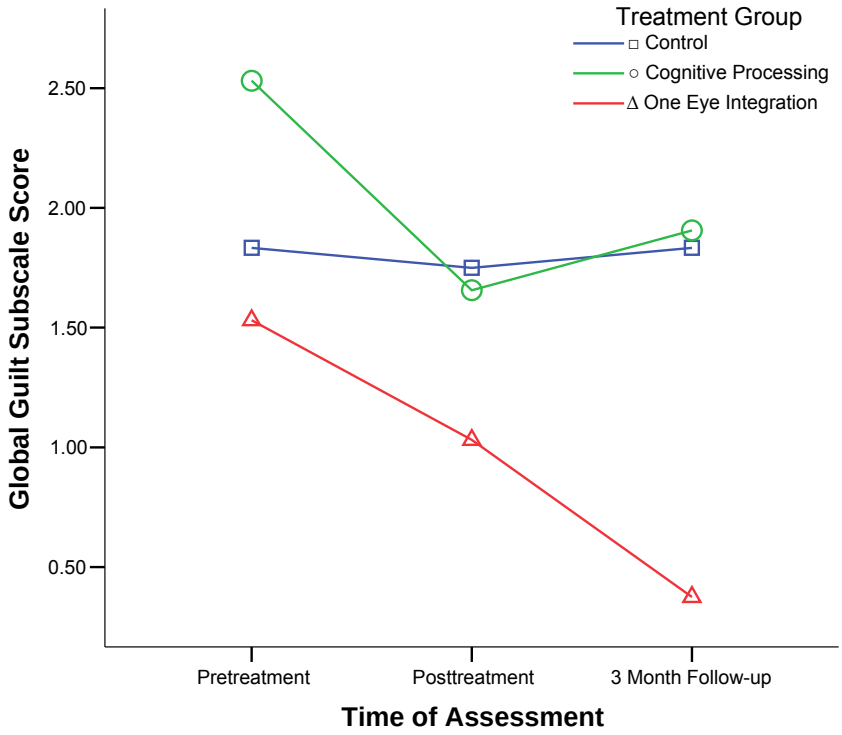


Figure 4. Trauma Related Guilt Inventory Global Guilt Subscale (Pretreatment, Posttreatment & 3-Month Follow-up).

APPENDIX A

Relevant Information Regarding First One Eye Integration Study (2003)

(R. A. Bradshaw, personal communication, April 2, 2006)

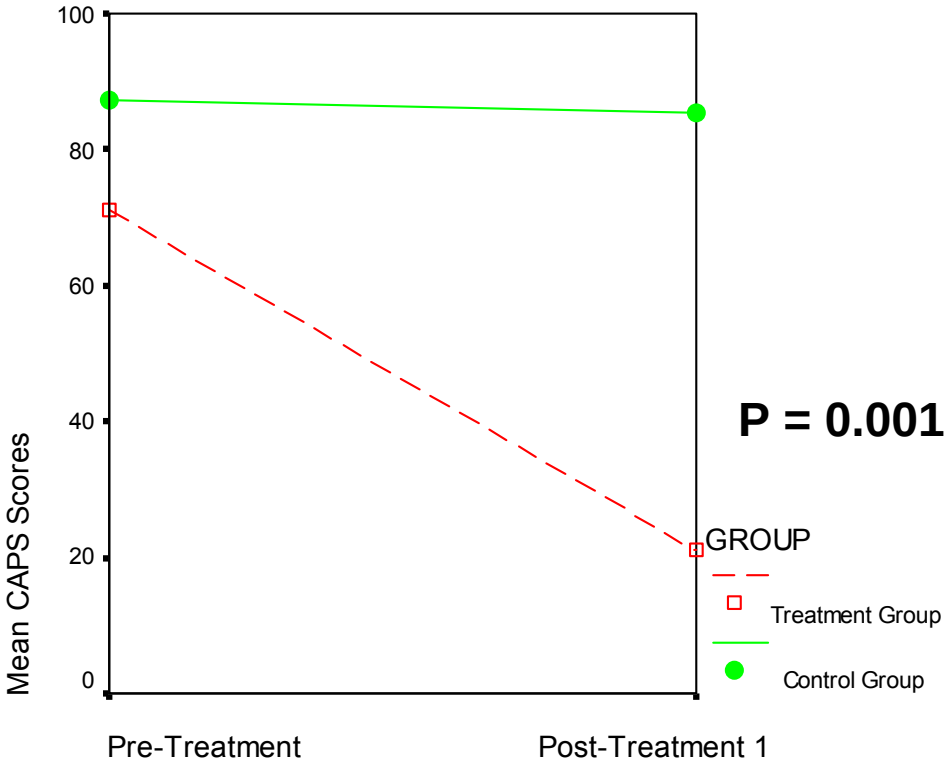
Three years ago a program of formal research was initiated to assess the effectiveness, and understand the underlying mechanisms, of One Eye Integration (OEI). It was anticipated that critics would claim that OEI was the same therapy as Eye Movement Desensitization & Reprocessing (EMDR), because there are techniques in both therapies that involve visual tracking of moving objects. To counter that argument, only one of the three OEI techniques was implemented, known as "switching" (Grace, 2003). This involves simply focusing on a disturbing event, emotional state, inner voice/statement, or body sensation; and alternately covering and uncovering the eyes. In other words, no tracking of movement was required, so any mechanism theoretically occurring in the saccadic eye movements of EMDR could not be said to be activated. Since that study, Lefebvre (2004) has documented an initial application of the same OEI technique (switching) to relieve migraine and tension headaches.

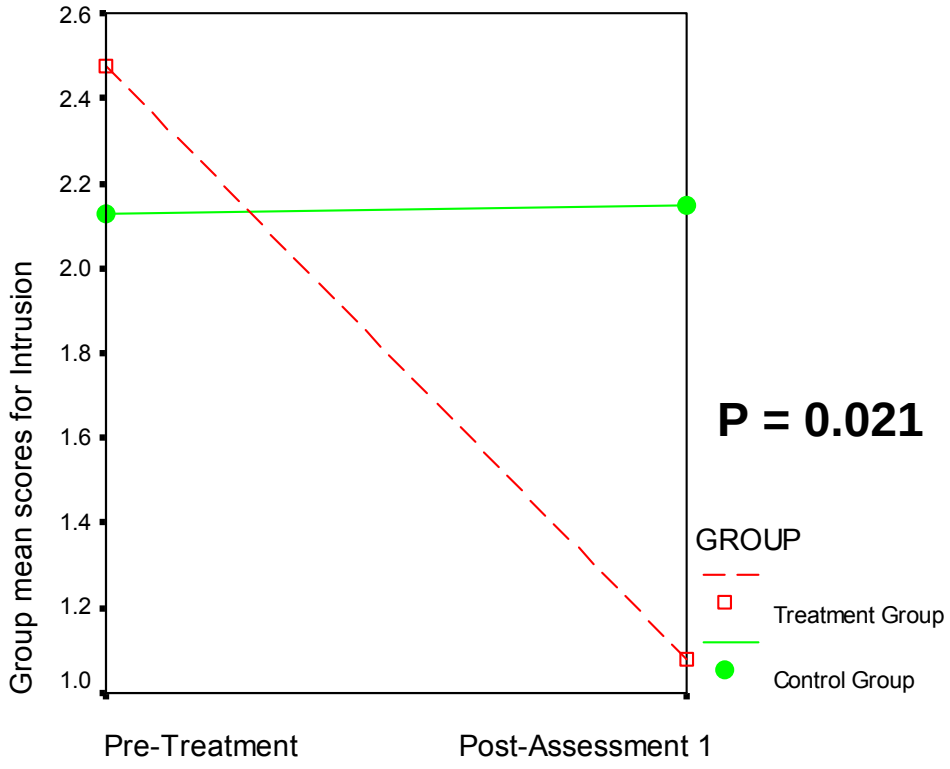
A search was undertaken for the most appropriate instruments and procedures for researching Posttraumatic Stress Disorder (PTSD). Several leading studies had used a procedure known as "script-driven symptom provocation" (Pitman et al., 1987; Lanius et al., 2005). This involves the creation of a 30-45 second audiotape of the most disturbing portions of a traumatic incident, excerpted from each participant's description of his or her most traumatic event on an instrument known as the Traumatic Scene Form (TSF; Hopper & van der Kolk, 2001). These same researchers also developed an instrument and procedure for evaluating the qualities of traumatic remembrances triggered by these recorded, individualized trauma scripts, known as the Traumatic Memory Inventory – Post-Script Version (TMI-PS). Finally, the two PTSD measures selected were the Impact of Events Scale-Revised (IES-R) and the Clinician-Administered PTSD Scale (CAPS), a 45-minute structured interview. The former was selected because it was the most widely-used PTSD instrument in trauma therapy literature, and the latter was selected because it was endorsed by the National Center for PTSD and constituted a more comprehensive and interactive assessment of PTSD symptom frequency and intensity. Both measures included all 3 clusters of symptoms for PTSD from the Diagnostic and Statistical Manual of Mental Disorders text revision (DSM-IV-TR) from the American Psychiatric Association (APA, 2000): Intrusion, Avoidance/Numbing, and Hyperarousal.

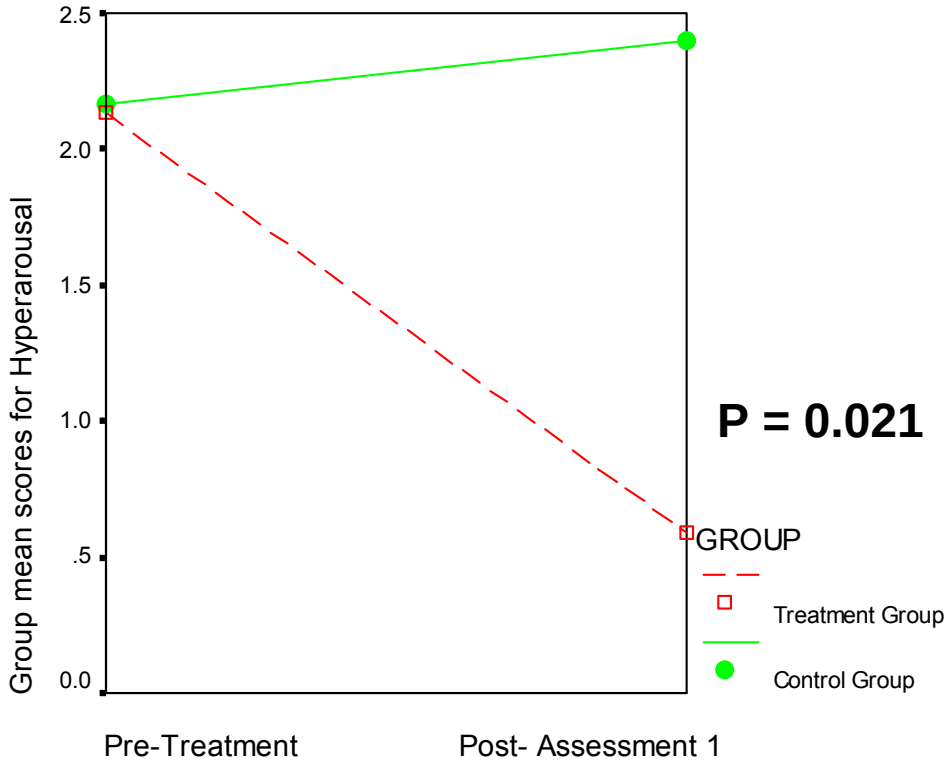
It was anticipated that critics would claim that it was the script-driven symptom provocation that had reduced PTSD symptoms, rather than the OEI switching. For that reason, the delayed treatment control group was subjected to 2 extra exposures to the trauma script (one after each of the three one-hour therapy sessions). There were no significant differences between the treatment and post-therapy control groups in terms of PTSD symptoms, supporting the contention that it was not the exposure to the trauma script that constituted the active therapeutic ingredient (Austin, 2003). Other researchers have also pointed out that the short, intermittent doses of exposure inherent in EMDR

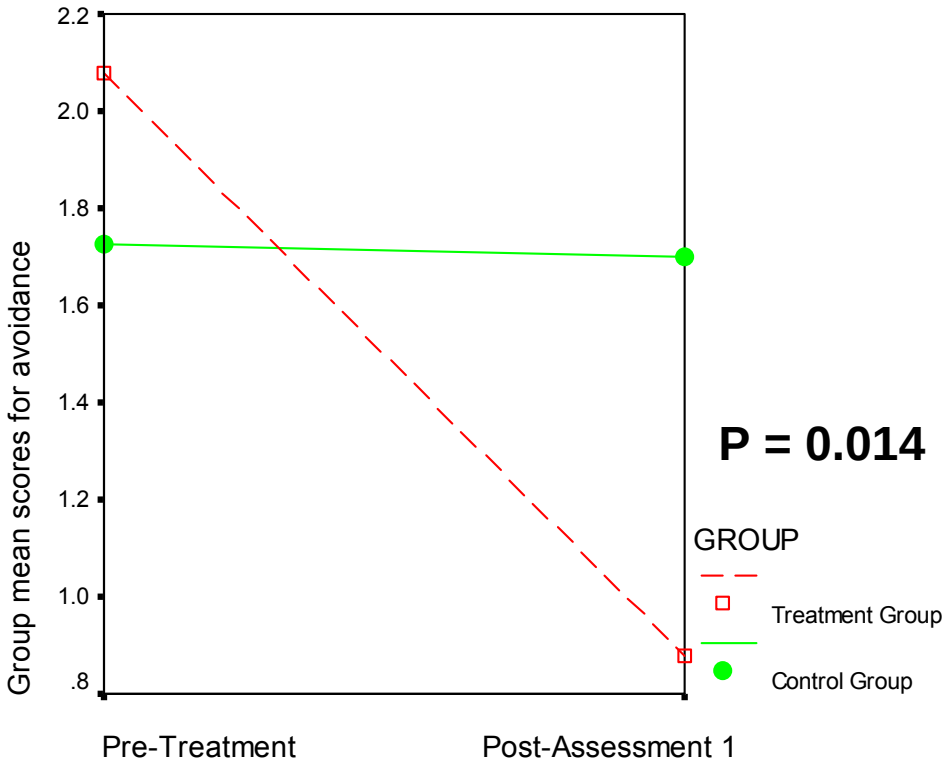
(and, by association, OEI) would actually be expected to increase the intensity of PTSD symptoms, according to behavioural exposure theories (Rogers & Silvers, 2004).

That small (N=10) initial randomized experiment involved a heterogeneous sample of trauma survivors. The findings constitute support for the efficacy of OEI (Bradshaw, Grace, & Swingle, 2004). Results of mixed between-within subjects ANOVAs are as follows:




Group mean scores for Intrusion
2.6
2.4
2.2
2.0
1.8
1.6
1.4
1.2
1.0
Pre-Treatment
Post-Assessment 1
P = 0.021
GROUP
Treatment Group
Control Group


Group mean scores for Hyperarousal
2.5
2.0
1.5
1.0
.5
0.0
Pre-Treatment
Post- Assessment 1
P = 0.021
GROUP
Treatment Group
Control Group


2.2
2.0
1.8
1.6
1.4
1.2
1.0
.8
Group mean scores for avoidance
P = 0.014
GROUP
Treatment Group
Control Group
Pre-Treatment
Post-Assessment 1

APPENDIX B

Major Differences Between One Eye Integration and Eye Movement Desensitization Reprocessing

(R. A. Bradshaw, personal communication, April 2, 2006)

The uninitiated observer might conclude that OEI is EMDR; however, the following are some of the major differences between these therapies:

(a) Many OEI techniques ("Switching" and "Sweeping", and some "Glitch Massaging") are performed 1 eye at a time (rather than with both eyes uncovered as with EMDR);

(b) OEI requires that individuals be capable of perceiving light and tracking moving objects with both eyes, whereas EMDR can be performed with individuals who are blind in one or both eyes (using bilateral tactile or audio stimuli);

(c) OEI includes "Transference Checking & Clearance" procedures for resolving immediate visual and affective distortions triggered by others or by self-in-mirror;

(d) OEI includes "Release Points" for intense trauma symptoms (chest compression, throat constriction, hyperventilation, cessation of breathing, jaw clamping & nausea); and also procedures for resolving headaches, drowsiness, and visual distortions;

(e) While EMDR primarily involves guiding the eyes back and forth horizontally in the center of the eyes, OEI involves directing the eyes in every conceivable direction and location (horizontally, vertically, diagonally, elliptically in corners, arcing, etc.); and

(f) While the EMDR protocol involves initial identification of both negative self-referencing beliefs (cognitions) and positive cognitions, in OEI such cognitions are resolved spontaneously as affective & somatic intensity is decreased.

APPENDIX C

One Eye Integration and Eye Movement Desensitization Reprocessing: Similarities & Differences

OEI	***EMDR***
Differences	
One eye at a time *or* two eyes	Two eyes at a time
Requires vision to sense light & track movement across both visual fields	Vision *not required*. Can use sound or touch to stimulate the brain mechanism
Includes "release points" for nausea, hyperventilation & cessation of breathing, chest tightening and jaw clamping	*Does not acknowledge* or address nausea, hyperventilation & cessation of breathing, chest tightening or jaw clamping
Includes transference checks & clearances for individuals & groups	Has not addressed or acknowledged transference between therapist & pt.
Involves identification and resolution of tiny halts or hesitations-eye movement	No observation or acknowledgement of tiny halts or hesitations in eyes
Techniques for resolving "artifacts" like headaches, dizziness/drowsiness and visual distortions	No recognition of "side effects" of trauma processing on additional aspects of the past
Mechanism = *different than* eye saccades and rhythmic sounds / taps; can involve simple covering of eyes	Mechanism = eye saccades and rhythmic sounds or taps (pugo-occipital waves in the back of the brain)
Cognitions not in protocol or required.	Cognitions are essential in protocol
Similarities	
Can be performed using the eye(s)	Can be performed using both eyes
Involves focusing on trauma in multi-sensory fashion to expose individual to the intensity of past experiences	Involves focusing on trauma in multi-sensory fashion to expose individual to the intensity of past experiences

Involves arousal of fight-or-flight response via midbrain & forebrain	Involves arousal of fight-or-flight response via midbrain & forebrain

APPENDIX D

Regarding the Likely Mechanisms Underlying One Eye Integration

(R. A. Bradshaw, personal communication, April 2, 2006)

Although it is grossly oversimplifying the complex phenomena observed clinically during therapy, I believe that the processes underlying OEI involve (a) the multisensory manner in which personally experienced events are stored in our brains, and (b) the neuropsychology behind traumatic memories & recollections.

To illustrate the first of these points, I have had clients in therapy recalling their traumatic experiences during OEI, and re-experiencing every aspect of the original events in my office. One example of tactile recollection is a woman who was choked unconscious by a relative on several occasions as a child. As we focused on the event visually, the marks on her neck evidenced the hand-prints of her abuser. Another case involved visual, olfactory and auditory senses together. My client had been in a high school shooting incident 45 years earlier, similar to the Columbine High School situation. As she vividly recalled the experience visually during OEI, she smelled the gun powder and blood, and "heard" the moans of her wounded and dying friends. In another case, involving a combination of auditory and somatic senses, I was working with a client toward resolution of a negative cognition, or "inner voice" associated with beliefs (and related emotions) that she would "never finish" her academic program, or "never amount to anything". As we worked with that discouraging inner statement, her shoulder started to twitch. She was initially unable to explain the connection between the statement and her physical reaction, but as we proceeded with OEI she realized that, as a child, her father had jabbed his finger into the region between her chest and shoulder, while saying (with disgust and anger) "You'll never amount to anything!" As we resolved the issue with OEI, both the intensity of the cognition and the related physical sensation and emotions dissipated.

To bring the explanation more exclusively into the visual domain, there is considerable evidence that we record what we see, into our brains in very precise ways. Gregory (1997) cited a series of studies in which the direction-specific nature of the nerve cells in the occipital cortices were discovered. Individual cells fire in response to eye movements, while tracking objects in particular directions (horizontally left-to-right or right-to-left, vertically up or down, or diagonally). The proprioceptive nerves in our muscles (including the 6 major muscles controlling the movements of each of our eyes) send detailed information regarding the locations and movements of our eyes, and this is naturally intensified during traumatic experiences (when amygdaloid arousal causes adrenalin to rage through the tissues of the body). Examples of how specific these visual recollections can be are included in the following cases. The first is the victim of a bank robbery who had been unable to sleep for several days since the incident. I asked him to hold his head still, and then point to where the gunman was when the gun went off (i.e., moving his eyes to where they were at the time). As I tracked through his visual field for "glitches" in eye movement, I located a major halting point and as I passed his eye over it he experience most of the multisensory intensity he had experienced at the time (extreme

fear and panic states, physical shaking, halting of his breath, and an intense startle response. The glitch corresponded precisely to the place his eyes had been earlier when he had indicated where the gunman was standing. A similar example was a client who had received a cell phone call informing him that his best friend had just been killed. Again, the place his eyes were at the time of the call was associated with triggering of the same multisensory intensity. Another case is a demonstration of the same connection but in the reverse direction. This time the client was processing a series of attacks by dogs (which understandably had created an intense phobia of dogs). As I guided her eyes slowly in a number of directions, I encountered a series of these "glitches". Each one was associated with a very circumscribed series of movements and facial expressions, identifiably connected with specific moments in the attacks (some on her head, some attacking her legs while she was on a bicycle and others from behind while she was running away). As I "massaged" the glitches (another OEI procedure), these movement sequences resolved (along with the concomitant distressing emotions). In 6 sessions she was cured of her phobia to the point where she was comfortably holding smaller dogs and allowing them to lick and hold her hand in their mouths. The final session was held at the SPCA, walking between cages of large, barking dogs lunging at the sides of their cages. Another example of this glitch in eye movement associated with events is the client from an automobile accident on the OEI training DVD, who reported specific people, events, emotions, thoughts and sensations associated with glitches in specific portions of her eyes.

Neuropsychologically, following the visual pathway forward from the back of the brain, visual patterns associated with specific events are stored in the occipital cortices. Visual nerve impulses are processed through the cortico-collicular fibers into the superior colliculi, and from there through the colliculo-geniculate fibers to the lateral geniculate nuclei of the thalamus. In a temporally contiguous manner (if not concurrently), visual nerve impulses are also proceeding from the occipital cortices, both directly into the thalamus and indirectly through Meyers loop to the thalamus (likely to integrate co-incidental auditory sensory experiences stored in the temporal lobes). From there, the neural impulses are transmitted into the optic tract, and through both the temporal and nasal fibers of the optic nerve to the retinas. Proprioceptive nerve fibers in the muscles around the eyes (lateral rectus, medial rectus, superior rectus, inferior rectus, inferior oblique and superior oblique) are concurrently activated and monitored through a feedback loop between the sensory and motor cortices. During the original events, nerve impulses associated with visual stimuli are relayed from the retinas into the optic nerves, through the optic chiasm, and both directly into the lateral geniculate nuclei of the thalamus and indirectly through the optic tract-collicular fibers into the superior colliculi, and ultimately to the occipital lobes.

One might ask how, or why, individuals would experience traumatic recollections more intensely with their dominant eyes open (i.e., for most people their right eyes), and less shock, fear and anxiety with their dominant eyes covered and non-dominant eyes open. Rauch et al. (1996) demonstrated, using Positron Emission Tomography, that during triggered experiences of traumas the limbic and paralimbic structures in the right hemisphere are more activated (greater amygdaloid arousal). Although both eyes have connections to both hemispheres, it is apparent in clinical work that it is the temporal

fibers (rather than the nasal fibers) of the optic nerves that define the nature and intensity of experiences during traumatic recollections.

Another interesting phenomenon that occurs during OEI processing of traumatic memories is visual distortions (in some cases complete occlusion of visual fields for short periods; in others, temporary hemianopsia or quadrantanopsia). These experiences are likely caused by intense overactivation of nerve activity along the visual pathway. The portions of the visual fields that are occluded correspond to locations along the visual pathway that have been identified in medical studies of permanent visual lesions. If the stimuli affect both the nasal and temporal fibers of the optic nerve anterior to the optic chiasm, the visual field in that eye will be totally occluded. In contrast, if the overstimulation or lesion only affects one of the fibers in the optic nerve of one eye, hemianopsia will be experienced. If the blockage or overstimulation occurs in Meyers loop on one side, quadrantanopsia will be experienced. These visual distortions can be quickly resolved in clinical work by having clients alternately cover and uncover their eyes a number of times. Other side effects such as drowsiness, lightheadedness or loss of balance and pain or pressure in the head can likewise be resolved.

Processing of traumatic memories, internal voices or statements, physical sensations and even distortions or reactions in relationships can also be resolved by "switching", and when necessary tracking to, and "massaging", glitches in one or both eyes. During processing of traumas which occurred at very early ages, or those associated with near-death experiences, often non-verbal states are encountered. During OEI processing (switching and massaging glitches) these states can be released. In the Rauch et al. (1996) study it was discovered that regional cerebral blood flow to Broca's area is reduced during triggering of traumatic memories. It is therefore a reasonable hypothesis that OEI restores that blood flow.

Hemispheric asymmetries in electrical activity on the scalp have also been associated with depression and anxiety states (amplitudes of alpha frequencies higher on the (usually) left hemisphere (studies conducted by Dr. Richard Davidson and his research group). There was some evidence in the last OEI study (Appendix B) that this asymmetry had been corrected, and we are exploring various asymmetries (frontal, parietal and occipital) in the current study as well.

Other PTSD-related neuropsychological findings have included activity in the anterior □ounseling cortices (some studies show lower activity in this region with PTSD, some show higher levels of activity). The anterior □ounseling gyri (esp. right) are implicated in various psychological conditions involving rumination, worry and unwanted intrusive & disturbing images or thoughts (i.e., symptoms of OCD and PTSD). Since many of these resolve with OEI, it is (not unreasonably) hypothesized that OEI affects activity over the ACC.

The hippocampal-dentate complex has also been reportedly involved in processing traumatic memories. Some studies show reductions in size of the hippocampus in clients who have experienced severe, early-onset child abuse. It is very likely that the functioning of this limbic structure in the brain is not only affected by traumatic experiences (in a negative way) but also by trauma therapies (at least those such as EMDR and OEI, in which representations of traumatic events shift from "intense" to "mild", and from "present" to "past" in terms of levels of affective and sensory arousal).

Another interesting phenomenon we have observed in OEI therapy is what we have called “transference clearance”. Dr. John Briere (2002) has noted, particularly with individuals who have had chronic, severe and early-onset abuse, that they develop “Conditioned Emotional Responses” (CERs). Most people are familiar with conditioning to objects (snakes, spiders, tall buildings, bridges, accident or assault sites, etc.). In contrast, these CERs are internal, affective states (associated with trust, love, anger, shame, or even joy) than become linked with (and therefore become discriminative stimuli for) negative experiences (abuse, abandonment, humiliation, criticism or betrayal). Any facial features or expressions of others, or internal states such as emotional intimacy, can become associated with such negative states. We have discovered that individuals shift in their perceptions of people in close physical proximity as a result of OEI “switching”. Sometimes these differences are in terms of perceived proximity (distance), sometimes in terms of colours, sizes or physical features of the faces they are gazing at, and sometimes in terms of their own emotional experiences (affection, fear, sadness, shame). Repeated switching will resolve these distortions, and relationships can be greatly improved. We use mirror work (self-perception distortions) in the same way.

Finally, in the course of engaging in very intense trauma therapy with some clients, I have encountered significant somatic reactions (panic attacks, hyperventilation or cessation of breathing, nausea or throat constriction). I have discovered “release points” (associated with movements and visual foci) that release, or dissolve these symptoms, enabling trauma processing to continue. These have been particularly helpful for those who have suffered many years from panic attacks. There seems to be a connection between the optic nerves and the vagal nerve that permits these rapid resolutions of intense physical symptoms. I have described some of these techniques in our clinical handbook (Cook & Bradshaw, 2002), and in various presentations (Bradshaw, 2004, February; OEI Training DVD; OEI PowerPoint presentation with video clips).

APPENDIX E

One Eye Integration "Switching" procedure

(Grace, 2003)

1. The subject is instructed to close his or her eyes and play the traumatic incident through in his or her mind from start to finish "like a movie". During this reflection, the subject is encouraged to let the therapist know when he or she first feels any of the fllowing:

   Physical Signs:

   → Chest "compression" (tension or constriction near the solar plexus);
   → Diaphragmatic "restriction" (difficulty taking in a full breath);
   → Nausea, cramping or "fluttering" in the stomach;
   → Head pain, pressure, numbness or tingling:
   → Throat constriction or closing;
   → Visual distortion or blurring.

   Emotional Signs:

   → Fear, shock or anxiety;
   → Sadness or "hurt";
   → Anger or rage;
   → Shame/guilt.

   As soon as she or he feels any of these, the instruction is given to first cover the left eye and report the intensity of the physical and/or emotional sign from "0" ("Doesn't bother you at all") to "10" ("The worst you have ever felt"). This is a modification of Wolpe's (1990) Subjective Units of Distress (SUD) Scale.

   If the subject (S) shows Negative Intensity Markers (facial flush, reddening around the eyes, tears, halting of breathing, shaking, or furrowing of the brow), or reports a high SUDS rating, the instruction is given to uncover the left eye and cover the right eye. The S is then asked to report the SUDS rating with the left eye open. If the SUDS ratings with the left *and* right eyes open (one at a time) are *both* high, the S is instructed to begin rapidly alternating open eyes (covering and uncovering first the left, then the right eye), approximately every second. This alternation can be as fast as every half-second if extreme Negative Intensity Markers are observed. This is kept up (usually 25-50 "Switches") until a shift or "release" is either *observed* by the therapist or *reported* by the subject. At that time, the S is instructed to check intensity levels (either physical or emotional sign) with the right, then left eye, covered and note which one is lower in intensity (SUDS). The S is told to "stay on the eye" (i.e., keep

the eye uncovered) that is associated with the lowest SUDS level1.
It is most common for Ss to come down in SUDS ratings 2-3 points with each "round" of (i.e., series of 25-50) rapid "Switching". This may be repeated 2 or 3 times, if the S reports equal SUDS ratings with each eye open.

The S is instructed to continue thinking about the scene, or face, or physical sensation from the trauma that is disturbing and continue checking and reporting SUDS levels with each of the eyes alternately covered and uncovered. If the S reports that a *lower* (rather than equal and high) SUDS level is experienced with *one* of the eyes covered, he or she is instructed to remain with that same eye covered until the SUDS level goes down "*as low as* it feels like it will go". The S is then told to "Switch" (the eye that is covered) and notice whether what he or she experiences is the "same as" or "different from" what he or she just experienced when the *other* eye was covered.[2] If the intensity goes *up*,[3] the S is instructed to quickly "Switch" back to covering the other eye. This process is continued until the specific intensity is reduced to SUDS levels of "2" or lower.

2. The S is then instructed to *continue* "playing the movie" of the trauma until he or she again feels some form of physical or emotional intensity. The whole procedure is continued (steps 1, 2 and 3), as necessary, until the S reports little or no physical or emotional intensity while "playing the whole movie" of the trauma from start to finish. The S is then instructed to consider whether this trauma reminds him or her of any other, perhaps similar, traumas and, as time allows, these are also desensitized using steps 1, 2 and 3. Still another approach that is used to activate and access dissociated portions of memories is to track across multiple dimensions of the traumatic experiences, from what is "known" to what is "unknown". An example would be a subject who could remember what he or she felt in his or her body, but had no visual, auditory or emotional connections to the same moment or event. He or she would be instructed to keep thinking of the same body sensations and event, while noticin any emotions, or audio-visual reactions he or she experienced.

3. Occasionally a subject would report a *lower* SUDS intensity (for fear, shock or anxiety) with the *right* eye open, even though he or she was □ounsel on an obviously emotionally and physically horrific scene. If this occurred, the therapist asked "Can you believe that happened" (or that he/she did that to you)? After several "Switches" the same question is asked. Usually, believability *increases*, dissociation *decreases* and therapy moves more freely.

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[1] For most right-hand dominant Ss, they will report that when the right eye is open, the highest SUDS levels are experienced. The major exception to this is for the emotion of "Sadness/Hurt", which is often associated with the highest SUDS ratings with the left eye open.

[2] In body location (head, stomach, chest, throat or jaw), type of sensation (pain, numbness, or tingling) or intensity (SUDS 0-10).

[3] The S is instructed to "pay attention to the first sign that the intensity is increasing, and "Switch" immediately, rather than letting the intensity build up. That gives the S a greater sense of control over physical and emotional intensity, and also avoids activation of overwhelming intensity. It should be noted that, unlike Prolonged Exposure therapy, OEI does not require Ss to experience high levels of distress in order to effectively process (integrate) posttraumatic states.

APPENDIX F

Timeline and Major Steps in Randomized Controlled Trial.

	DUR.	TASKS / PROCEDURES		
		GROUP 1	**GROUP 2**	**GROUP 3**
	3-4 weeks	**Post-Treatment Assessment #2**		
	1 week			
	3 weeks	EITHER OEI OR CPT[1] THERAPY (1 session per week)[1]	OEI THERAPY (1 session per week)[1]	COGNITIVE (CPT) THERAPY (1 session per week)[1]
	2 hrs	EITHER OEI OR CPT[2] PSYCHO-EDUCTATION[3]	OEI PSYCHO-EDUCATION[3]	COGNITIVE (CPT) PSYCHO-EDUCATION[3]
	3-4 weeks	**6-Month Follow-up Assessment & Pre-Treatment Assessment #2**		
	7-8 weeks			
	3-4 weeks	**3-Month Follow-up Assessment**		
	7-8 weeks			
	3-4 weeks	**Post-Treatment Assessment #1**		
	1 week			
	3 weeks	DELAYED TREATMENT CONTROL GROUP	COGNITIVE THERAPY (1 session per week)	OEI THERAPY (1 session per week)
	2 hrs	B.R.A.I.N. PSYCHO-EDUCATION[3]	COGNITIVE (CPT) PSYCHO-EDUCATION[3]	OEI PSYCHO-EDUCATION[3]
	1 week	**Pre-Treatment Assessment #1**		
	2 hrs	Breathing, Relaxation, Autogenics, Imagery, and Counselling (B.R.A.I.N) Training for all Participants		
	18 months	Recruitment, Screening & Pre-Testing of Participants		

Notes. [1] Status of the research project at the time when this preliminary study was conducted. [2] Depending on which therapy approach shows to be more efficacious, the therapy will consist of either CPT or OEI.

[3] Psychoeducation consists of a 2 hour debriefing regarding the therapies' goals, techniques, and procedures. Greyed areas mark this study's part.

APPENDIX G

Listing of Recruitment Efforts

Sexual Assault and PTSD in Women: A Comparative Experimental Study of Treatment Approaches

1) **Lists of Agencies & Women's Shelters**
2) **NowTV (multiple TV shows)**
3) **Newspaper Articles & Adds**
4) **Classroom Presentations**
    a. **Trinity Western University**
    b. **Kwantlen College**
5) **Advertisements on Praise 106.5 (radio station)**
6) **Mars Hill**
7) **Women's Health Fair**
8) **S.A.N.E. (Surrey Memorial & Abbotsford)**
9) **Fort Langley Natural Clinic**
10) **Wellness Center at Trinity Western University**
11) **S.A.N.E. Program in Chilliwack**
12) **Victim Services (RCMP program)**
13) **Uvic Sexual Assault Program**
14) **Tear off posters at:**
    a. **Trinity Western University**
        i. **Dorms**
    b. **Kwantlen College**
    c. **Simon Fraser University**
    d. **UCFV – Mission, Abbotsford, Chilliwack**
15) **Spoke to the RA's about the study**
16) **Women's Resource Centers at SFU & UBC**
17) **Gay, Lesbian, Bisexual Center at SFU**
18) **Doctor's Office in Guilford**
19) **Passed out over web to Mary Kay representative/friends**
20) **Jesus is Lord Church**
21) **Union Gospel Mission**
22) **Doctor's office in Whalley**
23) **Physician**
24) **Langley Library**
25) **Women's Hospital: Sexual Assault Program**
26) **Salvation Army Family Services**

APPENDIX H

(i) Sexual Assault Study Notice

Did you know that……

1 in 5 Canadian women has experienced
Sexual Assault

50% of those women will experience
Posttraumatic Stress Disorder
(PTSD)

Symptoms:

- **Flashbacks or Re-experiencing of Event**
- **Agitation, Sleep Difficulty, Irritability,**

Intense Startle Reflex

- **Emotional Numbing and/or Avoidance**

If you, or someone you know, has experienced this, please call:
(604) 513-2164

Confidential Voice-Mail. Call

will be returned by female

This is an opportunity for free therapy with expe
female counseling…

Healthy Relationships --- Emotional Wellness

(ii) Free Trauma Therapy

FOR RAPE & SEXUAL ASSAULT:

An Experimental Comparison of Three Treatments

for Posttraumatic Stress Disorder

A number of recent studies have documented neurological changes in the brain as a result of exposure to traumatic events. Three therapies have been found to be effective in reducing the symptoms of Posttraumatic Stress Disorder (PTSD) when compared with no-treatment control groups. One treatment is called "One Eye Integration" (OEI) another is called "Cognitive Processing Therapy" (CPT) and a third "Grounding & Relaxation Techniques" (GRT). These approaches need to be compared with each other, and assessed more formally through observation of brainwave patterns prior to, and following, application of these techniques.

An experimental comparative study is proposed, and 40 adult research subjects are needed. Since both the study and the duration of treatment to be provided are short-term, we are seeking individuals who have been (and are currently) experiencing the symptoms of Posttraumatic Stress Disorder listed below, but did *not* experience *significant ongoing* trauma (including continuous abuse or neglect) in childhood or adolescent years. Research participants will receive at least 3 free sessions of psychotherapy (1 hour each) from an experienced masters level □ounselin (that would normally cost $150). Ideally, participants should be at least 1 year post-rape/sexual assault, have had no more than 2 rape incidents, and be free of substance (alcohol or drug) abuse for at least one year.

Symptoms of PTSD

A. Exposed to traumatic event involving both of the following:

(1) Experienced, witnessed or confronted with an event that involved actual or threatened death or serious injury or threat to the physical integrity of self or others;

(2) Your response involved intense fear, helplessness or horror.

B. The traumatic event is reexperienced in a distressing manner;

C. You are persistently avoiding reminders of the event;

D. You have persistent symptoms like sleep disturbance; irritability or anger, intensified startle response or difficulty concentrating;

E. You have had the symptoms for longer than 1 month; and

F. The disturbance causes clinically significant distress and/or impairment in social, occupational or other areas of functioning.

If you believe you meet these criteria and you are interested in participating in the study, please contact Heather Bowden or Wendy Dobson at (604) 513-2164

APPENDIX I

Individual Trauma Histories

Uncontrollable variables with potentially confounding effects

PART-No	Group	Anti-Psychotics (Y/N)	Brain Injury (Y/N)	Substance Abuse (Y/N)	Prior Therapy (Y/N)	Recent Major Stressors
106	**1**	**y**	n	n	**y**	n
109	**1**	**y**	n	n	**y**	**y**
113	**1**	**y**	n	n	**y**	**y**
118	**1**	n	n	**y**	**y**	**y**
121	**1**	**y**	n	n	**y**	n/a
124	**1**	n	n	**y**	**y**	n/a
125	**1**	**y**	n	**y**	**y**	n/a
129	**1**	**y**	n	**y**	**y**	n/a
132	**1**	n	n	n	**y**	n/a
136	**1**	n	n	**y**	**y**	n/a
102	**2**	**y**	n	**y**	**y**	no
104	**2**	n	**y**	**y**	**y**	no
108	**2**	n	**y**	n	**y**	**y**
112	**2**	n	n	n	**y**	no
115	**2**	**y**	n	**y**	**y**	no
116	**2**	**y**	n	n	**y**	no
120	**2**	n	n	**y**	**y**	n/a
128	**2**	n	mild	n	**y**	n/a
103	**3**	**y**	n	**y**	**y**	no
105	**3**	n	n	n	**y**	**y**
107	**3**	n	**y**	**y**	**y**	**y**
110	**3**	**y**	n	n	**y**	no
114	**3**	n	mild	n	**y**	no
119	**3**	n	n	n	n	n/a
123	**3**	n	n	n	**y**	n/a
130	**3**	n	n	n	**y**	n/a
133	**3**	n	n	n	**y**	n/a
Total		**11**	**3**	**11**	**26**	**6**

APPENDIX J

Protocol for Pre-Screening Telephone Intake

FIRST
Ask whether the caller is able to talk for 10 minutes for a brief pre-screening call
Describe the types of questions you will be asking (factual criteria for the study)
Explain procedures to ensure confidentiality of information from this intake call
Explain the next steps if she ounselin for screening questionnaires & interviews
Refer to other resources if clearly NOT qualified, put in "consulting" if unclear

DO
Confirm ***no*** extensive history of childhood abuse (prefer esp ***not*** in 0-6 years)
Confirm ***1 or 2*** incidents of sexual assault (prefer not more than 2 incidents)
Get ***age(s)*** when assaults occurred (prefer 13+ years, but will consider 10)
Ask ***how long since assault*** (prefer 1 year + but will consider 1 month +)
Confirm no ***current substance abuse*** (prefer 1 year + sobriety/drug cln)
Confirm ***PTSD*** symptoms (review 3 clusters of symptoms with callers)
Explain the ***overall study***, and where this pre-screening call fits plan
Assure of info confidentiality (forms in locked cabinet in locked lab)
Let caller know that full Informed Consent Form will follow later

DON"T
Ask *unnecessary details* about abuse (only enough to answer Qs above)
Say you will call back at a given time on a given day and not follow thru
Break the call up into multiple conversations --- try to get it in 10 mins.
Get caught up in explaining delays --- we have been *very* active!
Guarantee they will be in the study or the date when it will start
Mention anything about a "Control" group (all p's get 2 tx's)

NOTE: It is still hoped that we will have full recruitment by the end of December, Screening interviews & questionnaires completed by the end of January, and Therapy starting in February. Remind callers that they will be getting approx. $500 worth of treatment free in return for their participation, and that therapy will be provided by empathic, experienced female therapists

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Fill out forms on ***all*** callers, including health care professionals calling about pts.

We can't afford to lose any potential participants so some of our original criteria may change (age of participant 17 yrs. Vs. adult; 1 month since assault vs. 1 yr).

Hope this makes the phone prescreening intake more clear and professional!

APPENDIX K

Informed Consent

January 7, 2005

Application of One Eye Integration Techniques for Trauma:

A Comparative Experimental Study

For Answers to Questions or Clarifications Regarding this Study, Contact:

Dr. Richard A. Bradshaw (604) 888-7511 Ext. 3382	Principal Investigator
E-mail: rick.bradshaw@twu.ca	Co-Investigator & Faculty Supervisor

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The intent in the proposed study is to compare the effectiveness of three different psychotherapies for relieving post-traumatic symptoms. One of these therapies involves eye movements, including alternate exposure of eyes to light (referred to as One Eye Integration, or OEI) and the others do not. One of the therapies involves a good deal more talking than the other (Cognitive Therapy, or CT). The third therapy involves mainly physical and mental relaxation. All three therapies have been effective in previous comparisons with no-treatment control groups, but no studies have yet been done to compare the effectiveness of these three approaches.

Your participation in this study will require 5 hours of your time for each block of assessments (questionnaires, checklists, interviews and brainwave recording sessions). These will be completed at the start of the study, and every 2-3 months until completion of the study (a total of 5 assessment blocks over 10-12 months). In addition, at the beginning of the study, at the half-way point, and at the conclusion of the study there will be 1½ -2 hours of additional interviews. Depending on the group to which you are assigned, you may be provided with a 30-minute audio recording of relaxation & calming exercises and asked to play it once per day during half the length of the study. Also depending on which group you are assigned to, you will complete 2 hours of group training in emotional containment & “grounding” techniques, 2 hours of psychoeducation regarding the rationales for (and likely mechanisms of) OEI and/or CT, and three to six 1-hour individual psychotherapy sessions, with a competent Masters level clinician. At current B.C. rates, this would cost over $500, but this treatment is being provided free of charge to compensate you for the time involved in the study. Short journal entries will be requested of participants between individual and/or group sessions they receive.

Apart from listening to the audio recording daily, the total time requirements for participation in this study (assessments and treatments) will be approximate a 40-hour work week, spread over 10-12 months. A psychologist or □ounselin will provide up to 3 additional sessions, if necessary, to alleviate any additional distress which may have been caused or aggravated by participation in the study. It is reasonable to alleviate *some* of the intensity of PTSD in 3-6 sessions, but participants should not expect *all* of their symptoms to be gone in 3-6 sessions if they have had a *number* of previous traumatic experiences.

In this study, you will be asked to recall a particular event (sexual assault or rape experience) which is still disturbing for you to think about. Researchers will help you develop a short description of the event that will be read onto an audiotape by one of the investigators. That tape will be played back, and your brainwaves

will be monitored and recorded, along with your levels of reaction (to sounds, pictures, body sensations, smells, emotions and thoughts you experience). Those short audiotapes will be played just prior to treatment, after all 3 treatment sessions, at the time of the 3- and 6-month follow-up assessments, and at the time of the final post-treatment assessment.

In order to measure electrical activity in the brain before and after treatments, an EEG electrode cap will be placed on your head. This is a relatively painless procedure. During psychotherapy sessions you will also be videotaped, to allow later correlation between therapeutic procedures and brainwave activity. You will periodically be asked by the investigators to rate your level of distress on a scale from 0 to 10 (with “0” indicating no distress or intensity, and 10 indicating the worst you have ever experienced).

All information you share in written and oral form will be carefully collected and stored in locked file cabinets, accessible only to the individuals named at the end of this consent form (and a professional transcriptionist) to ensure confidentiality. In addition, once the data is collected, numbers (rather than names) will be used to identify individuals on all written forms and interview protocols. This will prevent inadvertent disclosure of identifiable personal information.

As with any research project involving assessment or treatment of trauma, you will likely experience psychological distress at some points, as you recall events, people and situations that traumatized you. You will be randomly assigned to one of three groups in this study: One group will receive Cognitive Therapy, one will receive One Eye Integration Therapy, and one will receive stress reduction, relaxation and calming exercises for home use, with an audio recording. In the second half of the study, all participants will receive a second therapy (one of the three approaches mentioned earlier in this Consent Form.

One of the two psychotherapy approaches considered in this study for relief from PTSD symptoms is “Experimental” because there are currently no published studies in refereed professional journals attesting to the effectiveness of the procedures. For this reason, some additional information about that set of techniques is necessary. In the last 8 years, a series of clinical procedures has been developed and used to reduce posttraumatic stress symptoms. This series of techniques has been referred to as “One Eye Integration”.

During One Eye Integration (one of three treatment approaches used in this study), people sometimes experience transient symptoms such as headaches, visual distortions and stomach or chest tension. These generally fade within 30 minutes, and more often within 5 minutes. In addition, it is possible that recall of traumatic incidents will trigger dissociative symptoms, such as drowsiness, light-headedness, numbness or difficulty speaking. Again, such symptoms normally subside within 30 minutes, and more commonly within 5 minutes. As in any research study of new clinical procedures, there may be harms that we don't yet know about.

Based on clinical experience and 2 studies (1 controlled) with One Eye Integration techniques, these procedures appear to provide significant, rapid relief from the major symptoms of Posttraumatic Stress Disorder (PTSD). The therapy proceeds one memory at a time, and recollection of each traumatizing event, person or situation is desensitized to the point where it is no longer disturbing to recall. For a given memory, this normally occurs within 60-180 minutes.

It is reasonable to alleviate *some* of the intensity of PTSD in 3 sessions, but you should not expect *all* your symptoms to be gone in 3 sessions if you have had a number of previous traumatic experiences.

Alternative therapies to One Eye Integration, for PTSD symptoms, include:

- Prolonged Exposure (spending time in situations associated with distress and focusing on them until intensity subsides);

- Imaginal Exposure (thinking or writing or talking about the distressing situation or event until the intensity subsides);

- Cognitive Behavioural Therapies, such as Cognitive Processing Therapy -- CPT (changing thoughts & beliefs about yourself, and the people, events or situations that are traumatic for you to think about); or

- Eye Movement Desensitization & Reprocessing (combining Cognitive-Behavioural Therapy with bilateral stimulation – eye movements, hand-taps or sounds – while thinking about distressing events or situations or people).

All completed written questionnaires, audiotapes, videotapes and psychophysiological data will be kept for 5 years from the completion date for the study and then erased or destroyed, unless you give written permission to retain records longer or specifically request (in writing) destruction of your data sooner.

As with any Counseling or psychotherapy, confidentiality is also limited by:

- Threat to self (suicide risk)
- Threat to other (homicide risk and duty to warn)
- Suspicion of child abuse
- Intention to drive a motor vehicle while intoxicated by alcohol or drugs
- Intention to have unprotected sexual contact or share IV drug needles, when infected by HIV and/or diagnosed with AIDS
- Subpoenas or special legal warrants in which portions of participant files are requested

One very important condition of participation in this study is that you try to refrain from mental health consultations other than those provided in this study (seeing □ounseling, psychologists or psychiatrists for treatment of your symptoms of distress, apart from those associated with this study, except in a crisis). The reason this condition is important is that if you receive other mental health treatments during the study we will not be able to clearly determine the sources of any changes in symptoms.

Finally, participants are asked to inform the principal investigator if your medical treatment (especially changes in medications or dosages) is changed in any way for the duration of this study. Again, this is so that we may accurately attribute changes in symptoms to the treatments provided during the study rather than to changes in treatments (including medications) provided *outside* the study

NOTE: Even *after* you consent to participate in this study by signing below, you may refuse to participate or withdraw at any time without consequence.

If you have any questions about *ethical issues* involved in this project, you may contact Ms. Sue Funk in the Office of Research at (604) 513-2142.

☐ I have read and understood the description of the study, and I willingly consent to participate in this study.

_____ _____

(Participant Signature) (Date)

_____ _____

Parent or Guardian Signature (if under 19 yrs. Of age) (Date)

APPENDIX L

Traumatic Scene Form

We would like you to write a description of the most traumatic event you have experienced in your life. We may ask you more detail about this experience later.

If you find it difficult to think of something to write, it may help to close your eyes and imagine yourself back in the situation. Try to generate the same sensations and feelings that you experienced at the time. While the image is vivid in your memory, jot down the details of the scene and the sensations you experienced at the time. Also, on the next page are bodily experiences you may have had;
please circle any that apply.

Describe the traumatic situation. Include such details as when it happened (age and date), where you were, who was there (names), what you were doing, how things looked, what you heard, what you were feeling, etc. Please do not guess or include anything about which you are not positive.

Please write things in the order they happened, and include bodily sensations from the next page at the appropriate times (turn the page to that first). Continue your description on the reverse side of this page if necessary.

Listed below are a number of bodily sensations that people may experience in various situations. Please circle all of the responses that you experienced in the situation you described, and include several in your description.

Heart stops
feel relaxed all over
tension in forehead
constriction in chest
shallow breathing
pant
stomach is in a knot
laboured breathing
nauseous
tension in forehead
heart pounds
heart races
palms are clammy
feel warm
grit my teeth
tension in the arms
body feels heavy
tightness in the face
whole body shakes
arms & legs warm and relaxed

feel tense all over
butterflies in stomach
cramps in stomach
tension in back
breath slower
clenched jaw
gasping for air
tension in the arms
feel tense all over
tightness in the face
heart beats slower
heart quickens
beads of perspiration
clenched fist
clenched jaw
flushed face
eye twitches
hands trembling
blood rushing to head

jittery
calm
clenched fist
breath faster
grit my teeth
feel relaxed all
beat
feel restless
head pounds
hands trembling
heart skips a
feel sweaty
sweat pours out
tension in back
feel hot all over
eyes water
eyes burn
eyes wide open

APPENDIX M

Traumatic Antecedents Questionnaire

Name:_____ Date:_____

Age:_____ Sex:_____ Marital Status:_____ Education: _____

Occupation: _____

Instructions: This questionnaire asks you to describe experiences you have had as a young child (ages 0 – 6), as a school age child (ages 7 – 12), as an adolescent (ages 13 – 18), and as an adult. For each item, indicate the degree to which the statement describes your experience at each different age period. The scale has both frequency and intensity words; please choose the highest applicable number. If there are any age periods for an item that you are unable to answer, please indicate this by choosing DK ("don't know").

Use the highest Applicable number

0 = ever or not at all
1 = rarely or a little bit
2 = occasionally or moderately
3 = often or very much
DK = don't know

	AGE	INTENSITY/FREQUENCY
1. I generally felt safe and cared for.	0 – 6	0 1 2 3 DK
	7 – 12	0 1 2 3 DK
	13 – 18	0 1 2 3 DK
	adult	0 1 2 3 DK
2. Someone made sure I got in the morning and went to school.	0 – 6	0 1 2 3 DK
	7 – 12	0 1 2 3 DK
	13 – 18	0 1 2 3 DK
	adult	0 1 2 3 DK
3. I was really good at something (like sports, a hobby, school, work, or some creative activity).	0 – 6	0 1 2 3 DK
	7 – 12	0 1 2 3 DK
	13 – 18	0 1 2 3 DK
	adult	0 1 2 3 DK
4. I had good friends.	0 – 6	0 1 2 3 DK
	7 – 12	0 1 2 3 DK
	13 – 18	0 1 2 3 DK
	adult	0 1 2 3 DK

5. I felt close to at least one of my brothers and sisters.	0 – 6	0 1 2 3 DK
	7 – 12	0 1 2 3 DK
	13 – 18	0 1 2 3 DK
	adult	0 1 2 3 DK
6. Somebody in my family had so many problems that there was little left for me.	0 – 6	0 1 2 3 DK
	7 – 12	0 1 2 3 DK
	13 – 18	0 1 2 3 DK
	adult	0 1 2 3 DK
7. I felt that nobody cared whether I lived or died.	0 – 6	0 1 2 3 DK
	7 – 12	0 1 2 3 DK
	13 – 18	0 1 2 3 DK
	adult	0 1 2 3 DK
8. I had someone to talk with outside my family when something was bugging me at home.	0 – 6	0 1 2 3 DK
	7 – 12	0 1 2 3 DK
	13 – 18	0 1 2 3 DK
	adult	0 1 2 3 DK
9. There were secrets in my family that I was not supposed to know.	0 – 6	0 1 2 3 DK
	7 – 12	0 1 2 3 DK
	13 – 18	0 1 2 3 DK
	adult	0 1 2 3 DK
10. My parents confided things in me that made me uncomfortable.	0 – 6	0 1 2 3 DK
	7 – 12	0 1 2 3 DK
	13 – 18	0 1 2 3 DK
	adult	0 1 2 3 DK
11. My parents were divorced or separated.	0 – 6	0 1 2 3 DK
	7 – 12	0 1 2 3 DK
	13 – 18	0 1 2 3 DK
	adult	0 1 2 3 DK
12. I lived with different people at different times (like different relative, or foster families).	0 – 6	0 1 2 3 DK
	7 – 12	0 1 2 3 DK
	13 – 18	0 1 2 3 DK
	adult	0 1 2 3 DK
13. Someone close to me died.	0 – 6	0 1 2 3 DK
	7 – 12	0 1 2 3 DK
	13 – 18	0 1 2 3 DK
	adult	0 1 2 3 DK

14. I had a serious illness and/or had to be hospitalized for a medical problem.	0 – 6	0 1 2 3 DK
	7 – 12	0 1 2 3 DK
	13 – 18	0 1 2 3 DK
	adult	0 1 2 3 DK
15. Someone I was close to was very sick, or in an accident for which they needed to be hospitalized.	0 – 6	0 1 2 3 DK
	7 – 12	0 1 2 3 DK
	13 – 18	0 1 2 3 DK
	adult	0 1 2 3 DK
16. I received news that someone close to me had been seriously injured or violently killed during an accident, a fight, or a crime.	0 – 6	0 1 2 3 DK
	7 – 12	0 1 2 3 DK
	13 – 18	0 1 2 3 DK
	adult	0 1 2 3 DK
17. In my parents eye, nothing I did was ever good enough.	0 – 6	0 1 2 3 DK
	7 – 12	0 1 2 3 DK
	13 – 18	0 1 2 3 DK
	adult	0 1 2 3 DK
18. People in my family called me insulting names.	0 – 6	0 1 2 3 DK
	7 – 12	0 1 2 3 DK
	13 – 18	0 1 2 3 DK
	adult	0 1 2 3 DK
19. The rules in my family were unclear and inconsistent.	0 – 6	0 1 2 3 DK
	7 – 12	0 1 2 3 DK
	13 – 18	0 1 2 3 DK
	adult	0 1 2 3 DK
20. The punishments I received were unfair.	0 – 6	0 1 2 3 DK
	7 – 12	0 1 2 3 DK
	13 – 18	0 1 2 3 DK
	adult	0 1 2 3 DK
21. My parents hurt each other physically when they argued and fought.	0 – 6	0 1 2 3 DK
	7 – 12	0 1 2 3 DK
	13 – 18	0 1 2 3 DK
	adult	0 1 2 3 DK
22. I spent time out of the house and no one knew where I was.	0 – 6	0 1 2 3 DK
	7 – 12	0 1 2 3 DK
	13 – 18	0 1 2 3 DK
	adult	0 1 2 3 DK

23. People in my family were out of control.	0 – 6	0 1 2 3 DK
	7 – 12	0 1 2 3 DK
	13 – 18	0 1 2 3 DK
	adult	0 1 2 3 DK
24. Nobody knew what really went on in my family.	0 – 6	0 1 2 3 DK
	7 – 12	0 1 2 3 DK
	13 – 18	0 1 2 3 DK
	adult	0 1 2 3 DK
25. I witnessed physical violence in my family.	0 – 6	0 1 2 3 DK
	7 – 12	0 1 2 3 DK
	13 – 18	0 1 2 3 DK
	adult	0 1 2 3 DK
26. Someone in my family got medical attention because of violence.	0 – 6	0 1 2 3 DK
	7 – 12	0 1 2 3 DK
	13 – 18	0 1 2 3 DK
	adult	0 1 2 3 DK
27. Someone in my family had a problem with alcohol and/or drugs.	0 – 6	0 1 2 3 DK
	7 – 12	0 1 2 3 DK
	13 – 18	0 1 2 3 DK
	adult	0 1 2 3 DK
28. I abused alcohol and/or drugs.	0 – 6	0 1 2 3 DK
	7 – 12	0 1 2 3 DK
	13 – 18	0 1 2 3 DK
	adult	0 1 2 3 DK
29. My caregivers were so into alcohol or drugs that they couldn't take care of me.	0 – 6	0 1 2 3 DK
	7 – 12	0 1 2 3 DK
	13 – 18	0 1 2 3 DK
	adult	0 1 2 3 DK
30. I was beaten, kicked or punched by someone close to me.	0 – 6	0 1 2 3 DK
	7 – 12	0 1 2 3 DK
	13 – 18	0 1 2 3 DK
	adult	0 1 2 3 DK
31. I was in a situation in which I was convinced that I would be physically injured or lose my life.	0 – 6	0 1 2 3 DK
	7 – 12	0 1 2 3 DK
	13 – 18	0 1 2 3 DK
	adult	0 1 2 3 DK

32. Someone outside my family attacked me.	0 – 6	0 1 2 3 DK
	7 – 12	0 1 2 3 DK
	13 – 18	0 1 2 3 DK
	adult	0 1 2 3 DK
33. I saw dead bodies.	0 – 6	0 1 2 3 DK
	7 – 12	0 1 2 3 DK
	13 – 18	0 1 2 3 DK
	adult	0 1 2 3 DK
34. I was involved in a serious accident.	0 – 6	0 1 2 3 DK
	7 – 12	0 1 2 3 DK
	13 – 18	0 1 2 3 DK
	adult	0 1 2 3 DK
35. I was in a natural disaster.	0 – 6	0 1 2 3 DK
	7 – 12	0 1 2 3 DK
	13 – 18	0 1 2 3 DK
	adult	0 1 2 3 DK
36. I saw sexual things that scared me.	0 – 6	0 1 2 3 DK
	7 – 12	0 1 2 3 DK
	13 – 18	0 1 2 3 DK
	adult	0 1 2 3 DK
37. Someone (older) touched me sexually, against my wishes or tried to make me touch them.	0 – 6	0 1 2 3 DK
	7 – 12	0 1 2 3 DK
	13 – 18	0 1 2 3 DK
	adult	0 1 2 3 DK
38. Someone forced me to have sex against my will.	0 – 6	0 1 2 3 DK
	7 – 12	0 1 2 3 DK
	13 – 18	0 1 2 3 DK
	adult	0 1 2 3 DK
39. Someone threatened me with physical harm unless I did something sexual.	0 – 6	0 1 2 3 DK
	7 – 12	0 1 2 3 DK
	13 – 18	0 1 2 3 DK
	adult	0 1 2 3 DK
40. I believe that one of my brothers or sisters was sexually molested.	0 – 6	0 1 2 3 DK
	7 – 12	0 1 2 3 DK
	13 – 18	0 1 2 3 DK
	adult	0 1 2 3 DK

41. I have had another very frightening or traumatic experience where I felt intense fear, helpless, or horrified.	0 – 6	0 1 2 3 DK
	7 – 12	0 1 2 3 DK
	13 – 18	0 1 2 3 DK
	adult	0 1 2 3 DK
42. Something terrible happened to me that still remains a mystery to me.	0 – 6	0 1 2 3 DK
	7 – 12	0 1 2 3 DK
	13 – 18	0 1 2 3 DK
	adult	0 1 2 3 DK
43. How upsetting was it to answer these questions?	0 – 6	0 1 2 3 DK
	7 – 12	0 1 2 3 DK
	13 – 18	0 1 2 3 DK
	adult	0 1 2 3 DK

To score:

a. Scores for items 2 are reversed: 0 = 3, 1 = 2, 2 = 0, and 3 = 0.
b. For all other questions scores of 0, 1 or 'NO' = 0, 2 = 2, 3 or 'YES' = 3, And 'DK' = * (no score).

Calculate the average score for each age group within each subcategory.

a. The **Competence** subcategory includes questions; 3 and 4.
b. The **Safety** subcategory includes questions; 1, 5 and 8.
c. The **Neglect** subcategory includes questions; 2, 6, 7, 22 and 29.
d. The **Separation** subcategory includes questions; 11, 12, 13 and 15.
e. The **Secrets** subcategory includes questions; 9 and 24.
f. The **Emotional Abuse** subcategory includes questions; 10, 17, 18, 19 and 20.
g. The **Physical Abuse** subcategory includes questions; 30, 31 and 32.
h. The **Sexual Abuse** subcategory includes questions; 37, 38, 39 and 40.
i. The **Witnessing** subcategory includes questions; 21, 23, 25, 26, 33 and 36.
j. The **Other Traumas** subcategory includes questions; 14, 16, 34, 35, 41 and 42.
k. The **Alcohol and Drugs** subcategory includes questions; 27 and 28.

Description:

The TAQ is a 42-item self-report instrument which gathers information about lifetime experiences in ten domains: (1) competence, (2) safety, (3) neglect, (4) separations, (5) family secrets, (6) physical trauma, (7) sexual trauma, (8) witnessing trauma, (9) other traumas (i.e. natural disaster, serious accident), and (10) exposure to drugs and alcohol. The first two domains represent experiences of adaptive functioning, while the latter eight domains assess exposure to traumatic or adverse experiences. These domains are assessed at four different age periods: birth to 6 years, 7 to 12 years, 13 to 18 years, and

adulthood. For each item, respondents are asked to rate the extent to which they had a particular experience during each developmental period on a scale from 0 to 3. This instrument allows calculation of summary scores for each of the ten individual domains, as well as across the four developmental periods.

Scoring:
For each item on the TAQ, respondents are asked to rate applicable developmental periods separately on a scale from 0 to 3, or to indicate "Don't Know." Numerical markers represent both frequency and severity of experience, as follows: 0: "Never or Not At All"; 1: "Rarely or A Little Bit"; 2: "Occasionally or Moderately"; 3: "Often or Very Much". Summary scoring for the TAW is complex, and detailed scoring sheets are therefore provided in order to facilitate translation of raw item scores into summary scores by domain and by developmental period. These scoring sheets also facilitate evaluation of multiple "Don't Know" responses within a particular age period and/or domain, allowing the clinician to further examine possible indications of sensitive topics, memory disturbances, etc. In general, higher scores on the two adaptive domains represent greater levels of adaptive functioning, while higher scores on the eight trauma/adverse event domains represent greater exposure. Although not yet empirically demonstrated, extensive clinical use of this measure at an outpatient trauma clinic suggests that particular indicators of concern are (a) low scores on early childhood measures of competence and/or safety; and (b) presence of multiple forms of trauma during the birth to 6 years developmental period.

Psychometric Properties:
Psychometric properties of the TAQ have not yet been established, and it is therefore recommended that, at this stage of its development, this instrument be utilized as a clinical tool. However, although reliability and validity of this measure have not yet been established, preliminary research utilizing this instrument has been promising. In a study examining data from 70 consecutive admissions to an outpatient trauma treatment center, scores on the TAW were significantly related to symptoms of PTSD as well as symptoms of Complex PTSD, or Associated Features of PTSD (van der Kolk, Spinazzola, and hopper, 2001). Specifically, data from this study indicated that developmental period acted as a strong predictor of complex PTSD, and that, in particular, trauma during the Birth to 6-year period was significantly associated with scores on all domains of impairment assessed. Significant results were also found for specific types of trauma, with Sexual Abuse, Physiccal Abuse, Emotional Abuse, and Other Traumas as the domains most associated with symptoms of complex PTSD, and Other Traumas as most strongly associated with PTSD.

Reference:
Van der Kolk, B., Spinazzola, J., & Hopper, J. (in preparation). The effects of trauma type versus developmental onset on Copmlex PTSD. Manuscript in preparation.

APPENDIX N

Trauma Antecedent Questionnaire Rationale

As for the TAQ, all we have is the basic information that was provided with the instrument from the developers (Trauma Center group, including Bessel van der Kolk & Jim Hopper):

The TAQ is a 48-item self-report instrument to gather information re: lifetime experiences in 2 positive or adaptive domains (Safety & Competence) and 9 negative or traumatic domains (Neglect, Separations, Family Secrets, Emotional Abuse, Physical Abuse, Sexual Abuse, Witnessing Violence, "Other Traumas" (natural disaster/serious accident/medical crises), and Exposure to Drugs). The positive and negative experiences are rated on 3-point scales (frequency and severity) across 4 age groups: 0-6; 7-12; 13-17; and Adult. The instrument allows for calculation of summary scores for each of the 11 domains, and each of the developmental periods. High scores indicate exposure to adverse events for the 9 negative scales, and experiences of support & safety on the 2 positive scales. Psychometric properties of the TAQ have not yet been established but preliminary results of research are promising (Luxenberg, Spinazzola & van der Kolk, 2001). TAQ scores were significantly related to PTSD and Complex PTSD symptom intensity, and the presence of the positive factors was associated with better treatment outcomes (the absence of those factors was predictive of treatment resistance and non-response to briefer therapies, i.e., more serious pathology):

"Although not yet empirically demonstrated, extensive clinical use of this measure at an outpatient trauma clinic suggests that particular indicators of concern are (a) low scores on early childhood measures of competence and/or safety; and (b) presence of multiple forms of trauma during the birth to 6 year developmental period"...

"...In a study examining data from 70 consecutive admissions to an outpatient trauma center, scores on the TAQ were significantly related to symptoms of PTSD as well as to symptoms of Complex PTSD, or Associated Features of PTSD. Specifically, data from this study indicated that developmental period acted as a strong predictor of complex PTSD, and that, in particular, trauma during the Birth to 6-year period was significantly associated with scores on all domains of impairment assessed. Significant results were also found for specific types of trauma, with Sexual Abuse, Physical Abuse, Emotional Abuse, and Other Traumas as the domains most associated with symptoms of complex PTSD, and Other Traumas as most strongly associated with PTSD" (p.1).

Van der Kolk, B., Spinazzola, J., & Hopper, J. (2001). Traumatic Antecedents Questionnaire (TAQ). (Available from The Trauma Center, 1269 Beacon Street, Brookline, MA 02446).

You may find some additional helpful articles at the Trauma Center Website: www.traumacenter.org

APPENDIX O

Dissociative Experiences Scale

Eve Bernstein Carlson, Ph.D. Frank W. Putnam, M.D.

DIRECTIONS

This questionnaire consists of twenty-eight questions about experiences that you may have in your daily life. We are interested in how often you have these experiences in your daily life. It is important, however, that your answers show how often these experiences happen to you when you are not under the influence of alcohol or drugs. To answer the questions, please determine to what degree the experience described in the question applies to you and mark the line with a vertical slash at the appropriate place, as shown in the example below.

Example:

0% l…...../.....l 100%

Date:_____ Age: _____ Sex: M F _____

1. Some people have the experience of driving a car and suddenly realizing that they don't remember what has happened during all or part of the trip. Mark the line to show what percentage of the time this happens to you.

   0%.....100%

2. Some people find that sometimes they are listening to someone talk and they suddenly realize that they did not hear part or all of what was said. Mark the line to show what percentage of the time this happens to you.

   0%.....100%

3. Some people have the experience of finding themselves in a place and having no idea how they got there. Mark the line to show what percentage of the time this happens to you.

   0%.....100%

4. Some people have the experience of finding themselves dressed in clothes that they don't remember putting on. Mark the line to show what percentage of the time this happens to you.

   0%.....100%

5. Some people have the experience of finding new things among their belongings that they do not remember buying. Mark the line to show what percentage of the time this happens to you.

   0%.....100%

6. Some people sometimes find that they are approached by people that they do not know who call them by another name or insist that they have met them before. Mark the line to show what percentage of the time this happens to you.

   0%.....100%

7. Some people sometimes have the experience of feeling as though they are standing next to themselves or watching themselves do something and they actually see themselves as if they were looking at another person. Mark the line to show what percentage of the time this happens to you.

   0%.....100%

8. Some people are told that they sometimes do not recognize friends or family members. Mark the line to show what percentage of the time this happens to you.

0%.....100%

9. Some people find that they have no memory for some important events in their lives (for example, a wedding or graduation). Mark the line to show what percentage of the time this happens to you.

0%.....100%

10. Some people have the experience of being accused of lying when they do not think that they have lied. Mark the line to show what percentage of the time this happens to you.

0% …… 100%

11. Some people have the experience of looking in a mirror and not recognizing themselves. Mark the line to show what percentage of the time this happens to you.

0% …….100%

12. Some people have the experience of feeling that other people, objects, and the world around them are not real. Mark the line to show what percentage of the time this happens to you.

0% …….100%

13. Some people have the experience of feeling that their body does not seem to belong to them. Mark the line to show what percentage of the time this happens to you.

0% ……..100%

14. Some people have the experience of sometimes remembering a past event so vividly that they feel as if they were reliving that event. Mark the line to show what percentage of the time this happens to you.

0%.....100%

15. Some people have the experience of not being sure whether things that they remember happening really did happen or whether they just dreamed them. Mark the line to show what percentage of the time this happens to you.

0%.....100%

16. Some people have the experience of being in a familiar place but finding it strange and unfamiliar. Mark the line to show what percentage of the time this happens to you.

0%.....100%

17. Some people find that when they are watching television or a movie they become so absorbed in the story they are unaware of other events happening around them. Mark the line to show what percentage of the time this happens to you.

0%.....100%

18. Some people find that they become so involved in a fantasy or daydream that it feels as though it were really happening to them. Mark the line to show what percentage of the time this happens to you.

0%.....100%

19. Some people find that they sometimes are able to ignore pain. Mark the line to show what percentage of the time this happens to you.

0%.....100%

20. Some people find that they sometimes sit staring off into space, thinking of nothing and are not aware of the passage of time. Mark the line to show what percentage of the time this happens to you.

0%.....100%

21. Some people sometimes find that when they are alone they talk out loud to themselves. Mark the line to show what percentage of the time this happens to you.

0%.....100%

22. Some people find that in one situation they may act so differently compared with another situation that they feel almost as if they are two different people. Mark the line to show what percentage of the time this happens to you.

0%.....100%

23. Some people sometimes find that in certain situations they are able to do things with amazing ease and spontaneity that would usually be difficult for them (for example, sports, work, social situations, etc.). Mark the line to show what percentage of the time this happens to you.

0%.....100%

24. Some people sometimes feel that they cannot remember whether they have done something or have just thought about doing that this (for example, not knowing whether they have just mailed a letter of have just thought about mailing it). Mark the line to show what percentage of the time this happens to you.

    0%.....100%

25. Some people find evidence that they have done things that they do not remember doing. Mark the line to show what percentage of the time this happens to you.

    0%.....100%

26. Some people sometimes find writings, drawings, or notes among their belongings that they must have done but cannot remember doing. Mark the line to show what percentage of the time this happens to you.

    0%.....100%

27. Some people sometimes find that they hear voices inside their head that tell them to do things or comment on things they are doing. Mark the line to show what percentage of the time this happens to you.

    0%.....100%

28. Some people sometimes feel as if they are looking at the world through a fog so that people and objects appear far away or unclear. Mark the line to show what percentage of the time this happens to you.

    0%.....100%

To score: Add percentages from all the questions together and divide by 28.
If score is > 25 < 40 = BPD range.
If score is > 40 = DID (MPD) range.

But …. Actual dissociation could be much higher than reported due to client's lack of awareness re: his/her own dissociation. In these cases you will usually see evidence of in it the oral administration.

APPENDIX P

Clinician-Administered PTSD Scale for DSM-IV

National Center for PTSD

Name: _____ I.D. #: _____

Interviewer: _____ Date: _____

Study: _____

Dudley D. Blake, Frank W. Weathers, Linda, M Nagy,
Danny G. Kaloupek, Dennis S. Charney, & Terence M. Keane.

National Center for Posttraumatic Stress Disorder

Behavioural Science Division – Boston VA Medical Center
Neurosciences Division – West Haven VA Medical Center

Revised July 1998

Criterion A. The person has been exposed to a traumatic event in which both of the following were present:
(1) the person experienced, witnessed, or was confronted with an event or events that involved actual or threatened death or serious injury, or a threat to the physical integrity of self or other (2) the person's response involved intense fear, helplessness, or horror. Note: In children, this may be expressed instead by disorganized or agitated behaviour

I'm going to be asking you about some difficult or stressful things that sometimes happen to people. Some examples of this are being in some type of serious accident; being in a fire, a hurricane, or an earthquake; being mugged or beaten up or attacked with a weapon; or being forced to have sex when you didn't want to. I'll start by asking you to look over a list of experiences like this and check any that apply to you. Then, if any of them do apply to you, I'll ask you to briefly describe what happened and how you felt at the time.

Some of these experiences may be hard to remember or may bring back uncomfortable memories or feelings. People often find that talking about them can be helpful, but it's up to you to decide how much you want to talk about it. Also, if you have any questions or you don't understand something, please let me know. Do you have any questions before we start?

ADMINSTER CHECKLIST, THEN REVIEW AND INQUIRE UP TO THREE EVENTS. IF MORE THAN THREE EVENTS ENDORSED, DETERMINE WHICH THREE EVENTS TO INQUIRE (E.G. FIRST, WORST AND MOST RECENT EVENTS; THREE WORST EVENTS;TRAUMA OF INTEREST PLUS TWO OTHER WORST EVENTS, ETC.)

IF NO EVENTS ENDORSED ON CHECKLIST: (Has there ever been a time when your life was in danger or you were seriously injured or harmed?)

IF NO: (What about a time when you were threatened with death or serious injury, even if you weren't actually injured or harmed?)
IF NO: (What about witnessing something like this happen to someone else or finding out that it happened to someone close to you?)

IF NO: (What would you say are some of the most stressful experiences you have had over your life?)

EVENT # 1

What happened? (How old were you? Who else was involved? How many times did this happen? Life threat? Serious injury?	Describe (e.g. event type, victim, perpetrator, age, frequency). 1. <u>(1)</u> Life threat? No YES (self_____ other____) Serious injury? No YES (self_____ other____)
How did you respond emotionally? (Were you very anxious or frightened? Horrified? Helpless? How so? Were you stunned or in shock so that you didn't feel anything at all? What was that like? What did other people notice about your emotional response? What about after the event – how did you respond emotionally?	Threat to physical integrity? NO YES (self___ other___) 2. <u>(2)</u> Intense fear/help/horror? NO YES (self____ other___) Criterion A met? NO PROBABLE YES

EVENT # 2

What happened? (How old were you? Who else was involved? How many times did this happen? Life threat? Serious injury? How did you respond emotionally? (Were you very anxious or frightened? Horrified? Helpless? How so? Were you stunned or in shock so that you didn't feel anything at all? What was that like? What did other people notice about your emotional response? What about after the event – how did you respond emotionally?	Describe (e.g. event type, victim, perpetrator, age, frequency). 3. (1) Life threat? No YES (self_____ other____) Serious injury? No YES (self_____ other____) Threat to physical integrity? NO YES (self___ other___) 4. (2) Intense fear/help/horror? NO YES (self____ other___) Criterion A met? NO PROBABLE YES

EVENT # 3

What happened? (How old were you? Who else was involved? How many times did this happen? Life threat? Serious injury? How did you respond emotionally? (Were you Very anxious or frightened? Horrified? Helpless? How so? Were you stunned or in shock so that you didn't feel anything at all? What was that like? What did other people notice about your emotional response? What about after the event – how did you respond emotionally?	Describe (e.g. event type, victim, perpetrator, age, frequency). 5. (1) Life threat? No YES (self_____ other____) Serious injury? No YES (self_____ other____) Threat to physical integrity? NO YES (self___ other___) 6. (2) Intense fear/help/horror? NO YES (self____ other___) Criterion A met?NO PROBABLE YES

For the rest of the interview, I want you to keep (EVENTS) in mind as I ask you some questions about how they may have affected you.

I'm going to ask you about twenty-five questions altogether. Most of them have two parts. First, I'll ask if you've ever had a particular problem, and if so, about how often in the past month (week). Then I'll ask you how much distress or discomfort that problem may have caused you.

Criterion B. The traumatic event is persistently re-experienced in one (or more) of the following ways:

1. (B-1) recurrent and intrusive distressing recollections of the event, including images, thoughts or perceptions. **Note:** In young children, repetitive play may occur in which themes or aspects of the trauma is expressed.

Frequency	Intensity	Past Week
Have you ever had unwanted memories of (EVENT)? What were they like? (What did you remember?) [IF NOT CLEAR:] (Did they ever occur while you. Were awake, or only in dreams?) [EXCLUDE IF MEMORIES OCCURRED ONLY DURING DREAMS] How often have you had these memories in the past month (week)? 0 Never 1 Once or twice 2 Once or twice a week 3 Several times a week 4 Daily or almost every day Description/Examples	How much distress or discomfort did these memories cause you? Were you able to put them out of your mind and think about something else? (How hard did you have to try?) How much did they interfere with your life? 0 None 1 Mild, minimal distress or disruption of activities 2 Moderate, distress clearly present but still manageable, some disruption of activities 3 Severe, considerable distress, difficulty dismissing memories, marked disruption of activities. 4 Extreme, incapacitating distress, cannot dismiss memories, unable to continue activities. QV (specify)	F _____ I _____ Past Month F _____ I _____ Sx: Y N Lifetime F _____ I _____ Sx: Y N

2. (B-2) recurrent distressing dreams of the event. **Note:** In children, there may be frightening dreams without recognizable content.

Frequency	Intensity	
Have you ever had unpleasant dreams about the (EVENT)? Describe a typical dream? (What happens in them?) How often have you had these dreams in the past month (week)? 0 Never 1 Once or twice 2 Once or twice a week 3 Several times a week 4 Daily or almost every day Description/Examples	How much distress or discomfort did these dreams cause you? Did they ever wake you up? [IF YES:} (What happened when you woke up? How long did it take you to get back to sleep?) [LISTEN FOR REPORT OF ANXIOUS AROUSAL, YELLING, ACTING OUT THE NIGHTMARE] (Did your dreams ever affect anyone else?) 0 None 1 Mild, minimal distress or disruption of activities 2 Moderate, distress clearly present but still manageable, some disruption of activities 3 Severe, considerable distress, difficulty dismissing memories, marked disruption of activities. 4 Extreme, incapacitating distress, cannot dismiss memories, unable to continue activities. QV (specify)	F _____ I _____ F _____ I _____ Sx: Y N F _____ I _____ Sx: Y N

3. (B-3) acting or feeling as if the traumatic event were recurring (includes a sense of reliving the experience, illusions, hallucination, and Dissociative flashback episodes, including those that occur on awakening or when intoxicated).
Note: In young children; trauma-specific reenactment may occur.

Frequency	Intensity	Past week
Have you ever suddenly acted or felt as if (EVENT) were happening again? (Have you ever had flashbacks about [EVENT}?) (Did this ever occur while you were awake, or only in dreams?) [EXCLUDE IF OCCURRED ONLY DURING DREAMS] Tell me more about that. How often has that happened in the past	How much did it seem as if (EVENT) were happening again? (Were you confused about where you actually were or what you were doing at the time?) What did you do while this was happening? How long did it last? (Did other people notice your behaviour? What did they say?) 0 No reliving 1 Mild, somewhat more realistic than just thinking about event	F _____ I _____ Past month F _____ I _____

month (week)? 0 Never 1 Once or twice 2 Once or twice a week 3 Several times a week 4 Daily or almost every day	2 Moderate, definite but transient dissociative quality, still very aware of surroundings, daydreaming quality 3 Severe, strongly dissociative (reports images, sounds, or semlls) but retained some awareness of surroundings 4 Extreme, complete dissociation (flashback), no awareness of surroundings, may be unresponsive, possible amnesia for the episode (blackout). QV (specify)	Sx: Y N <u>Lifetime</u> F _____ I _____ Sx: Y N

4. (B-4) intense psychological distress at exposure to internal or external cues that symbolize or resemble an aspect of the traumatic event.

<u>Frequency</u>	<u>Intensity</u>	<u>Past Week</u>
Have you ever gotten emotionally upset when something reminded you of (EVENT)? (Has anything triggered bad feelings related to (EVENT)? What kinds of reminders made you upset? How often in the past month (week)? 0 Never 1 Once or twice 2 Once or twice a week 3 Several times a week 4 Daily or almost every day <u>Description/Examples</u>	How much distress or discomfort did these reminders cause you? How long did it last? How much did they interfere with your life? 0 None 1 Mild, minimal distress or disruption of activities 2 Moderate, distress clearly present but still manageable, some disruption of activities 3 Severe, considerable distress, difficulty dismissing memories, marked disruption of activities. 4 Extreme, incapacitating distress, cannot dismiss memories, unable to continue activities. QV (specify)	F _____ I _____ <u>Past Month</u> F _____ I _____ Sx: Y N <u>Lifetime</u> F _____ I _____ Sx: Y N

5. (B-5) physiological reactivity on exposure to internal or external cues that symbolize or resemble an aspect of the traumatic event.

Frequency	Intensity	Past Week
Have you ever had physical reactions when something reminded you of the (EVENT)? (Did your body ever react in some way when something reminded you of [EVENT]? Can you give me some examples? (Did your heart race or your breathing change? What about feeling really intense or shaky?) What kinds of reminders triggered these reactions? How often in the past month (week)? 0 Never 1 Once or twice 2 Once or twice a week 3 Several times a week 4 Daily or almost every day Description/Examples	How strong were (PHYSICAL REACTIONS)? How long did they last? (Did they last even after you were out of the situation?) No physical reactivity 0 Mild, minimal reactivity 1 Moderate, physical reactivity clearly present, may be sustained in exposure continues 2 Severe, marked physical reactivity, sustained throughout exposure 3 Extreme, dramatic physical reactivity, sustained arousal even after exposure has ended QV (specify)	F _____ I _____ Past Month F _____ I _____ Sx: Y N Lifetime F _____ I _____ Sx: Y N

Criterion C. persistent avoidance of stimuli associated with the trauma and numbing of general responsiveness (not present before the trauma), as indicated by three (or more) of the following.

6. (C-1) efforts to avoid thoughts, feelings, and conversations associated with the trauma

Frequency	Intensity	Past Week
Have you ever tried to avoid thoughts or feelings about (EVENT)? (What kind of thoughts or feelings did you try to avoid?) What about trying to avoid talking with other people about it? (Why is that?) How often in the past month (week)? 0 Never 1 Once or twice 2 Once or twice a week 3 Several times a week	How much effort did you make to avoid (THOUGHTS/FEELINGS/CONVERSATIONS)? (What kinds of things did you do? What about drinking or using medication or street drugs?) [CONSIDER ALL ATTEMPTS AT AVOIDANCE, INCLUDING DISTRACTION, SUPPRESSION, AND USE OF ALCOHOL/DRUGS] How much did that interfere with your life? 0 No physical reactivity 1 Mild, minimal reactivity	F _____ I _____ Past Month F _____ I _____ Sx: Y N

4 Daily or almost every day Description/Examples	2 Moderate, physical reactivity clearly present, may be sustained in exposure continues 3 Severe, marked physical reactivity, sustained throughout exposure 4 Extreme, dramatic physical reactivity, sustained arousal even after exposure has ended QV (specify))	Lifetime F _____ I _____ Sx: Y N

7. (C-2) efforts to avoid activities, places, or people that arouse recollections of the trauma

Frequency Have you ever had physical reactions when something reminded you of the (EVENT)? (Did your body ever react in some way when something reminded you of [EVENT]? Can you give me some examples? (Did your heart race or your breathing change? What about feeling really intense or shaky?) What kinds of reminders triggered these reactions? How often in the past month (week)? 0 Never 1 Once or twice 2 Once or twice a week 3 Several times a week 4 Daily or almost every day Description/Examples	Intensity How strong were (PHYSICAL REACTIONS)? How long did they last? (Did they last even after you were out of the situation?) 0 No physical reactivity 1 Mild, minimal reactivity 2 Moderate, physical reactivity clearly present, may be sustained in exposure continues 3 Severe, marked physical reactivity, sustained throughout exposure 4 Extreme, dramatic physical reactivity, sustained arousal even after exposure has ended QV (specify)	Past Week F _____ I _____ Past Month F _____ I _____ Sx: Y N Lifetime F _____ I _____ Sx: Y N

8. (C-3) inability to recall an important aspect of the trauma

Frequency Have you had difficulty remembering some important parts of (EVENT)?	Intensity How much difficulty did you have recalling important part of the	Past Week F _____

Tell me more about that. (Do you feel you should be able to remember these things? Why do you think you can't?) In the past month (week), how much of the important parts of (EVENT) have you had difficulty remembering? (What parts do you still remember?) 0 Never 1 Once or twice 2 Once or twice a week 3 Several times a week 4 Daily or almost every day <u>Description/Examples</u>	(EVENT)? (Were you able to recall more if you tried?) 0 None 1 Mild, minimal difficulty 2 Moderate, some difficulty, could recall with effort 3 Severe, considerable difficulty, even with effort 4 Extreme, completely unable to recallimportant aspects of event QV (specify)	I _____ <u>Past Month</u> F _____ I _____ Sx: Y N <u>Lifetime</u> F _____ I _____ Sx: Y N

9. (C-4) markedly diminished interest or participation in significant activities

<u>Frequency</u> Have you been interested in activities that you used to enjoy? (What kinds of things have you lost interest in? Are there some things you don't do at all anymore? Why is that?) [EXCLUDE IF NO OPPORTUNITY, OR IF DEVELOPMENTALLY APPROPRIATE CHANGE IN PREFERRED ACTIVITIES] In the past month (week), how many activities have you been less interested in? (What kinds of things do you still enjoy doing?) When did you first start to feel that way? (After the [EVENT]) 0 Never 1 Once or twice 2 Once or twice a week 3 Several times a week 4 Daily or almost every day <u>Description/Examples</u>	<u>Intensity</u> How strong was your loss of interest? (Would you enjoy [ACTIVITIES] once you got started?) 0 None 1 Mild, minimal difficulty 2 Moderate, some difficulty, could recall with effort 3 Severe, considerable difficulty, even with effort 4 Extreme, completely unable to recallimportant aspects of event QV (specify) Trauma-related? 1 definite 2 probable 3unlikely Current _____ Lifetime_____	<u>Past Week</u> F _____ I _____ <u>Past Month</u> F _____ I _____ Sx: Y N <u>Lifetime</u> F _____ I _____ Sx: Y N

10. (C-5) feeling of detachment or estrangement from others

Frequency	Intensity	
Have you felt distant or cut off from other people? What was that like? How much of the time in the past month (week) have felt that way? When did you first start to feel that way? (After the [EVENT])	How strong were your feelings of being distant or cut off from others? (Who do your feel closest to? How many people do you feel comfortable talking with about personal things?)	Past Week F _____ I _____
0 Never 1 Once or twice 2 Once or twice a week 3 Several times a week 4 Daily or almost every day	0 No feelings of detachment or estrangement 1 Mild, may feel 'out of synch' with others 2 Moderate, feelings of detachment clearly present, but still feels some interpersonal connection 3 Severe, marked feelings of detachment or estrangement from most people, may feel close to only one or two people 4 Extreme, feels completely detached or estranged from others, not close ith anyone	Past Month F _____ I _____ Sx: Y N
0	QV (specify)	Lifetime F _____ I _____ Sx: Y N
Description/Examples	Trauma related? 1 definite 2 probable 3 unlikely Current_____ Lifetime_____	

11. (C-6) restricted range of affect (e.g., unable to have loving feelings)

Frequency	Intensity	Past Week
Have there been times when you felt emotionally numb or had trouble experiencing feelings like love or happiness? What was that like? (What feelings did you have trouble experiencing?) How much of the time in the past month (week) have you felt that way? When did you first start having trouble experiencing (EMOTIONS)? (After the [EVENT ?]	How much trouble did you have experiencing (EMOTIONS)? (What kinds of feelings were you still able to experience?) [INCLUDE OBSERVATIONS OF RANGE OF AFFECT DURING INTERVIEW] 0 No reduction of emotional experience 1 Mild, slight reduction of emotional experience 2 Moderate, definite reduction of emotional experience, but still able to	F _____ I _____ Past Month F _____ I _____ Sx: Y N

0 Never 1 Once or twice 2 Once or twice a week 3 Several times a week 4 Daily or almost every day Description/Examples	experience most emotions 3 Severe, marked reduction of experience of at least two primary emotions (e.g., love, happiness) 4 Extreme, completely lacking emotional experience QV Trauma related? 1 definite 2 probable 3 unlikely Current_____ Lifetime_____	Lifetime F _____ I _____ Sx: Y N

12. C-7) sense of foreshortened future (e.g., does not expect to have a career, marriage, children, or a normal life span)

Frequency	Intensity	Past Week
Have there been times when you felt there was no need to plan for the future, that somehow your future will be cut short? Why is that? [RULE OUT REALISTIC RISKS SUCH AS LIFE-THREATENING MEDICAL CONDITIONS] How much of the time in the past month (week) have you felt that way? When did you first start to feel that way? (After the [EVENT ?] 0 Never 1 Once or twice 2 Once or twice a week 3 Several times a week 4 Daily or almost every day Description/Examples	How strong was this feelings that your future will be cut short? (How long do you think you will live? How convinced are you that you will die prematurely?) 0 No sense of foreshortened future 1 Mild, slight sense of a foreshortened future 2 Moderate, sense of a foreshortened future definitely present, but no specific prediction about longevity 3 Severe, marked sense of a foreshortened future, may make specific prediction about longevity 4 Extreme, overwhelming sense of a foreshortened future, completely convinced of premature death QV Trauma related? 1 definite 2 probable 3 unlikely Current_____Lifetime_____	Past Week F _____ I _____ Past Month F _____ I _____ Sx: Y N Lifetime F _____ I _____ Sx: Y N

Criterion D. Persistent symptoms of increased arousal (not present before the trauma), as indicated by two (or more) of the following:

13.(D-1) difficulty falling or staying asleep

Frequency	Intensity	Past Week
Have you had any problems falling or staying asleep? How often in the past month (week)? When did you first start having problems sleeping? (After the [EVENT ?] 0 Never 1 Once or twice 2 Once or twice a week 3 Several times a week 4 Daily or almost every day Description/Examples	How much of a problem did you have with your sleep? (How long did it take you to fall asleep? How often did you wake up in the night? Did you often wake up earlier than you wanted to? How many total hours did you sleep each night? 0 No sleep problems 1 Mild, slightly longer latency, (up to 30 minutes loss of sleep) 2 Moderate, definite sleep disturbance, clearly longer latency, or clear difficulty staying asleep (30-90 minutes loss of sleep) 3 Severe, much longer latency, or marked difficulty staying asleep (90 min to 30 hrs loss of sleep) 4 Extreme, very long latency, or profound difficulty staying asleep (.3 hrs loss of sleep) QV Trauma related? 1 definite 2 probable 3 unlikely Current_____ Lifetime_____	F _____ I _____ Past Month F _____ I _____ Sx: Y N Lifetime F _____ I _____ Sx: Y N

14. (D-2) irritability or outbursts of anger

Frequency	Intensity	Past Week
Have there been times when you felt especially irritable or showed strong feelings of anger? Can you give me some examples? How often in the past month (week) have you felt that way? When did you first start feeling that way? (After the [EVENT ?] 0 Never 1 Once or twice 2 Once or twice a week 3 Several times a week 4 Daily or almost every day Description/Examples	How strong was your anger? (How did you show it?) [IF REPORTS SUPPRESSION:] (How hard was it for you to keep from showing your anger?) How long did it take for you to calm down? Did your anger cause you any problems? 0 No irritability or anger 1 Mild, minimal irritability, may raise voice when angry 2 Moderate, definite irritability or attempts to suppress anger, but can recover quickly 3 Severe, marked irritability or marked attempts to suppress anger, may become verbally or physically aggressive when angry 4 Extreme, pervasive anger or drastic attempts to suppress anger, may have episodes of physical violence QV Trauma related? 1 definite 2 probable 3 unlikely Current_____ Lifetime_____	F _____ I _____ Past Month F _____ I _____ Sx: Y N Lifetime F _____ I _____ Sx: Y N

15.(D-3) difficulty concentrating

Frequency	Intensity	Past Week
Have you found it difficult to concentrate on what you were doing or on things going on around you? What was that like? How much of the time in the past month (week)? When did you first start having trouble concentrating? (After the [EVENT ?] 0 Never 1 Once or twice 2 Once or twice a week 3 Several times a week 4 Daily or almost every day Description/Examples	How difficult was it for you to concentrate? [INCLUDE OBSERVATIONS OF CONCENTRATION AND ATTENTION IN INTERVIEW] How much did that interfere with your life? 0 No reduction of emotional experience 1 Mild, slight reduction of emotional experience 2 Moderate, definite reduction of emotional experience, but still able to experience most emotions 3 Severe, marked reduction of experience of at least two primary emotions (e.g., love, happiness) 4 Extreme, completely lacking emotional experience	F _____ I _____ Past Month F _____ I _____ Sx: Y N Lifetime F _____ I _____

	QV _____ Trauma related? 1 definite 2 probable 3 unlikely Current_____ Lifetime_____	Sx: Y N

16. (D-4) hypervigilance

Frequency	Intensity	Past Week
Have you been especially alert or watchful, even when there was no real need to be? (Have you felt constantly as if you were on guard)? Why is that? How much of the time in the past month (week)? When did you first start acting that way? (After the [EVENT ?] 0 Never 1 Once or twice 2 Once or twice a week 3 Several times a week 4 Daily or almost every day Description/Examples	How hard did you try to be watchful of things going on around you? [INCLUDE OBSERVATIONS OF HYPERVIGILANCE IN INTERVIEW] Did your (HYPERVIGILANCE) cause you any problems? 0 No hypervigilance 1 Mild, minimal hypervigilance, slight heightening or awareness 2 Moderate, hypervigilance clearly present, watchful in public (e.g., chooses safe place to sit in a restaurant or movie theater) 3 Severe, marked hypervigilance, very alert, scans environment for danger, exaggerated concern for safety of self/family/home 4 Extreme, excessive hypervigilance, efforts to ensure safety consume significant time and energy and may involve extensive safety/checking behaviours, marked watchfulness during interview QV _____ Trauma related? 1 definite 2 probable 3 unlikely Current_____ Lifetime_____	F _____ I _____ Past Month F _____ I _____ Sx: Y N Lifetime F _____ I _____ Sx: Y N

17. (D-5) exaggerated startle response

Frequency	Intensity	Past Week
Have you had any strong startle reactions? When did this happen? (What kinds of things made you	How strong were these startle reactions? (How strong were they compared to how most people would	F _____

startle?) How often in the past month (week)? When did you first start having these reactions? (After the [EVENT ?] 0 Never 1 Once or twice 2 Once or twice a week 3 Several times a week 4 Daily or almost every day <u>Description/Examples</u>	respond?) How long did they last? 0 No startle reaction 1 Mild, minimal reaction 2 Moderate, definite startle reaction, feels 'jumpy' 3 Severe, marked startle reaction, sustained arousal following initial reaction 4 Extreme, excessive startle reaction, overt coping behaviour (e.g., combat veteran who 'hits the dirt') QV _____ Trauma related? 1 definite 2 probable 3 unlikely Current_____ Lifetime_____	I _____ <u>Past Month</u> F _____ I _____ Sx: Y N <u>Lifetime</u> F _____ I _____ Sx: Y N

Criterion E. Duration of the disturbance (symptoms in criteria B, C and D) is more than 1 month

18. onset of symptoms

[IF NOT ALREADY CLEAR:] When did you first start having (PTSD SYMPTOMS) you've told meabout? (How long after the trauma did they start? More than six month?	_____ total # of months delay in onset With delayed onset ($\geq$ 6 months?) NO YES

5 Duration of symptoms

[CURRENT] How long have these (PTSD SYMPTOMS) lasted altogether? [LIFETIME] How long did these 9PTSD SYMPTOMS) last altogether?	Duration more than 1 month? Total # months duration Acute (<3 month) or chronic (> 3 months)	<u>Current</u> No YES _____ Acute Chronic	<u>Lifetime</u> NO YES _____ Acute Chronic

Criterion F. The disturbance causes clinically significant distress of impairment in social, occupational, or other important areas of functioning

20. subjective distress

(CURRENT) Overall, how much have you been bothered by these (PTSD SYMPTOMS) you've told me about? [CONSIDER DISTRESS REPORTED ON EARLIER ITEMS] (LIFETIME) Overall, how much were you bothered by these (PTSD SYMTOMS) you've told me about? [CONSIDER DISTRESS REPORTED ON EARLIER ITEMS]	0 None 1 Mild, minimal distress 2 Moderate, distress clearly present but still manageable 3 Severe, considerable distress 4 Extreme, incapacitating distress	Past week Past Month Lifetime

4 impairment in social functioning

(CURRENT) Have these (PTSD SYMPTOMS) affected your relationships with other people? How so? [CONSIDER IMPAIRMENT IN SOCIAL FUNCTIONING REPORTED ON EARLIER ITEMS] (LIFETIME) Did these (PTSD SYMTOMS) affect your social life? How so? [CONSIDER IMPAIRMENT IN SOCIAL FUNCTIONING REPORTED ON EARLIER ITEMS]	0 None 1 Mild, minimal distress 2 Moderate, distress clearly present but still manageable 3 Severe, considerable distress 4 Extreme, incapacitating distress	Past week Past month Lifetime

4 impairment in occupational or other important areas of functioning

(CURRENT – IF NOT ALREADY CLEAR) Are you working now? IF YES: Have these PTSD [SYMPTOMS) affected your work or your ability to work? How so? [CONSIDER REPORTED WORK HISTORY, INCLUDING NUMBER AND DURATION OF JOBS, AS WELL AS THE QUALITY OF WORK RELATIONSHIPS. IF PREMORBID FUNCTIONING IS UNCLEAR, INQUIRE ABOUT WORK EXPERIENCES BEFORE THE TRAUMA. FOR CHILDHOOD TRAUMAS, ASSESS	0 No adverse impact 1 Mild impact, minimal impairment in occupational/other important functioning 2 Moderate impairment, definite	Past week Past month.

PRE-TRAUMA SCHOOL PERFORMANCE AND POSSIBLE PRESENCE OF BEHAVIOUR PROBLEMS]. IF NO: Have these (PTSD SYMPTOMS) affected any other important part of your life? [AS APPROPRIATE, SUGGEST EXAMPLES SUCH AS PARENTING, HOUSEWORK, SCHOOLWORK, VOLUNTEER WORK, ETC.] How so?[LIFETIME – IF NOT ALREADY CLEAR] Were you working then? IF YES: Did these (PTSD SYMPTOMS) affect your work of your ability to work? How so? [CONSIDER REPORTED WORK HISTORY, INCLUDING NUMBER AND DURATION OF JOBS, AS WELL AS THE QUALITY OF WORK RELATIONSHIPS IF PREMORBID FUNCTIONING IS UNCLEAR, INQUIRE ABOUT WORK EXPERIENCES BEFORE THE TRAUMA. FOR CHILDHOOD TRAUMAS, ASSESS PRE-TRAUMA SCHOOL PERFORMANCE AND POSSIBLE PRESENCE OF BEHAVIOUR PROBLEMS]. IF NO: Did these (PTSD SYMPTOMS) affect any other important part of your life? [AS APPROPRIATE, SUGGEST EXAMPLES SUCH AS PARENTING, HOUSEWORK, SCHOOLWORK, VOLUNTEER WORK, ETC.] How so?	impairment, but many aspects of occupation/other important functioning still intact 3 Severe impact, marked impairment, few aspects of occupational/other important functioning still intact 4 Extreme impact, little or no occupational/other important functioning	Lifetime

Global Ratings

4 global rating

ESTIMATE THE OVERALL VALIDITY OF RESPONSES, CONSIDER FACTORS SUCH AS COMPLIANCE WITH THE INTERVIEW, MENTAL STATUS (E.G., PROBLEMS WITH CONCENTRATION, COMPREHENSION OF ITEMS DISSOCIATION), AND EVIDENCE OF EFFORTS TO EXAGGERATE OR MINIMISE SYMPTOMS.	0 No clinically significant symptoms, no distress and no functional impairment 1 Good, factors present that may adversely affect validity 2 Fair, factors present that definitely reduce validity 3 Poor, substantially reduced validity 4 Invalid responses, severely impaired mental status or possible deliberate 'faking bad' or 'faking good'

4 global severity

ESTIMATE THE OVERALL SEVERITY OF PTSD SYMPTOMS. CONSIDER DEGREE OF SUBJECTIVE IMPAIRMENT, OBSERVATIONS OF BEHAVIOURS IN INTERVIEW, AND JUDGMENT REGARDING REPORTING STYLE.	0 No clinically significant symptoms, no distress, and no functional impairment. 1 Good, minimal distress or functional impairment but functionssatisfactorily with effort 2 Moderate, definite distress or functional impairment but functions satisfactorily with effort 3 Severe, considerable distress or functional impairment, limited functioning even with effort 4 Extreme, marked distress or marked impairment in two or more major areas of functioning	<u>Past week</u> <u>Past month</u> <u>Lifetime</u>

4 global improvement

RATE OVERALL IMPROVEMENT PRESENT SINCE THE INITIAL RATING. IF NO EARLIER RATING, ASK HOW THE SYMPTOMSENDORSED HAVE CHANGED OVER THE PAST 6 MONTHS. RATE THE DEGREE PF CHANGE, WHETHER OR NOT, IN OUR JUDGMENT, IT IS DUE TO TREATMENT.	0 Symptomatic 1 Considerable improvement 2 Moderate improvement 3 Slight improvement 4 Insufficient information

Current PTSD symptoms

Criterion A met (traumatic event)? NO YES

_____ # Criterion B sx (≥ 1)? NO YES

_____ # Criterion C sx (≥ 3)? NO YES

_____ # Criterion D sx (≥ 2)? NO YES

Criterion E met (duration ≥1 month)? NO YES

Criterion F met (distress/impairment)? NO YES

CURRENT PTSD (Criterion A-F met)? NO YES

IF CURRENT PTSD CRITERIA MARE MET, SKIP TO ASSOCIATED FEATURES.

IF CURRENT CRITERIA ARE NOT MET, ASSESS FOR LIFETIME PTSD. IDENTIFY A PERIOD OF AT LEAST A MONTH SINCE THE TRAUMATIC EVENT IN WHICH SYMPTOMS WERE WORSE.

Since the (EVENT), has there been a time when these (PTSD STMPTOMS) were a lot worse than they have been in the past month? When was that? How long did it last? (At least a month?)

IF MULTIPLE PERIODS IN THE PAST: When were you bothered the most by these PTSD (SYMPTOMS)?

IF AT LEAST ONE PERIOD INQUIRE ITEMS 1-17, CHANGING FREQUENCY PROMPTS TO REFER TO WORST PERIOD: During that time, did you (EXPERIENCE SYMPTOMS)? How often?

Lifetime PTSD symptoms

Criterion A met (traumatic event)? NO YES

_____ # Criterion B sx (≥ 1)? NO YES

_____ # Criterion C sx (≥ 3)? NO YES

_____ # Criterion D sx (≥ 2)? NO YES

Criterion E met (duration ≥1 month)? NO YES

Criterion F met (distress/impairment)? NO YES

LIFETIME PTSD (Criteria A-F met)? NO YES

Associated features

26. guilt over acts of commission or omission

Frequency	Intensity	Past Week
Have you ever felt guilty about anything you did or didn't do during (EVENT)? Tell me more about that. (What do you feel guilty about?) How much of the time have you felt that way in the past month (week)? 0 None of the time 1 Very little of the time 2 Some of the time 3 Much of the time (approx 20-30%) 4 Much of the time (approx 50-60%) 5 Most or all of the time (more than 80%) Description/Examples	How strong were these feelings of guilt? How much stress or discomfort did they cause? 0 No feelings of guilt 6 Mild, slight feelings of guilt 7 Moderate, guilt feelings definitely present, some distress but still manageable 8 Severe, marked feelings of guilt, considerable distress 9 Extreme, pervasive feelings of guilt, self-condemnation regarding behaviour, incapacitating distress QV Trauma related? 1 definite 2 probable 3 unlikely Current_____ Lifetime_____	F _____ I _____ Past Month F _____ I _____ Sx: Y N Lifetime F _____ I _____ Sx: Y N

27. survivor guilt (APPLICABLE ONLY IF MULTIPLE VICTIMS)

Frequency	Intensity	Past Week
Have you felt guilty about surviving (EVENT)? Tell me more about that. (What do you feel guilty about?) How much of the time have you felt that way in the past month (week)? 0 None of the time	How strong were these feelings of guilt? How much stress or discomfort did they cause? 0 No feelings of guilt 1 Mild, slight feelings of guilt 2 Moderate, guilt feelings definitely present, some distress but	F _____ I _____ Past

1 Very little of the time 2 Some of the time 3 Much of the time (approx 20-30%) 4 Much of the time (approx 50-60%) 5 Most or all of the time (more than 80%) Description/Examples	still manageable 3 Severe, marked feelings of guilt, considerable distress 4 Extreme, pervasive feelings of guilt, self-condemnation regarding behaviour, incapacitating distress QV _____ Trauma related? 1 definite 2 probable 5 unlikely Current_____ Lifetime_____	Month F _____ I _____ Sx: Y N Lifetime F _____ I _____ Sx: Y N

28. a reduction in awareness of his or her surroundings (e.g., 'being in a daze)

Frequency Have there been times when you feel out of touch with things going on Around you, like you were in a daze? What was that like? [DISTINGUISH FROM FLASHBACK EPISODES] How often has that happened in the past month (week)? [IF NOT CLEAR:] (Was it due to an illness or the effects of drugs or alcohol?) When did you first start feeling that way? (After the [EVENT]?) 0 Never 6 Once or twice 7 Once or twice a week 8 Several times a week 9 Daily or almost every day Description/Examples	Intensity How strong was this feeling of being out of touch or in a daze? (Were you confused about where you actually were or what you were doing at the time?) How long did it last? (Did other people notice your behaviour? What did they say?) 0 No reduction in awareness 10 Mild, slight reduction in awareness 11 Moderate, definite but transient reduction in awareness, may report feeling 'spacy' 12 Severe, marked reduction in awareness, may persist for several hours 13 Extreme, complete loss of awareness of surroundings, may be unresponsive, possible amnesia for the episode (blackout) QV _____ Trauma related? 1 definite 2 probable 3 unlikely Current_____ Lifetime_____	Past Week F _____ I _____ Past Month F _____ I _____ Sx: Y N Lifetime F _____ I _____ Sx: Y N

29. derealisation

Frequency	Intensity	Past Week
Have there been times when things going on around you seemed unreal or very strange and unfamiliar? [IF NO:] (What about times when people you knew suddenly seemed unfamiliar?) What was that like? How often has that happened in the past month (week)? [IF NOT CLEAR:] (Was it due to an illness or the effects of drugs or alcohol?) When did you first start feeling that way? (After the [EVENT]?) 0 Never 1 Once or twice 2 Once or twice a week 3 Several times a week 4 Daily or almost every day Description/Examples	How strong was (DEREALISATION)? How long did it last? (Did other people notice your behaviour? What did they say?) 5 No derealisation 6 Mild, slight derealisation 7 Moderate, definite but transient derealisation 8 Severe, considerable derealisation, marked confusion about what is real, may persist for several hours 9 Extreme, profound derealisation, dramatic loss of sense of reality or familiarity QV Trauma related? 1 definite 2 probable 3 unlikely Current_____ Lifetime_____	F _____ I _____ Past Month F _____ I _____ Sx: Y N Lifetime F _____ I _____ Sx: Y N

30. depersonalization

Frequency	Intensity	Past Week
Have there been times when you felt as if you were outside your body, watching yourself as if you were another person? [IF NO:] (What about times you're your body felt strange or unfamiliar to you, as if it had changed in some way?) What was that like? How often has that happened in the past month (week)? [IF NOT CLEAR:] (Was it due to an illness or the effects of drugs or alcohol?) When did you first	How strong was (DEPERSONALISATION)? How long did it last? What did you do while this was happening? (Did other people notice your behaviour? What did they say?) 0 No □ounseling□zation 1 Mild, slight □ounseling□zation 2 Moderate, definite but	F _____ I _____ Past Month F _____ I _____

start feeling that way? (After the [EVENT]?) 0 Never 1 Once or twice 2 Once or twice a week 3 Several times a week 4 Daily or almost every day Description/Examples	transient □ounseling□zation 3 Severe, considerable □ounseling□zation, marked sense of detachment from self, may persist for several hours 4 Extreme, profound □ounseling□zation, dramatic sense of detachment from self QV Trauma related? 1 definite 2 probable 3 unlikely Current_____ Lifetime_____	Sx: Y N Lifetime F _____ I _____ Sx: Y N

To score:

Insure that the client meets Criterion A:

The person has been exposed to a traumatic event in which both of the following were present: a) The person experienced, witnessed, or was confronted with an event or events that involved actual or threatened death or serious injury, or a threat to the physical integrity of self or other, and b) the person's response involved intense fear, helplessness, or horror. Note: In children, this may be expressed instead by disorganized or agitated behaviour.

Criterion B: The client needs to re-experience at least one of the symptoms in questions 1 – 5. Add the frequency and intensity scores together (for the time period selected) for questions 1 – 5. These will then be added at the end for the total overall CAPS score.

Criterion C: The client needs to experience at least three of the symptoms in questions 6 – 12 (Avoidance and numbing symptoms). Add the frequency and intensity scores together (for the time period selected) for questions 6 – 12. These will then be added at the end for the total overall CAPS score.

Criterion D: The client needs to experience at least two of the symptoms in questions 13 – 17 (Hyperarousal symptoms). Add the frequency and intensity scores together (for the time period selected) for questions 13 – 17. These will then be added at the end for the total overall CAPS score.

To obtain the overall CAPS score add together the frequency and intensity scores for criterion B, C and D, for the time period selected.

Criterion E: The duration of the disturbance must be at least one month.

Criterion F: The client needs to experience at least one of the symptoms in questions 20 – 22 (Significant distress or impairment in functioning).

PTSD diagnosis: Assess whether all criteria are met and specify whether there was a delayed onset (> 6 months), an acute onset (<3 months) or a chronic onset (>3 months).

Global rating: Responses from questions 23, 24 and 25 will give you the global validity, global severity and global improvement of the client's answers.

Associated features: Questions 26 – 30 will give the intensity and frequency of the clients; guilt over acts of commission or omission; survivor guilt; reduction in awareness of surroundings; derealisation and depersonalization.

APPENDIX Q

Trauma- Related Guilt Inventory

Response to Trauma (Version A11)

Individuals who have experienced traumatic events—such as physical or sexual abuse, military combat, sudden loss of loved ones, serious accidents or disasters, etc.—vary considerably in their response to these events. Some people do not have any misgivings about what they did during these events, whereas other people do. They may have misgivings about something they did (or did not do), about beliefs or thoughts they had, or for having had certain feelings (or lack of feelings). The purpose of this questionnaire is to evaluate your response to a traumatic experience.

Briefly describe what happened:

Please take a few moments to think about what happened. All the items below refer to events related to this experience. Circle the answer that best describes how you feel about each statement.

1. I could have prevented what happened.
   Extremely true Very true Somewhat true Slightly true Not at all true

2. I am still distressed about what happened.
   Always true Frequently true Sometimes true Rarely true Never true

3. I had some feelings that I should not have had.
   Extremely true Very true Somewhat true Slightly true Not at all true

4. What I did was completely justified.
   Extremely true Very true Somewhat true Slightly true Not at all true

5. I was responsible for causing what happened.
   Extremely true Very true Somewhat true Slightly true Not at all true

6. What happened causes me emotional pain.
   Always true Frequently true Sometimes true Rarely true Never true

7. I did something that went against my values.
   Extremely true Very true Somewhat true Slightly true Not at all true

8. What I did made sense.
   Extremely true Very true Somewhat true Slightly true Not at all true

9. I knew better that to do what I did.
   Extremely true Very true Somewhat true Slightly true Not at all true

10. I feel sorrow or grief about the outcome.
    Always true Frequently true Sometimes true Rarely true Never true

11. What I did was inconsistent with my beliefs.
    Extremely true Very true Somewhat true Slightly true Not at all true
12. If I knew today- only what I knew when the event(s) occurred—I would do exactly the same thing.
    Extremely true Very true Somewhat true Slightly true Not at all true

13. I experience intense guilt that relates to what happened.
    Always true Frequently true Sometimes true Rarely true Never true

14. I should have known better.
    Extremely true Very true Somewhat true Slightly true Not at all true

15. I experience severe emotional distress when I think about what happened.
    Always true Frequently true Sometimes true Rarely true Never true

16. I had some thoughts or beliefs that I should not have had.
    Extremely true Very true Somewhat true Slightly true Not at all true

17. I had good reasons for doing what I did.
    Extremely true Very true Somewhat true Slightly true Not at all true

18. Indicate how frequently you experience guilt that relates to what happened.
    Never Seldom Occasionally Often Always

19. I blame myself for what happened.
    Extremely true Very true Somewhat true Slightly true Not at all true

20. What happened causes a lot of pain and suffering.
    Extremely true Very true Somewhat true Slightly true Not at all true

21. I should have had certain feelings that I did not have.
    Extremely true Very true Somewhat true Slightly true Not at all true

22. Indicate the intensity or severity of guilt that you typically experience about the event(s).
    None Slight Moderate Considerable Extreme

23. I blame myself for something I did, thought, or felt.
    Extremely true Very true Somewhat true Slightly true Not at all true

24. When I am reminded of the event(s), I have strong physical reactions such as sweating, tense muscles, dry mouth, etc.
    Always true Frequently true Sometimes true Rarely true Never true

25. Overall, how guilty do you feel about the event(s)?
    Not guilty at all Slightly guilty Moderately guilty Very guilty Extremely guilty

26. I hold myself responsible for what happened.
    Extremely true Very true Somewhat true Slightly true Not at all true

27. What I did was not justified in any way.
    Extremely true Very true Somewhat true Slightly true Not at all true

28. I violated personal standards of right and wrong.
    Extremely true Very true Somewhat true Slightly true Not at all true

29. I did something that I should not have done.
    Extremely true Very true Somewhat true Slightly true Not at all true

30. I should have done something that I did not do.
    Extremely true Very true Somewhat true Slightly true Not at all true

31. What I did was unforgivable.
    Extremely true Very true Somewhat true Slightly true Not at all true

32. I didn't do anything wrong.
    Extremely true Very true Somewhat true Slightly true Not at all true

Note. Most items are scored 4, 3, 2, 1, and o (from left to right). Seven items are reverse scored (Items 4, 8, 12, 17, 22, 25, 32). The Global Guilt Scale score = [sum of scores on Items 13, 18(R), 22 (R), and 25 (R)] divided by 4. The Distress Scale score = (sum of scores on Items 2, 6 10, 15, 20, and 24) divided by 6. The Guilt Cognitions Scale score = [sum of scores on Items1, 3, 4 (R), 5, 7, 8 (R), 9, 11, 12 (R), 14, 16, 17, 19, 21, 23, 26, 27, 28, 29, 30, 31, and 32 (R)], by 22. The Hindsight – Bias/ Responsibility Subscale score = (sum of scores on Items 1, 5, 9, 14, 19, 23, and 26) divided by 7. The Wrongdoing Subscale score = (sum of scores on Items3, 7, 11, 16, and 21) divided by 5. The Lack of Justification Subscale score = [sum of scores on Items 4(R), 8(R), 12(R), 17(R),] divided by 4.

APPENDIX R

Credibility of Treatment Questionnaire

It is possible in a research study to *present* a treatment in such a manner that it reduces the credibility of the intervention in the eyes of the participants, before they have even experienced the treatment. This would certainly contribute to lower evaluations of effectiveness and/or preferences for, treatments. It could also lead to drop-outs from treatments, even before those treatments are begun. This may be what occurred in one of the few studies in which EMDR was found to be less effective than Cognitive Therapy (Devilly & Spence, 1999). Ironson, and his associates (Ironson, Freund, Strauss, & Williams, 2002) noted that in the Devilly and Spence study, participants had dropped out of the EMDR group prior to commencement of therapy sessions. This leads one to believe that EMDR was not presented in a positive light, thereby biasing treatment efficacy results of the study.

In order to evaluate the extent to which therapies had been presented as equally credible in the current study, the Credibility of Treatment Questionnaire (CoTQ) was used (Borkovec & Nau, 1972). This consists of 5 questions, in which the therapies are rated on 10-point credibility/expectancy-for-improvement scales. The generalized items were tailored to address PTSD symptoms for this study:

(a) How logical does this type of treatment seem to you?

(b) How *confident* are you that this treatment will be successful in eliminating the symptoms of Posttraumatic Stress Disorder (PTSD)?

(c) How confident would you be in recommending this treatment to a friend who was suffering from the symptoms of Posttraumatic Stress Disorder (PTSD)?

(d) If you were suffering from extremely high levels of Posttraumatic Stress Disorder (PTSD) symptoms, would you be *willing to undergo* such treatment?

(e) How *successful* do you think this treatment would be in decreasing the symptoms of a *different* anxiety disorder, such as Social Anxiety?

In addition to these items, a sixth item was added, as follows:

(f) How scientific does this treatment seem to you?

This last item was added to offset the apparent imbalance between CPT and OEI in terms of the characteristics being assessed. Cognitive therapies are known for

their “logic”; whereas, OEI is a neurologically-based therapy that lends itself to more “scientific” rationales. It was intended that this additional item would balance out the relative strengths and characteristics of these two therapies in the assessments. In addition, to avoid an order bias in the items on the CoTQ, three different rotations were created .

Internal consistency was high for such a short scale (Cronbach’s Alpha = .818). The scale was found to deviate from a normal distribution so was transformed with a square root and reflect conversion, satisfying the Kolmogorov-Smirnov test of normality, and assumption of homoscedasticity (Levene’s Test $p > .05$).

Evaluations of the three (BRAIN, CPT and OEI) therapies in the first (psychoeducation) sessions were compared for each respective group, using One Way ANOVAs. Results indicated that there were no differences in perceived credibility of the three therapies, for either average item score [$F(2, 24) = 2.35$, $p = .117$] or total scale score [$F(2, 24) = 2.03$, $p = .153$].

This provides sound evidence for an argument against differential expectancy of success as a major contributing factor in treatment outcome, later in the study.

References

Borkovec, T.D., & Nau, S.D. (1972). Credibility of analogue therapy rationales. *Journal of Behavior Therapy & Experimental Psychiatry, 3*, 257-260.

Devilly, G., & Spence, S. (1999). The relative efficacy and treatment distress of EMDR and a cognitive behavior trauma treatment protocol in the amelioration of posttraumatic stress disorder. *Journal of Anxiety Disorders*. *13*(1-2), 131-157.

Ironson, G., Freund, B., Strauss, J., & Williams (2002). Comparison of two treatments for traumatic stress: A community-based study of EMDR and prolonged exposure. *Journal of Clinical Psychology, 58*, 113-128.

APPENDIX S

(i) Electro-Cap Protocol Recording Sheet (1)

Participant No.: _____

Date of Session: _____

Assessment No.: _____

Time (start-finish): _____

Researchers Present: _____

Baseline

Toggle	QEEG	EO	EC	EO	Extra
1	Fz-Cz				
2	F3-F4				
4	P3-P4				
6	O1-O2				
Extra					

Trauma Script

Toggle	QEEG	EO	EC	EO	Extra
1	Fz-Cz				
2	F3-F4				
4	P3-P4				
6	O1-O2				
Extra					

TMI-PS

Toggle	QEEG	EO	EC	EO	Extra
1	Fz-Cz				
2	F3-F4				
4	P3-P4				
6	O1-O2				
Extra					

Notes: _____

(ii) Electro-Cap Protocol Recording Sheet (2)

Participant No.: _____

Date of Session: _____

Assessment No.: _____

Time (start-finish): _____

Researchers Present: _____

Baseline

Toggle	QEEG	EO	EC	EO	Extra
2	F3-F4				
4	P3-P4				
6	O1-O2				
1	Fz-Cz				
Extra					

Trauma Script

Toggle	QEEG	EO	EC	EO	Extra
2	F3-F4				
4	P3-P4				
6	O1-O2				
1	Fz-Cz				
Extra					

TMI-PS

Toggle	QEEG	EO	EC	EO	Extra
2	F3-F4				
4	P3-P4				
6	O1-O2				
1	Fz-Cz				
Extra					

Notes: _____

(iii) Electro-Cap Protocol Recording Sheet (3)

Participant No.: _____

Date of Session: _____

Assessment No.: _____

Time (start-finish): _____

Researchers Present: _____

Baseline

Toggle	QEEG	EO	EC	EO	Extra
6	O1-O2				
4	P3-P4				
1	Fz-Cz				
2	F3-F4				
Extra					

Trauma Script

Toggle	QEEG	EO	EC	EO	Extra
6	O1-O2				
4	P3-P4				
1	Fz-Cz				
2	F3-F4				
Extra					

TMI-PS

Toggle	QEEG	EO	EC	EO	Extra
6	O1-O2				
4	P3-P4				
1	Fz-Cz				
2	F3-F4				
Extra					

Notes: _____

APPENDIX T

Instructions: Extracting Brainmaster Highlights

1. Ctrl-Alt-Del PW= KyacBus39
2. Dbl-Click "Shortcut to BSETUP" icon on desktop

3. Click "Login to Brainmaster" and then Click "OK" (login & pw already in)

4. Click "OK" on "Unlimited Use" window with "!" in triangle (yellow)

5. Click "Folder Selections" and then select Participant Number with the Assessment Number in the "Select Folder" dialogue box. I had Karen enter the participant numbers followed by the number of the assessment time (1=pre-treatment; 2=post-treatment), and some of the runs had initial errors or setup difficulties so they have been labeled with an additional lower-case "a". If you see an "a", use that version of the run (e.g., for participant number 102 --- the first case --- you will see "1021", which is the pre-treatment run for case number 102. You will also see "1022" and "1022a". The second of these is the one to use in the data analysis. Ignore "1022").

6. As an initial check on data quality, I consulted with Dr. Paul Swingle regarding artifact associated with each 30-run session. For case 102, for example, I entered the case number in the first column, for the variable I titled "PARTNO". The second variable is titled "PCTRTF1" (percent of time artifact --- i.e., exceeding the artifact rejection threshold of 140 microvolts). This number was obtained for each session (after selecting the appropriate participant/assessment number, and clicking "OK"), by (a) clicking on the "Review Session Results" button, (b) clicking the "Settings" pull-down tab, (c) clicking "Report" (plus "OK") in the "Format" section of the "Breview Settings" dialog box, and (d) scrolling down the report until the figure labeled "% time artifact" appeared. For the pre-treatment assessment time on participant 102, for example, this reads "6.29". The same procedure was followed for each session, to select the post-treatment assessment for participants (e.g., for participant 102 I selected session number "1022a"). From that point, Dr. Swingle reviewed the Grand Means for each frequency range, checking for unusual amplitudes and, when unusually high patterns occurred, the full session results were reviewed. Using this procedure, only one run (Trauma Tape Sequence) at one pair of scalp locations (F3-F4) was considered too distorted by artifact to salvage for data analyses.

7. The first generation of Extractions from the Brainmaster Software Program is in Excel Spreadsheets, in a folder titled "Brainwave Data", in a Subfolder titled "Brainmaster Excel Files". They are stored by case number and session number (e.g., 1021 is the pre-treatment session for participant 102).

8. The next step involved reconciling any deviations from the standard 30-run session protocol by reviewing the protocol recording sheets completed by the computer operator during the sessions. The deviations noted were as follows:

9. Computer shut down (battery?) after completion of first 2 blocks
   1022a Computer had to be re-started to complete the TMI-PS block
   These files were concatenated and runs re-numbered 21 through 30.

   1072 Extra run (31 instead of 30) due to:

   1102 Extra run (31 instead of 30) due to: "Extra" noted on first TS run

10. Next, the counterbalancing sequences (1 through 3) needed to be accounted for in the run numbers (labeling the blocks as follows):

    BL = Baseline; TS = Trauma Script; and TM = TMI-PS runs

    Furthermore, the locations on the scalp are labeled as follows:

    F = F3-F4; FC = Fz-Cz; P = P3-P4; and O = O1-O2.

    Finally, the PP and FF runs are differentiated as follows:

    EO = Eyes Open; and EC = Eyes Closed. The counterbalanced protocol record sheets were consulted to label each run with the above acronyms. This information replaced the "RUN" numbers in the left-most column.

11. The columns labeled "E1" through "E5" were deleted. They were empty. In addition, the "NPTS" column was deleted (unnecessary & redundant data), and all of the AUX columns were deleted (AUXAVG, AUXAVG2, AUXCOH, AUXSTD and AUXSTD2) since they were comprised of empty cells.

12. Once this procedure was completed, a column was added for participant number (labeled "PARTNO"), and the first row was inserted for each case, corresponding to BLFCEO1. The left-most cell under the first column head (PARTNO) should have the case number, plus the run number (e.g., 1021 for case 102, pre-treatment session). That same left-most column *below* PARTNO should be empty if you inserted a column for PARTNO. Now delete that column except for the upper left corner with the participant number and session number. If the sequence for the case in question is "1", all of the runs will already be in the correct order (vertically), but still need to be cut-and-pasted into a single horizontal row. If the sequence is "2" or "3", the first step is to get the rows into the right order (vertically). See the sequence on the protocol sheet: For each block (**BL**, **TS**, and **TM**) the order should read: **FC** (EO1, EC, EO2), **F** (EO1, EO2), **P** (EO1, EO2), and **O** (EO1, EC, EO2). To start a sequence "2" or "3", a blank row must be inserted right under the column heads.

13. Take each run label (e.g., “BLFCEO1”), copy it, and paste it into the column head labels so that each column has a label, with the appropriate header (session, block, run, activity, frequency range and coherence value.

14. Each of the runs in the Excel files was then merged to form continuous files by assessment condition (BL, TS, TF).

15. Due to the column limitations in Excel, the files could only include portions of the variables up to the maximum column length (e.g., pre-treatment variables 1-200, pre-treatment variables 200-400, etc.). The pre-treatment variables were all labeled “A”, and post-treatment labeled “B” to the sub-files could later be merged in SPSS once the column number limitations of Excel no longer applied.

16. Finally, the Excel files were imported to SPSS, and subsequently merged to form long concatenated strings that included all variables (both pre and post treatment).

APPENDIX U

Checktrode Impedances and Left/Right Differences

Participant Number: _____ *Date of Session:* _____

Impedance Check Recording Sheet

Back Panels of 2E and Mini-Q

Names of Check Runs	Mini-Q Toggle	2E Connectors	QEEG Sites (Electrodes)	Left Hand Value*	Right Hand Value *	2E Connectors	QEEG Sites (Electrodes)
Left – Right Diffs	1	Blue/Yellow	Fz & A1			Red/Green	Cz & A2
" " " " " "	2	" " " " "	F3 & A1			" " " " "	F4 & A2
" " " " " "	4	" " " " "	P3 & A1			" " " " "	P4 & A2
" " " " " "	6	" " " " "	O1 & A1			" " " " "	O2 & A2

Names of Check Runs	Mini-Q Toggle	2E Connectors	QEEG Sites (Electrodes)	Impedance Value*
Ground Check (*after* A1/A2)	1 (abraid - no chk)	Black/Yellow	Ground & A1	

* Impedance Values Must Be Abraided to < 5 Kohms

APPENDIX V

A Few Important Words About Trauma Script Tapes

As Counsellors and healers, we *long* to provide you with relief from pain and suffering. It brings us *joy* to see healing and lives restored!

If the only purpose of this study was to provide relief for the 30+ women directly involved, we wouldn't have to use all of the questionnaires, interviews, the trauma script audiotape, or the EEG assessments…but in fact, there *is* a bigger purpose: to identify the most effective trauma therapies for hundreds of thousands of women in the future.

There are some important differences between □ounseling, and research. In research, short-term discomfort must be tolerated for the long term gain of testing therapies rigorously enough that results are accepted by other researchers.

Some previous trauma research studies have been criticized because the investigators relied only on self-report (participants simply saying "I feel better"). There needs to be a more stringent, consistent marker of change & recovery:

- The event you are thinking about when you are asked "How do you feel?" has to be the same each time you are assessed;
- The aspects of that event which you are focusing on need to be the same during each assessment;
- The questions you are asked about your experiences as you listen to, and think about, the trauma audiotape need to be the same; and
- There should be measures in addition to self-report that are more biological or neurological, to determine the amount of change at deeper levels and the types of healing that have occurred.

We will support you emotionally through this process, and give you tools to help calm yourself (like the breathing, relaxation, autogenics, imagery and grounding techniques being taught today in this group). We will check in, and provide you with other resources, as necessary.

We want to sincerely thank you for persisting with us on this healing journey. It will benefit you and, in the future, many *other* women affected by sexual assault.

The TWU Trauma Research Team

APPENDIX W

Intake Forms For Participants

Dear Participant:

Thank you for taking time to contribute to this research. The results should be helpful for many women in the future as well as those who, like yourself, are directly involved in the study.

In order to ensure the accuracy of our equipment, we ask that on the day you come to the ECAP assessment, please:

1. Have clean hair – no hair spray, gel or mousse. This will interfere with the electrode contacts and make the QEEG gel harder to get out.

2. Do not drink coffee, or any caffeine products within three hours of your appointment.

3. Do not take any stimulant medication that day.

Other helpful tips:

4. Bring a scarf or a hat if you want to hide your hair afterwards (it might get a bit messy).

5. Bring 1 of your favourite soothing CDs (calming music or nature sounds). It helps pass the time if things get a bit boring during the process.

Thanks again!

Sincerely,

TWU Trauma Research Team

APPENDIX X

Quantitative Electroencephalograpy Preparation Procedures

Electro Cap Care and Preparation

1. Clean all electrode surfaces with warm water and Ivory detergent – this includes new factory items as they have an oxide type varnish; also prep (2) quick insert electrodes. (Dr. Swingle uses alcohol rub)
2. After every use electro cap must be washed with warm water and ivory detergent and hung up to dry with electrical tail above cap to avoid moisture damage to the electrical components.

Participant

They need to wear their hair down, and "loose" and with no hair products– Make sure they are not wearing jewellery, earrings, barrettes, hair pins, elastic bands etc, no perfume.

Ask about allergies. The products are all hypoallergenic.

Measuring Participants Head Size for Electro Cap

1. Use colour coded tape to measure for cap size. Measure head circumference 1" above nasion and inion. Use head band to determine cap size assignment. (Lg. Blue; med. Red; small yellow)
2. Use metric tape to measure head circumference in cm. Place tape one inch above nasion and inion. Take cm measure (ie. 56 cm then move decimal 5.6 cm). Then divide 5.6 in half . This measurement balances horizontally across the centre mark, allowing for two marks: f1 and f2. This is where the sponge disks will be placed to hold the electro-cap in place.
3. Use metric tape to measure nasion to inion across the top of the head (dome). Take cm measure and convert as explained above, only do not divide in half. This is the measurement used to place the centre mark directly below the fz elevation and above the nasion. Measure from nasion protuberance – just above the indentation.

Mini Q

Check connection to electro cap – Cap must be on and all the electrodes attached before impedance check. Two people will place on cap, insert electrodes with electro gel and test impedance and if need be, use quick insert electrodes.

a) Use "nuprep" to prepare ear for electrode
b) Place ear electrodes on ears – make sure that the electrodes do not cover over any open ear-ring hole (avoid possible side-effect infection) If there are holes in the ear – place the electrode higher up on the ear.
c) The ear electrodes must be placed prior to the electrode cap.
d) Attach electrode sponges on f1 and f2 on cap.
e) Remove adhesive and place on two scalp marks (f1 and f2).
f) Pull cap on, careful to spread hair away from scalp to allow target electrodes full contact.
g) Place cap on head, strap under chin
h) Use nuprep for each target spot on cap.
i) Draw 2cc of electro gel in 2 syringes with blunts.
j) Abrade each target, then inject elector gel.
k) Green and yellow leads = linked references = a1 and a1
l) Black lead = ground wire
m) Blue and Red leads = active/live wire
n) Check impedance on ears IMPORTANT Head must be stable, have participant look at a spot on the wall and have them "relax" their neck muscles to keep impedance in check.
o) Check cz with fz

	Blue (left) – active	Red (right)- active
Ears (white/blue leads)	A1	A2
Frontal	f3	f4
Centre & Cingulate Gyrus	fz	cz
Occipital	o1	o2

1st toggle (on left) measures fz and cz

2nd toggle measures f3 and f4

6th toggle measures o1 and o2

Quick Insert Electrodes – more information to follow

APPENDIX Y

Grounding/Relaxation Exercises

Breathing **R**elaxation **A**utogenics **I**magery **G**rou**N**ing

Script for All-Participant Audiotape

prepared by

Rick Bradshaw, Ph.D.

recorded by

Marie Amos, M.A. (Cand.)

Before your start your relaxation session, locate the Amos Relaxation Effectiveness Tracking Chart and enter the numbers for your "Emotional State (Before)", "Physical State (Before)" and "Overall Distress Level (Before)" for the current day of the month.

Good times for this relaxation session may be just before or after dinner, or just before bed. Find a safe, calm, quiet place with the lights dimmed….and a comfortable, warm temperature. You may want to use scented oils or candles with soothing fragrances. It might be nice to use pillows or cushions under or around you.

Start by getting into a comfortable position, sitting or lying down. Place your hand on your abdomen. As you breathe in, allow your abdomen to rise, lifting your hand. As you breathe out, allow your hand to lower with your abdomen, as it returns to its original position. Continue this process, inhaling and exhaling deeply. Close your eyes and take a deep breath ***in***. Breathe ***in*** relaxation, and breathe ***out*** tension. Allow yourself to sigh gently, as the air flows from your lungs.

With each breath, search your body for tension, and ***melt it away***. Allow yourself to sink back into the chair, couch or bed, feeling the support under you. As you relax, follow your breathing. Go to the deepest, calmest place inside…

Notice your hands… With each breath release more tension in your hands…now release the muscles in your forearms…imagine the tension floating off your forearms…and now your biceps. Let your arms fall to your sides or in your lap,

and relax your biceps. Imagine a ***warm, flowing current…***with each breath, melting more of the tension away…----…*soothing* and *smoothing* the muscles…calming. Now notice the muscles in your head and face…allow the tension to float up off your forehead and soften the skin around your eyes…Now notice your jaw. Let it slacken, and allow your mouth to open comfortably and relax.

Next, relax your throat…"*Melt away*" tension in your throat, neck, and shoulders. Go through each of these areas, and *release* more tension each time you exhale…… Let go of the tension in your face and jaw …*Lift* the tension off your forehead and face. Llet it slowly melt away from your neck and shoulders. Let the tension *dissolve* away. Continue down your body…"*letting go*" of tension and "*breathing in*" relaxation…to your chest…slowly …your stomach…and your lower back. Finally, release the tension in your lower body…with each breath …Relax and smooth the muscles… to your feet….Let the tension flow out of your feet. Allow the tension to flow out of your body, from the top of your head ***all*** the way down, and out though your feet. Let go *more*…and *more*…keep *releasing* tension as you breathe, until you find absolutely *no trace* of tension in your muscles.

Now that you're deeply relaxed, go in your mind to your own special retreat for relaxation and rest. It can be indoors or out. You'll need a private entry or pathway, and it should be peaceful, comfortable and safe. Create protection around you and over you, in your mind. Try imagining a large, □ounselin dome…or high rock cliffs, over and around that special place to protect you. Fill the place with vivid detail using all five of your senses. Notice what is close to you and also what is off in the distance. As you spend time in that place, gradually become aware of the sound of water & wind. Allow the wind and gentle waves to ebb & flow in time with your breathing… perfectly synchronized with your breathing *in*…and breathing *out*…deep, full, *relaxing* breaths…Your breathing is *deep*… and…*slow-w-w*…and your heartbeat is *slow-w-w*…and… *regular*…

Feel the sun on your skin…If you're inside, notice the warmth of the room…Your hands…and arms…are *so-o-o* warm, and *so-o-o* heavy…and your feet and legs…*so-o-o* warm…and *so-o-o* heavy…

There's a gentle breeze… through your hair… through the trees… and over your forehead. Your forehead…is *cool*…*and*…*dry-y-y*…. A beautiful fragrance is floating on the breeze…*calming…soothing, peaceful*…The fragrance takes you back in your mind to a time when you rested safely…*effortlessly*…to a place where you were *restored* and felt *fully alive,* in the most *positive* way…

Continue to spend time in that calm, restful, safe place…breathing *in*---deeply, and breathing *out*---fully. Breathing is *deep*…and… *slow*. Heartbeat is *slow*…and…*regular*…Notice the colours & movement in that place. Choosing

the most calming, soothing colour…and allowing that **colour** to go *all* through your body, from the top of your head to the tips of your fingers and toes…..

As you focus on that color, allow **music or sounds** to enter your mind that go most naturally with the soothing colour. Let that
Music or sound go all through your body, from the top of your head to the tips of your toes.

Focus on the colour, sound, and calm, confident feeling, and think of an **object or shape** and **movement** that goes with those feelings, thoughts and images. It might be *soaring*, *bubbling*, or *moving effortlessly in slow motion*…Just focus on that sense of movement, and feel it *all through your body.* Also notice the **temperature** that's most comfortable.

Your hands…and arms… are *so-o-o* warm, and *so-o-o* heavy… …feet and legs…*so-o-o* warm…and *so-o-o* heavy…forehead…is *cool…and…dry-y-y*…. That beautiful fragrance is floating on the
breeze…*calming…soothing…peaceful*…

Become aware of ***all*** your senses. Notice which sense activates the rest. It might be colour…sound…movement… shape… temperature…fragrance…or touch. Focus on ***one*** of your senses in your environment right now…what you hear…or see…or textures & temperatures you feel with your hands…Block out all of the other senses and just focus…second-by-second…on what you become aware of…as if you're noticing life "floating gently by" on a *slow-moving* river…Feel the support of the chair, couch or bed under you…Feel the weight of your feet and hands…

Enjoy more time in your safe, special place: The colours, movement, sounds, fragrances and temperature all combine to create a restful, relaxing experience. Breathing *in* relaxation, and breathing *out* tension. Consider returning to the room you started your relaxation session in….gradually, at your own pace. There's no rush….Start noticing the sounds in the room and outside….
.
Cross one leg over the other…and then cross your forearms on the leg that is crossed over the lower leg...holding the shin closest to you with both hands. Remember "Cook's Hook-ups". Allow a deep sense of peacefulness and relaxation to flow over you… calming… soothing…restoring. ***Remember*** those feelings as you come back and continue your day or evening. Take that relaxation with you…

Finally, fill in the time you spent playing this tape in the day, note your "Emotional & Physical States (After Relaxing)", your "Overall Distress Level", and the "Congruence of Your Emotional & Physical States on the Amos Relaxation Effectiveness Tracking Sheet.

APPENDIX Z

Amos Relaxation Effectiveness Tracking Chart

Name: Month:

Please report your state of relaxation and distress for each of the categories below, each time you engage in relaxation techniques.

Emotional State refers to your feelings and how upset (or not) you currently are.

0 = the most emotionally calm you've ever been. 10 = the most emotionally distressed you've ever been.

Physical State refers to your body tension and discomfort.

0 = the most physically relaxed you've ever been. 10 = the most physically tense you've ever been.

Overall Distress Level refers to your general sense of well-being.

0 = No distress/high well-being. 10 = Great distress/absence of well-being.

Congruence of Physical & Emotional States refers to the degree of parallel or conflicted experiences.

0 = high consistency of physical & emotional experiences. 10 = inconsistency of physical & emotional states.

Rumination & Racing Thoughts refers to the presence or absence of constant mental "chatter", self-criticism and worrying.

6. = *calm mind* – no mental "chatter" such as self-criticisms & worries, even when deeply relaxing.

10 = *unable to stop* constant worry, rumination and racing thoughts, *especially* when trying to relax.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Duration CD Played-min. □ if full CD																															
Time of Day Tape or CD is Played																															
Emotional State (before)																															
Emotional State (after)																															
Physical State (before)																															
Physical State (after)																															
Overall Distress Level (before)																															
Overall Distress Level (after)																															
Congruence: Emotional and Physical State																															
Rumination, Racing Thoughts																															

APPENDIX AA

(i) Group Session Questionnaire A

Participant No.: _____

You have just received a group presentation & demonstration of one form of therapy found to be effective for relieving the symptoms of Posttraumatic Stress Disorder (PTSD). Please answer each of the following questions on a 10-point scale with a vertical mark on each line, and a number above each mark, as you consider the treatment you have just had explained and demonstrated.

1. How *logical* does this type of treatment seem to you?

LOW	HIGH
1	10

2. How *confident* are you that this treatment will be successful in eliminating the symptoms of Posttraumatic Stress Disorder (PTSD)?

LOW	HIGH
1	10

3. How *confident* would you be in recommending this treatment to a friend who was suffering from the symptoms of Posttraumatic Stress Disorder (PTSD)?

LOW	HIGH
1	10

4. If you were suffering from extremely high levels of Posttraumatic Stress Disorder (PTSD) symptoms, would you be *willing to undergo* such treatment?

LOW	HIGH
1	10

5. How *successful* do you feel this treatment would be in decreasing the symptoms of a *different* anxiety disorder, such as Social Anxiety?

LOW	HIGH
1	10

6. How *scientific* does this treatment seem to you?

LOW	HIGH
1	10

(ii) Group Session Questionnaire B

Participant No.: _____

You have just received a group presentation & demonstration of one form of therapy found to be effective for relieving the symptoms of Posttraumatic Stress Disorder (PTSD). Please answer each of the following questions on a 10-point scale with a vertical mark on each line, and a number above each mark, as you consider the treatment you have just had explained and demonstrated.

1. How *confident* would you be in recommending this treatment to a friend who was suffering from the symptoms of Posttraumatic Stress Disorder (PTSD)?

LOW	HIGH
1	10

2. If you were suffering from extremely high levels of Posttraumatic Stress Disorder (PTSD) symptoms, would you be *willing to undergo* such treatment?

LOW	HIGH
1	10

3. How *logical* does this type of treatment seem to you?

LOW	HIGH
1	10

4. How *scientific* does this treatment seem to you?

LOW	HIGH
1	10

5. How *confident* are you that this treatment will be successful in eliminating the symptoms of Posttraumatic Stress Disorder (PTSD)?

LOW	HIGH
1	10

6. How *successful* do you feel this treatment would be in decreasing the symptoms of a *different* anxiety disorder, such as Social Anxiety?

LOW	HIGH
1	10

(iii) Group Session Questionnaire C

Participant No.: _____

You have just received a group presentation & demonstration of one form of therapy found to be effective for relieving the symptoms of Posttraumatic Stress Disorder (PTSD). Please answer each of the following questions on a 10-point scale with a vertical mark on each line, and a number above each mark, as you consider the treatment you have just had explained and demonstrated.

1. How *scientific* does this treatment seem to you?

LOW	HIGH
1	10

2. How *confident* are you that this treatment will be successful in eliminating the symptoms of Posttraumatic Stress Disorder (PTSD)?

LOW	HIGH
1	10

3. How *confident* would you be in recommending this treatment to a friend who was suffering from the symptoms of Posttraumatic Stress Disorder (PTSD)?

LOW	HIGH
1	10

4. If you were suffering from extremely high levels of Posttraumatic Stress Disorder (PTSD) symptoms, would you be *willing to undergo* such treatment?

LOW	HIGH
1	10

5. How *successful* do you feel this treatment would be in decreasing the symptoms of a *different* anxiety disorder, such as Social Anxiety?

LOW	HIGH
1	10

6. How *logical* does this type of treatment seem to you?

LOW	HIGH
1	10

APPENDIX BB

(i) Sequence Checklist for 2nd Visit - Sequence 1

- Welcome the participant to the session and ensure that you have a Research Team Session Journal Form to record observations of the participant's behaviour (points of emotional intensity, dissociation, difficulties understanding instructions, need for frequent breaks, spontaneous comments about current sources of stress or pain, etc.).

- On the last page of the Intake Form there are 4 questions. Ask these, and record participant responses. Try to include major positive or negative events from the previous month in the life of the participant, and ask about physical pain, psychological treatment, and medications.

- If she indicates she ***has*** sought and/or received psychological treatment, try to determine whether this was a crisis intervention (e.g., suicide risk) or a more routine visit. If she ***has*** had treatment other than crisis intervention outside the study, remind her that participants were requested in the Informed Consent form to refrain from (a) seeking outside counseling, and (b) changing medications (including additions of new ones, substitutions, or changes in dosages) while in the study, unless she is in a crisis (i.e., at risk of suicidal behaviour). If she feels such risk is pending, she is requested to contact the Principal Investigator to let him know that she is accessing (or has accessed) outside services.

- Explain that the approximate duration of this visit will be 3.5 hours.

- Notify her that she will have opportunities to take small breaks throughout the session, as needed.

- Offer to provide water and/or other beverages during the session.

- Have the participant complete the Trauma Related Guilt Inventory (TRGI) (approximate completion time = 20 minutes).

- Have the participant complete the Impact of Events Scale – Revised (IES-R) (approximate completion time = 15 minutes).

- Leave the room to get Becky or Karen to administer the AAI.

- Complete the Adult Attachment Interview (AAI) – (Becky or Karen) (approximate completion time = 1.5 hours).

- Complete the Four Additional Qualitative Questions & Dissociation Questions (approximate completion time = 35 minutes – Becky or Karen)
- Becky or Karen leaves the room to get the team member for the final part.
- Inform the participant that she may be repeating some of the shorter tests in the next 2 sessions, because it is important to determine how consistent (stable) participants' responses are.
- Participant completes the Dissociative Experiences Scale (DES) approximate completion time = 15 minutes.
- Participant completes the Beck Depression Inventory II (Beck II) approximate completion time = 5 minutes.
- Participant completes the Peritraumatic Dissociative Experiences Questionnaire (PDEQ) approximate completion time = 5 minutes.
- Participant completes the Social Behaviour Questionnaire (SBQ), Standard Version – approximate completion time = 7 minutes.
- Participant completes the Social Behaviour Questionnaire (SBQ), Cross-Gender Version – approximate completion time = 7 minutes.
- Ask the participant what gender mixture she was thinking of while she was completing the SBQ Standard Version (males, females, or mixed gender) and write that information on the SBQ, Standard Version, at the bottom of the sheet.
- Thank the participant for coming, debrief her, and provide grounding and support, as needed.
- Inform the participant that she will be receiving a phone call to book her next appointment within the next three weeks from one of the Assistants for the study (likely the Session Scheduling Assistant).
- Take all data collected and lock it in the filing cabinet in the Principal Investigator's Office or (if not available), in the Research Lab #1.
- Record any observations about the client for the session in the Research Team Session Journal Form.
- Check that a follow up call is made by the Research Team Coordinator within the following week to touch base with the participant, find out how she is doing and answer any questions.

(ii) Sequence Checklist for 2nd Visit - Sequence 2

- Welcome the participant to the session and ensure that you have a Research Team Session Journal Form to record observations of the participant's behaviour (points of emotional intensity, dissociation, difficulties understanding instructions, need for frequent breaks, spontaneous comments about current sources of stress or pain, etc.).

- On the last page of the Intake Form there are 4 questions. Ask these, and record participant responses. Try to include major positive or negative events from the previous month in the life of the participant, and ask about physical pain, psychological treatment, and medications.

- If she indicates she has sought and/or received psychological treatment, try to determine whether this was a crisis intervention (e.g., suicide risk) or a more routine visit. If she has had treatment other than crisis intervention outside the study, remind her that participants were requested in the Informed Consent form to refrain from (a) seeking outside counseling, and (b) changing medications (including additions of new ones, substitutions, or changes in dosages) while in the study, unless she is in a crisis (i.e., at risk of suicidal behaviour). If she feels such risk is pending, she is requested to contact the Principal Investigator to let him know that she is accessing (or has accessed) outside services.

- Explain that the approximate duration of this visit will be 3.5 hours.

- Notify her that she will have opportunities to take small breaks throughout the session, as needed.

- Offer to provide water and/or other beverages during the session.

- Leave the room to get Becky or Karen to administer the AAI.

- Complete the Adult Attachment Interview (AAI) – (Becky or Karen) (approximate completion time = 1.5 hours).

- Complete the Four Additional Qualitative Questions & Dissociation Questions (approximate completion time = 35 minutes – Becky or Karen)

- Becky or Karen leaves the room to get the team member for the final part.

- Inform the participant that she may be repeating some of the shorter tests in the next 2 sessions, because it is important to determine how consistent (stable) participants' responses are.

- Have the participant complete the Trauma Related Guilt Inventory (TRGI) (approximate completion time = 20 minutes).
- Have the participant complete the Impact of Events Scale – Revised (IES-R) (approximate completion time = 15 minutes).
- Participant completes the Social Behaviour Questionnaire (SBQ), Standard Version – approximate completion time = 7 minutes.
- Participant completes the Social Behaviour Questionnaire (SBQ), Cross-Gender Version – approximate completion time = 7 minutes.
- Ask the participant what gender mixture she was thinking of while she was completing the SBQ Standard Version (males, females, or mixed gender) and write that information on the SBQ, Standard Version, at the bottom of the sheet.
- Participant completes the Dissociative Experiences Scale (DES) approximate completion time = 15 minutes.
- Participant completes the Beck Depression Inventory II (Beck II) approximate completion time = 5 minutes.
- Participant completes the Peritraumatic Dissociative Experiences Questionnaire (PDEQ) approximate completion time = 5 minutes.
- Thank the participant for coming, debrief her, and provide grounding and support, as needed.
- Inform the participant that she will be receiving a phone call to book her next appointment within the next three weeks from one of the Assistants for the study (likely the Session Scheduling Assistant).
- Take all data collected and lock it in the filing cabinet in the Principal Investigator's Office or (if not available), in the Research Lab #1.
- Record any observations about the client for the session in the Research Team Session Journal Form.
- Check that a follow up call is made by the Research Team Coordinator within the following week to touch base with the participant, find out how she is doing and answer any questions.

(iii) Sequence Checklist for 2nd Visit - Sequence 3

- Welcome the participant to the session and ensure that you have a Research Team Session Journal Form to record observations of the participant's behaviour (points of emotional intensity, dissociation, difficulties understanding instructions, need for frequent breaks, spontaneous comments about current sources of stress or pain, etc.).

- On the last page of the Intake Form there are 4 questions. Ask these, and record participant responses. Try to include major positive or negative events from the previous month in the life of the participant, and ask about physical pain, psychological treatment, and medications.

- If she indicates she has sought and/or received psychological treatment, try to determine whether this was a crisis intervention (e.g., suicide risk) or a more routine visit. If she has had treatment other than crisis intervention outside the study, remind her that participants were requested in the Informed Consent form to refrain from (a) seeking outside counseling, and (b) changing medications (including additions of new ones, substitutions, or changes in dosages) while in the study, unless she is in a crisis (i.e., at risk of suicidal behaviour). If she feels such risk is pending, she is requested to contact the Principal Investigator to let him know that she is accessing (or has accessed) outside services.

- Explain that the approximate duration of this visit will be 3.5 hours.

- Notify her that she will have opportunities to take small breaks throughout the session, as needed.

- Offer to provide water and/or other beverages during the session.

- Inform the participant that she may be repeating some of the shorter tests in the next 2 sessions, because it is important to determine how consistent (stable) participants' responses are.

- Have the participant complete the Trauma Related Guilt Inventory (TRGI) (approximate completion time = 20 minutes).

- Have the participant complete the Impact of Events Scale – Revised (IES-R) (approximate completion time = 15 minutes).

- Participant completes the Dissociative Experiences Scale (DES) approximate completion time = 15 minutes.

- Participant completes the Beck Depression Inventory II (Beck II) approximate completion time = 5 minutes.

- Participant completes the Peritraumatic Dissociative Experiences Questionnaire (PDEQ) approximate completion time = 5 minutes.

- Participant completes the Social Behaviour Questionnaire (SBQ), Standard Version – approximate completion time = 7 minutes.

- Participant completes the Social Behaviour Questionnaire (SBQ), Cross-Gender Version – approximate completion time = 7 minutes.

- Ask the participant what gender mixture she was thinking of while she was completing the SBQ Standard Version (males, females, or mixed gender) and write that information on the SBQ, Standard Version, at the bottom of the sheet.

- Leave the room to get Becky or Karen to administer the AAI.

- Complete the Adult Attachment Interview (AAI) – (Becky or Karen) (approximate completion time = 1.5 hours).

- Complete the Four Additional Qualitative Questions & Dissociation Questions (approximate completion time = 35 minutes – Becky or Karen)

- Becky or Karen leaves the room to get the team member for the final part.

- Thank the participant for coming, debrief her, and provide grounding and support, as needed.

- Inform the participant that she will be receiving a phone call to book her next appointment within the next three weeks from one of the Assistants for the study (likely the Session Scheduling Assistant).

- Take all data collected and lock it in the filing cabinet in the Principal Investigator's Office or (if not available), in the Research Lab #1.

- Record any observations about the client for the session in the Research Team Session Journal Form.

- Check that a follow up call is made by the Research Team Coordinator within the following week to touch base with the participant, find out how she is doing and answer any questions.

APPENDIX CC

Intake Interview

Name: Birth Date:

Address:

Home Phone Number: Cell Phone Number:

Next of kin, social support network (is there someone you're comfortable with who could accompany/drive you for support?):

Emergency Contact Name: Phone Number:

Marital/relationship status:

Occupation:

Are you currently in physical pain?:

Medical History:

Current medications (list all, including daily vitamins and supplements):

Name of Physician:

Address:

Phone:

Please Complete & Sign Release of information from General Practitioner Form

(re:current medications):

Allergies (especially related to lotion/cosmetics):

Global medical conditions (epilepsy, fibromyalgia, etc.):

History of brain injuries:

Recent hospitalizations:

History of substance use/abuse? Elaborate:

Illegal drugs, check all that apply (Currently Using-Indicate Frequency & Amount Used):

Marijuana	
Cocaine	
Ecstasy	
Heroin	
Speed	
Acid	
Crystal Meth	

Current/Recent life stresses:

Prior therapy:

Type of therapy:
Presenting Issues:
Length of therapy:
When it took place:

Are you comfortable with a man operating the computer in the lab (QEEG) assessments?

Participant Specifications

Please measure and record carefully, so participants don't have to go through this again!

Colour/Size of cap _____/_____.

Dome Length (vertical)			
Circumference (horizontal)			
Vertical Compass spread			
Horizontal Compass spread			
Hand dominance			
Eye dominance			

Pre-Assessment Interview

1. Have you changed your dosage or intake of medication/other substances in the last month?

---

2. Are you currently experiencing physical pain? Is this a change in the last month?

---

3. Have you participated in any therapy outside of this study in the last month?

---

4. Have you experienced any major life changes in the last month?

APPENDIX DD

Protocol for Placing Electro-cap on Participant

Introduce ourselves-names and what we will be doing today.

Hi my name is Karen	My name is Nadia-thank you for participating in our study

We will be taking two measures of your head.
The first will be the circumference of your head
to fit you for the size of the electro-cap.

The second measure will involve a vertical and horizontal measure to pinpoint two points on your forehead (f1 and f2). These points will be where we will place sponge discs attached to the electro-cap so that we can correctly align each of the electrodes on the scalp to the 8 sites we will eventually take readings of your brainwaves from.

In order to fit you for the cap and take the measurements, our hands will need to touch around your forehead and scalp, is that O.K.?

Now I will measure for the size of cap you will need. I will need to measure 1 inch up from your nasion and place a mark with a china marker that will easily wipe off later.

The nasion is found in the little indent just above your nose and almost level with your eyes. Right here (touch nasion). Measure 1 inch.

This mark is where I will place the measuring tape on. Would you please put your

finger here (show where) and hold it while I bring it around your head? Thank you.

For the second measure I will measure from the nasion to the inion (which is the bump at the back of the head) to get the vertical measure (dome). I am just going to feel for your inion to locate it. I will now place the tape on your forehead. Would you please hold the measuring tape while pull it back? Thank you (record measure in centimeters divide by 10).

For the horizontal measure I will need you to hold the tape here (show- 1" above nasion- make sure you also measure 1" above inion) and I will measure the circumference of your head (record amount, divide by 10 and then divide by two to give the measure to place electrode pads on forehead.

(after measuring both the vertical and horizontal cm on calipers say the following).

We are now going to mark your forehead with the vertical and horizontal measurements with the china marker again so we will know exactly where to place the sponge discs to hold the electro-cap in place.

I am just going to mark the vertical now starting from the nasion and up and place a mark. And then the horizontal marks will be placed, one on each side of the vertical mark. Excellent!

Before we place the electro-cap on, we will be applying some gel to the earlobes and then placing

an ear clip on each ear lobe. The gel cleanses the surface from oils and prepares it for a cleaner reading of brain waves. Would it be O.K. to use our fingers to apply the gel? Thank you.

Now we will apply the clip. Let us know if there is any discomfort (put red clip on right ear, white clip on left ear- Do not cover over any ear holes).

We will also be taking these blunts and gently abrading the surface of your ear and then inserting some electro gel into the opening to help prepare the surface as well (go ahead and abrade).

Here is the electro-cap. These two pads will be placed on the marks we made on your forehead. We will ask you to hold them while we stretch the cap over your entire head.

These are the electrode openings we will be placing close to your scalp (show electrode placements).

Pointing: These two points measure the f3 and f4 which measure the frontal part of the brain. The next two electrodes are called fz and cz and they will measure the brain waves of the □ounse and □ounseling gyrus. The two sites p3 and p4 are located at the parietal lobes. The last two sites measure the occipital lobes which are referred to as o1 and o2.

We will now place the sponge discs on your forehead marks. Would you please hold firmly while we place each electrode on your scalp? Thank you.

Check in to make sure participant is O.K. Would you like a neck brace while we secure the cap? (If yes, place around the back of her neck).

As we are placing the electrodes at each site we will be using the wooden end of this applicator to spread your hair away from the scalp (start placing electrodes).

Once the cap is tightly on: Get the client to secure the chins straps herself.

I am now going to smooth the cap down tighter over your scalp to make sure the electrodes are close to your head. How is that?

We will also attach the ear electrodes now.

Next we will abrade the surface where each electrode is and insert electro gel in each opening just like we did with the ears. You may feel some sensation as we do this. Please let us know if there is discomfort at any time (proceed).

All done. The next stage is conducting an impedance check. We will check each electrode site to make sure that there is no interference of any kind with the reading of the brainwaves. For example: Sometimes hair can block the surface and prevent a clean reading. We need to have a reading of 5.0 kiloohms or less at each of the four locations before we can begin to measure brain wave.

If we don't have a clean reading we may need to Abrade the surface and reinsert the electro gel in the opening again, or add a bit of nuprep gel to get a clearer reading (re-abrade if necessary after checking each of the four toggles sites).

Great job! Impedance is down. We can now Move onto the next stage.

APPENDIX EE

Quantitative Electroencephalography Assessments with Traumatic Memory Inventory

Post Script

0. Preparation: 0.1 Name tags for participants with their file numbers on them
7. Photocopying:
8. TMI-PS forms, with file nos. & date
9. Impedance Check Forms
10. qEEG Recording Sheets (counterbalanced A, B or C)
11. 1 copy per participant of Session Journal Form
12. Copies of additional Dissociation questions on sheets
13. Copies of head measurement sheets for files (on right)
14. Tray prepared with all items listed elsewhere for tray
15. Room preparation (chairs, laptop computer, table, E2, Mini-Q)
16. Audiotape player with speakers, individualized Trauma tapes
17. Backup 9-volt batteries (4) for E2, voltage meter, Rescue kit
18. Grounding unit with wrist straps, connected to wall socket (gnd)
19. Correct size of Electro-Cap & □ounseli sized for measurements
20. Refreshments (water, tea, coffee), including cups, plates, etc.
21. Blue files (letter size, 2-hole punched both sides w. clamps)
22. Camera (1) with 2-hour blank videotapes (1 loaded)
23. Soothing objects (stuffed animals) and mark on paper for wall

1. Each participant will be welcomed to the lab by a female researcher, and taken to a room other than the lab to complete the questionnaires.
24. Remind participants that some instruments may be repeated for research.
25. Complete Trauma-Related Guilt Inventory ("Trauma Response Form"). (approximately 20 minutes)
26. Complete Impact of Events Scale – Revised (IES-R) (approx. 15 minutes)
27. Complete Social Behaviour Questionnaire – Standard Version, and ask participant what the gender mix imagined was (men, women, mixed). Note result on bottom of the sheet (7 min).
28. Compete the Social Behaviour Questionnaire – Cross-Gender Version (5 min.)
29. Complete Myers-Briggs Type Indicator (MBTI) (approximately 45 minutes)
30. Participant is taken to the "lab" and the procedures are explained to them.
31. During the welcome, assessment and ending portions of this session the assessors will record any observations on Session Journal Forms.
32. The TMI-PS assessor asks questions from the back of the Intake Form. This includes medications, outside □ounseling, pain & stressors.
2. From this point on, the assessors follow the Impedance Check Sheet & qEEG Recording Sheet. Lab session starts with E-Cap Techs (2) & Computer Operator.
   - 2.1. Assessors offer to provide grounding & support, as needed, by participant
   - 2.2. Explanations of the procedure are given (see descriptions of explanations elsewhere in manual for narrative information provided by E-Cap Techs).
   - 2.3. Participant is told that it is best to use washroom now, since it is difficult to stop in the middle of an E-Cap assessment. Also told it is possible to stand or talk between *groups* of 15-second "runs" if necessary.
33. Techs mark forehead using □ounseli, and china pen.

34. Techs use Nu-Prep to prepare ears, place Ear Clips, and abraid ear cups.
35. Techs place sponge disks for E-Cap on forehead marks, and ask participant to hold cap in place while they abraid the rest of the scalp
36. Techs apply Nu-Prep as they go, clearing electrode sites for the Ground, Fz & Cz, F3 & F4, P3 & P4, and O1 & O2) using both ends of a Q-Tip
37. Techs abraid Active & Reference sites (blunt syringes & Q-tip wood ends):
38. Techs abraid Ground; Computer Operator connects Ground & A1 reference to Checktrode (to impedance of scalp < 5 kohms)
39. Techs abraid Active Fz; Computer Operator connects Fz active & A1 reference to Checktrode (to impedance of scalp < 5 kohms)
40. Techs abraid Active Cz; Computer Operator connects Cz active & A2 reference to Checktrode (to impedance of scalp < 5 kohms)
41. Techs abraid F4; Computer Operator connects Active F4 & A2 reference to Checktrode (impedance < 5 kohms), Mini-Q T2
42. Techs abraid P4; Computer Operator connects Active P4 & A2 reference to Checktrode (impedance < 5 kohms), Mini-Q T4
43. Techs abraid O2; Computer Operator connects Active O2 & A2 reference to Checktrode (impedance < 5 kohms), Mini-Q T6
44. Techs abraid F3; Computer Operator connects Active F3 & A1 reference to Checktrode (impedance < 5 kohms), Mini-Q T2
45. Techs abraid P3; Computer Operator connects Active P3 & A1 reference to Checktrode (impedance < 5 kohms), Mini-Q T4
46. Techs abraid O1; Computer Operator connects Active O1 & A1 reference to Checktrode (impedance < 5 kohms), Mini-Q T6
47. Techs check left & right qEEG measurements to ensure < .5 kohm diff Computer Operator toggles to Fz & Cz (Toggle 1). If higher than .5 Kohm difference between left and right, continue to abraid higher of the 2. Computer Operator continues to check site pairs at each toggle on Mini-Q

48. E-Cap Techs leave the room with tray to clean, and the TMI-PS Interviewer enters

49. Computer Operator explains the procedure for taking qEEG measurements:
50. 15-second runs *during* which participants should remain as follows:
51. Not talking, moving or blinking
52. Sitting straight up against back of chair, with feet flat on floor
53. Mouth softly open (avoiding clenching jaw or grinding teeth)
54. Gazing at the circle on the wall in front (not staring or “blanking out”)
55. Relaxing shoulders and neck (rather than raising shoulders)
56. Times *between* 15-second runs, during which participants may:
57. Talk, move or blink
58. Cross legs or stand if necessary
59. Allow gaze to wander, or close eyes
60. Shrug shoulders or stretch neck somewhat

61. There will be 3 groups of “runs”, as follows:
62. Baseline, Trauma Script, and TMI-PS Interview
63. Each group of runs will involve 4 consecutive pairs of electrodes
64. Some runs involve “Eyes Open”-“Eyes Closed”- “Eyes Open”; Half of the pairs only involve 2 “Eyes Open” conditions.

65. Participants & Computer Operator implement the above-noted progressions

66. TMI-PS interviewer reinforces “present tense” (“You’re not back there”; “You’re out of there now”; “We’re here for you now”; + B.R.A.I.N. works).
67. TMI-PS interviewer monitors participant’s emotional state, especially during Trauma tape and TMI-PS presentations). Uses B.R.A.I.N. techniques.
68. TMI-PS interviewer starts Trauma tape that should be in tape player.

69. TMI-PS interviewer asks TMI-PS questions up to the first cognitive question on the sheet, then cues the participant and Computer Operator to start the qEEG assessment.

70. When the qEEG test is completed, the E-Cap can be removed for comfort.

71. TMI-PS interviewer asks about dissociative symptoms (if any, see sheet) that the participant experienced, including the Glasgow Coma Scale. She resumes the TMI-PS to the end of that form and finishes with B.R.A.I.N. techniques, as needed, reinforced by all female team members. Complete list of calming colours, objects.

72. Participants given calming and soothing products & foods (bath products, teas, aromas, chocolates). They will be thanked for their participation, and informed that they will be receiving phone calls to book their appointments for therapy sessions within the next two or three weeks by one of the Assistants for the study (Session Scheduling Asst.) (if they are in active therapy groups).

10. Following completion of the qEEG Assessment Session, assessors will take all data collected (Impedance Check Forms, qEEG Recording Forms, and Session Journal Forms) and lock them in the filing cabinet in the Principal Investigator’s Office or (if not available), in Research Lab #1.

11. Assessors (TMI-PS & Computer) will record any observations about participants during the session as well as the exact sequence of events that took place on the Session Journal Forms. Those will go in participant files (blue letter-sized files, using 2-hole clamps, with Session Journal Forms, Impedance Check & qEEG Recording Forms placed on the right-hand side and TMI-PS on the left).

73. A follow up call will be made by the Research Team Coordinator within 2 days to touch base with each participant, find out how she is doing, encourage her to continue, and answer any questions.

APPENDIX FF

Traumatic Memory Inventory -- Post-Script Version

(Hopper & van der Kolk, 2001)

Subject ID:_____ Interviewer:_____ Date of Assessment_____

(Clients name) Just now, as you listened to the tape, and remembered the traumatic experience today, how did you remember it? **(what stood out for you when you remembered the traumatic experience? Did you remember the event as a whole or in parts? Can you tell me more of how you remembered the event? Experiences could include thoughts, sensations, or images)**

(Questions should always be singular – ask if there was a memory, then ask if there was another. Did you see something? Did you see anything else? Record in an item by item approach)

Memories can have a variety of components. They may include visual images, physical sensations, sounds, smells, etc. The next questions are about these possible components of your memory.

I'm going to ask you two questions about some components of your memory today. First, I will ask you to rate their intensity, with 0 being not at all present, and 10 being the most intense possible.

0	10
not at all present	most intense

Second, I will ask you to rate the extent to which you re-lived the event with 0 being not at all present, and 10 being the most intense possible. For example, you may have re-lived images or sensations of the event during this time. This is opposed to just remembering them. For example, you may have felt like you were hearing the same sound all over again, or just remembering hearing that sound. Do you understand the difference?

Intensity/Reliving

Just now, as the tape was played and after you heard the tape, as you remembered the event, did you have a visual image? Y N (Visual) What did you see?

_____

_____

Anything else?_____

Just now, in remembering the event, did you experience a physical sensation? Y N (Physical) What did you feel in your body? Did you have another physical sensation? (repeat until no more sensations)_____

Just now, did you experience a smell? Y N (Olfactory) What did you smell? Did you experience another smell? (repeat until no more sensations)_____

In remembering the event, did you hear a sound? Y N (Auditory) What did you hear? (repeat until no more sensations)_____

Just now, as you listed to the tape, did you experience an emotion? Y N (Affective) How did you feel emotionally? Did you have another emotion?

i.e. Anger?
Fear?
Sadness?
Shame?
Anxiety?

Just now, did you have a thought about the situation Y N (Cognitive) What did you remember thinking? Did you have another thought?

Just now, as you were remembering the traumatic event, did you experience components together (i.e. visual, physical, smells, sounds, emotions, thoughts)? Of those components present, did you remember all of them at the same time?

Could you recount this event to someone as a coherent story? (could you provide a full story with all the details?)

Would you be able to talk about what happened today, without being interrupted by associated feelings or perceptions? Explain. (Could you talk about your experience without being overwhelmed by emotion?)

I'm going to ask you two questions about some components of your memory today. First, I will ask you to rate their intensity, with 0 being not at all present, and 10 being the most intense possible.

0	10
not at all present	most intense

Second, I will ask you to rate the extent to which you re-lived the event with 0 being not at all present, and 10 being the most intense possible. For example, you may have re-lived images or sensations of the event during this time. This is opposed to just remembering them. For example, you may have felt like you were hearing the same sound all over again, or just remembering hearing that sound. Do you understand the difference?

Summary: Intensity Reliving

_____Visual_____

_____Tactile_____

_____Olfactory____

_____Auditory_____

_____Affective_____

Y N Cognitive
Y N Components Together
Y N Narrative
Y N Without Interruptions

Was your response to the memory today a typical response for you, or was it different than how you usually respond to a strong reminder?

Typical Not Typical How?

(Listen for subject's report, and write below. Ask follow-up clarifying questions sparingly, and record them as well)

Were you thinking about or remembering anything else while listening to the tape and/or during the post-tape remembering phase? (if yes, what was she thinking and at what points?)

APPENDIX GG

Rationale for Therapists and Manualized Protocols for Each Treatment

(By Rick Bradshaw)

I think in an ideal world, I would have loved to have 2 disciples of some Cognitive Therapy guru to administer the CT stuff, however:

(a) that would have involved paying and coordinating 4 therapists (in previous comparative treatment outcome studies they have had the same therapists administering EMDR and PE or CT – e.g., Taylor et al from UBC).

(b)both Gillian and Tanya have some training and experience in delivering Cognitive Therapy, so it is not foreign to them.

1. I created a manualized protocol for all 3 of the therapies that includes PowerPoint presentations with video clips (the same actors playing the same roles, to equalize across therapies), and they (Gillian & Tanya) both went through a 2-hour training & demonstration videotape by Patty Resick on CPT, and used the same forms, and even the scripts for 4 of the 6 role-play demos were directly out of Patty Resick's own manual. I also collapsed Patty's 5-concept therapy guide into worksheets and created therapist responses contingent on the items endorsed by participants on those sheets.

(d) The OEI DVD that you have constitutes most of the manualized protocol I created for the OEI therapy, incidentally.

2. I extracted the Cognitive components from Cognitive Processing Therapy, to test the Schema Discrepancy Hypothesis in a more pure way (since CPT is actually a hybrid that includes aspects of exposure therapies as well as CT). The exposure components weren't excluded, but rather, were equalized across the 3 groups, using (i) script-driven symptom provocation (ii) Traumatic Scene Form and Clinician-Administered PTSD Scale exercises, and (iii) the Traumatic Memory Inventory-Post Script Version (which together constitute most of the exposure work that occurs in CPT).

3. I looked into getting certifications in CT for Gillian & Tanya, but discovered that there is no "global Cognitive Therapy Certification": People receive training in packaged approaches for the most part (10-12 sessions of some variation), as is the case with full CPT training. Since in this study we are comparing apples to apples (3 sessions and a psychoeducational group session for each therapy), it is a different model than any of the "packaged programs" like Cognitive Processing Therapy or Prolonged/Imaginal Exposure Therapy.

APPENDIX HH

Sexual Assault & PTSD

Psychotherapy Overview for Therapist-Directed Active Treatments:

Cognitive Therapy & One Eye Integration

Guiding Principles

1. All interactions with participants must include core empathy & reflection.

2. Therapeutic regimens should not cross-over (i.e., no CT techniques in OEI).

3. Therapeutic protocols should be followed accurately per manualizations.

4. Core Empathy & Reflection

In order to establish trust and rapport with participants (so necessary for the development of therapeutic engagement), the psychotherapists should ensure that they convey warmth, genuineness and unconditional positive regard, verbally (through paraphrasing, active listening and advanced empathic statements), paraverbally (softer tones of voice, higher pitch, moderate pacing of speech, and use of supportive vocalizations (“um-hmm”, “uh-huhhh”)) and non-verbally (providing eye contact, nodding, smiling, and tolerating silence).

5. Cross-Over Avoidance

This is much less likely to occur, or warrant serious concern, for □ounseling sessions where Cognitive Therapy is being provided, than during sessions where One Eye Integration is being administered. The techniques of Cognitive Therapy are much more verbal (and therefore more likely to occur or be introduced inadvertently) than such specialized and deliberate non-verbal techniques as One Eye Integration. Examples to avoid in OEI sessions would include: Disputing distorted cognitions, challenging maladaptive schemas and correcting faulty thinking *verbally* (orally or in writing) during OEI sessions.

In OEI sessions, therapists are permitted to address *spontaneously-emerging* cognitions, but the work should involve almost exclusively nonverbal intervention (voice primarily used *para*verbally to provide support and encouragement, rather than to dispute beliefs.or self-talk). An acceptable example would be for the client to be told to “focus on a disturbing internal self-critical statement that just emerged

while attending to a physical sensation" while the therapist "tracks" through the visual field(s) until the disturbing thought is "the loudest, the most disturbing, or the most believable". The therapist would, upon having the participant identify that location, "massage" the participant's eye(s) in that area until the intensity subsided.

6. *Manualized Protocol Administration*

The OEI therapy protocol for this study is delineated in (a) a PowerPoint presentation with video clips; (b) a 2-hour training video led by Dr. Rick Bradshaw, co-developer of OEI, and (c) a collection of handouts for therapists. Likewise, the variant of CPT used in this study is delineated in (a) a PowerPoint presentation with video clips; (b) a 2-hour training video led by Dr. Patricia Resick, co-developer of CPT, and (c) a collection of handouts for therapists.

In each group session (OEI and CPT), *overviews* of the therapies are provided and *prerequisite/foundational knowledge* is presented. In all individual therapy sessions with participants, use of the various core techniques is individualized, depending on the unique presentations of participants. It was considered more efficient to quickly identify areas associated with disturbing somatic or affective states and/or disturbing or confusing thoughts & beliefs, rather than having all participants receive identical treatments. With the latter approach, participants would likely resign from the study, since they would not be experiencing meaningful interactions with research team members. Instead, they would be receiving applications of rigid therapeutic templates which would fail to directly address their concerns.

Participants will be encouraged to practice and apply the techniques they learn in all 3 group sessions, *between* any therapist-administered individual sessions, and *during* follow-up periods (3 months between post-treatment and 3-month follow-up assessments; and 3 months between 3- and 6-month follow-up evaluations). Finally, in the second phase of treatment (following the 6-month follow-up assessment), participants will be asked to refrain from using the therapy techniques during the first phase of the study (if *any* active treatment was provided)

APPENDIX II

Rationales for the Use of One Eye Integration Techniques

Prepared by

Richard A. (Rick) Bradshaw, Ph.D., R.Psych.

First, it should be noted that these One Eye Integration (OEI) techniques have been used in psychotherapy by the developer of the techniques (Audrey Cook) and her collaborator (Rick Bradshaw) for approximately 7 years (almost 15,000 hours of psychotherapy) with excellent results. Secondly, approximately 750 copies of the Clinical Manual for the Techniques have been sold, and these procedures are being used in Canada, the United States, Australia and South America. Most clinicians using the techniques have also been trained in a similar set of techniques for trauma therapy, called "Eye Movement Desensitization & Reprocessing" (EMDR).

There has been a good deal of research documenting changes in brain functioning in people suffering from Posttraumatic Stress Disorder (PTSD) Among those differences are the following:

(a) The part of the brain that puts events in time context (present vs. past) and assigns level of threat ("grizzly bear in the living room" vs. "grizzly bear at the zoo") is reduced in functioning. It seems that as a result, traumatic memories have a "present tense" (re-experiencing) feel to them tha t is different than regular memories (OEI seem to assist in processing intense post-traumatic fragments of memories into *less* disturbing, "past tense" formats);

(b) The part of the brain that differentiates between traumatic reminders ("triggers") and current dangers is also reduced in functioning after traumas (OEI seems to allow this part of the brain to resume normal functioning, thereby reducing PTSD symptoms);

(c) One side of the brain is more associated with higher physical & emotional arousal than the other side (OEI seems to help reduce this difference);

(d) The part of the brain that is primarily responsible for generating speech is reduced in functioning, with the effect that triggered fragments of memory (sounds, pictures, body sensations, smells) are *re-experienced,* rather than voluntarily *recalled* in clear, coherent formats that are easy to describe to others (OEI seems to restore the ability to place *traumatic fragments* of memory into less intense, narrative recollections).

It seems that the pattern of alternating visual attention from one side to the other induces a pattern of activity in the brain that is similar to Rapid Eye Movement (REM) sleep. This, in turn, helps process the fragmented intensity of recollections in the parts of the

brain with the highest arousal into the less intense, more verbal recall of memories.

One of the world leaders in research and treatment of PTSD completed a very similar study to the one we are engaging in here successfully. Subjects benefited considerably from the 3 sessions of psychotherapy, and brain changes (improvements) were observed following these interventions.

A more detailed and technical version of these rationales for One Eye Integration Therapy is available upon request from the Principal Investigator.

Thank you for your contribution to the growing body of knowledge about the effective treatment of Posttraumatic Stress Disorder (PTSD).

Sincerely,

Richard A. Bradshaw, Ph.D.
Registered Psychologist & Principal Investigator
Associate Professor of Counselling Psychology
Trinity Western University, Langley, B.C. Canada

(604) 513-2121 Ext. 3382

APPENDIX JJ

One Eye Integration vs Cognitive Processing Therapy-Revised Protocol Comparability

OEI	***CPT-R***
Manualization for therapists from 2-hr. video with developer interacting with a client, and commenting + book	Manualization for therapists from 2-hr. video with developer interacting with a client, and commenting + book
Conceptual & procedural overviews with rationales for therapy provided in 2-hr. group session w. 2 therapists	Conceptual & procedural overviews with rationales for therapy provided in 2-hr. group session w. 2 therapists
PowerPoint presentation with video clips and female actors used in 2-hr. group session	PowerPoint presentation with video clips and female actors used in 2-hr. group session (same actors used)
Three active individual therapy sessions provided (approx 1 hr each)	Three active individual therapy sessions provided (approx 1 hr each)
Core of treatment protocol required demonstration of empathy & reflection	Core of treatment protocol required demonstration of empathy & reflection

for participants, and avoidance of core procedures or concepts from CPT-R Prior to active individual therapy, all participants had 2-hr group sessions during which symptoms of PTSD were reviewed, and a series of relaxation techniques were taught	for participants, and avoidance of core procedures or concepts from OEI Prior to active individual therapy, all participants had 2-hr group sessions during which symptoms of PTSD were reviewed, and a series of relaxation techniques were taught

APPENDIX KK

Sexual Assault & Posttraumatic Stress Disorder Study

Cognitive Therapy Protocol

Excerpts and Adaptations from Resick (2001)[4]

Assimilation:

Before addressing any of the 5 cognitive themes, it is important to determine whether or not any given participant is engaging in Assimilation. That may include doubt or denial that the event was a crime (as opposed to a "misunderstanding"), guilt over what she did or did not do during the assault, including self-blame for the event (time of day, clothes worn, alcohol or drug consumption, etc.). See the first example on the "Stuck Points – What Are They?" Sheet.

Over-Accommodation

Next in line for therapist attention should be Over-Accommodation, which may include any number of negative over-generalizations about men, night hours (dark), activities inside or outside the home (depending on when her particular assault occurred) and about the future (relationships).

E. SAFETY ISSUES

Beliefs Related to Self

If 1 (a) is endorsed:

If she previously believed she had no control over events and could not protect herself, the traumatic event will confirm these beliefs. New beliefs must be developed that mirror reality and serve to increase her belief about her control and ability to protect herself. A self-statement may be "I do have some control over events and I can take steps to protect myself from harm. I cannot control the behaviour of other people, but I can take steps to reduce the possibility that I will be in a situation where my control is taken from me."

If 1 (b) is endorsed:

If she previously believed "It can't happen to me," she will need to resolve the conflict between this belief and the victimization experience. Possible self-statement may be "It is unlikely to happen again, but the possibility exists."

If she previously believed "I can control what happens to me and can protect myself from any *harm,"* she will need to resolve the conflict between prior beliefs and the victimization experience. Possible self-statement may be "I do not have control over *every*thing that happens to me, but I can take precautions to reduce the possibility of future victimization."

Beliefs Related to Others

---

[4] Cognitive Processing Therapy Manual

If 3 (a) is endorsed:

If she previously believed "'Others are out to harm me and can be expected to cause harm, injury or loss," she will need to adopt new beliefs in order for her to be able to continue to feel comfortable with people she knows and be able to enter into new relationships with others. Possible self-statement may be "There are some people out there who are dangerous, but not everyone is out to harm me in some way."

If 3 (b) is endorsed:

If she previously believed "I will not be hurt by others," she will need to resolve the conflict between that belief and the victimization. Possible self-statement may be "There may be *some* people who will harm others, but it is unrealistic to expect that everyone I meet will want to harm me."

B. TRUST ISSUES

Beliefs Related to Self

If 1 (a) is endorsed:

If she previously believed she could not rely on her own perceptions or judgements, the traumatic event may have reinforced her belief "I cannot trust my judgement" or "I have bad judgement." In order to come to understand that the traumatic event was not her fault and that her judgements didn't cause the traumatic event, she needs to adopt more adaptive beliefs. Possible self-statements may be:

"I can still trust my good judgement even though it's not perfect".

"Even if I misjudged this person or situation, I realize that I cannot always realistically predict what others will do or whether a situation may turn out as I expect it to".

If 1 (b) is endorsed:

If she previously believed she had perfect judgement, the traumatic event may shatter that belief. New beliefs need to reflect the possibility that she can make mistakes but still have good judgement. Possible self-statement may be: "No one has perfect judgement. I did the best I could in an unpredictable situation and I can still trust my ability to make decisions even though it's not perfect."

Beliefs Related to Others

If 3 (a) is endorsed:

If she had the prior belief "No one can be trusted," which was confirmed by the traumatic event, she will need to adopt new beliefs which will allow her to enter into new relationships with others instead of withdrawing because she believes others are untrustworthy. A possible resolution may be "Although I may find some people to be untrustworthy, I cannot assume that *every*one is that way." Additional resolutions include "Trust is not an all-or-nothing concept. Some may be more trustworthy than others." "Trusting another involves some risk, but I can protect myself by developing trust slowly and including what I learn about that person as I get to know him/her.

If 3 (b) is endorsed:

If she grew up believing that "Everyone can be trusted," the traumatic event will shatter that belief. In order to avoid becoming suspicious of the trustworthiness of others, including those she used to trust, she will need to understand trust is not either/or. "I may not be able to trust everyone, but that doesn't mean I have to stop trusting the people I used to trust."

If 5 (a) is endorsed:

If her beliefs about the trustworthiness of her support system were shattered, it will be necessary to address general issues before she assumes she can no longer trust them. Of central importance is to consider their reactions and the reasons *why* they may have reacted in unsupportive ways. Many people simply don't know *how* to respond, and may be reacting out of ignorance. Some respond out of fear or denial because what has happened to her makes them feel vulnerable and may shatter *their* beliefs.

Practicing how to ask for what she needs from those in her support system may be a step to take in assessing their trustworthiness. If her attempts to discuss the traumatic event with them leave her feeling unsupported, she may resolve the conflict by adopting the belief: "There may be *some* people I can't trust to talk with about the traumatic event, but they can be trusted to support me in *other* areas."

If that person continues to blame her and make negative judgments about her, she may decide that person is no longer trustworthy. It's unfortunate, but sometimes she will find out that some people she thought of as 'friends' don't turn out to be *true* friends after victimization; however, she may also be pleasantly surprised to find that some people have better reactions than she expected.

C. POWER & CONTROL ISSUES

Beliefs Related to Self

If 1 (a) is endorsed:

Resolution for helpless beliefs: In order to regain a sense of control and decrease the accompanying symptoms of depression and loss of self-esteem that often go along with believing she is helpless, she will need to reconsider the controllability of events. A possible self-statement could be, "I cannot control *all* events outside of myself, but I do have *some* control over what happens to me and my reactions to events."

If 1 (b) is endorsed:

Resolution for over-control will involve understanding that no one can have complete control over her emotions or behavior at all times. And, while she may influence them, it is impossible to control all external events or the behaviour of other people. Neither of these facts represent signs of weakness, only an understanding the she is human and can admit that she is not in total control of everything that happens to her or her reactions. A possible self-statement may, be "I don't have total control over my reactions, other people, or events at all times. I'm not powerless; however, to have *some* control over my reactions to events, or to influence the behaviour of others or the outcome of some events."

Beliefs Related to Others

If 3 (a) is endorsed:

Powerlessness – In order for her to avoid being abused in relationships because she does not exert any control, she will need to learn adaptive, balanced beliefs about her influence on other people. Possible self-statement could be, "Even though I can't always get everything I want in a relationship, I do have the ability to influence others by standing up for my right to ask for what I want."

If 3 (b) is endorsed:

Over-control – It is important to realize that healthy relationships involve sharing power and control. Relationships in which one person has all the power tend to be abusive (even if she is the one with all the power). Possible self-statements are "Even though I may not get everything I want or need out of a relationship, I can assert myself and ask for it." A good relationship is one in which power is balanced between both people. If she isn't allowed any control, she can exert her control in a negative or abusive relationship by ending it, if necessary.

D. ESTEEM ISSUES

Beliefs Related to Self

If 1 (a) is endorsed:

If she had prior experiences that left her believing she was worthless (or *any* of the beliefs listed below 1(a)), the traumatic event may seem to confirm that belief. This can also occur if she received poor social support after the event. In order to improve her self-esteem and reduce the symptoms that often go along with it, she will need to re-valuate her beliefs about her self-worth, and begin to replace maladaptive beliefs with more realistic, positive ones. Possible self-statements include:

"Sometimes bad things happen to good people".

"Just because someone says something bad about me, that doesn't make it true".

"No one deserves *this*, and that includes me".

"Even if I *have* made mistakes in the past, that doesn't make me a *bad person*, deserving of unhappiness or suffering (including the traumatic event)".

If 1 (b) is endorsed:

If she had positive beliefs about her self-worth before the traumatic event, she may have believed "Nothing bad will happen to me because I'm a good person." The event may have disrupted such beliefs, and she may begin to think she's a bad person because this event happened, or look for reasons why it happened or what she did to deserve it (i.e., "Maybe I was being punished for something I'd done, or because I'm a bad person.")

In order to regain her prior positive beliefs about her self-worth, she'll need to make some adjustments, so that her sense of worth is not disrupted every time something unexpected and bad happens to her. When she can accept that bad things might happen to her (as they happen to everybody from time to time), she'll let go of blaming herself for events she didn't cause.

Possible self-statements include:

"Sometimes bad things happen to good people".

"If something bad happens to me, it's not necessarily because I did something to cause the event, or because I deserved it".

"Sometimes there's *no good explanation* for why bad things happen".

Beliefs Related to Others

If 4 (a) is endorsed:

It will be important for her to reconsider the automatic assumption that people are "no good", and consider how that belief has affected her behaviour and social life in general.

When she first meets someone it is important that she doesn't form snap judgments, because these tend to be based on stereotypes, which are not generally true for the majority of people she will meet. It's better to adopt a "wait and see" attitude, which allows her flexibility in developing her perceptions of the other person, and doesn't penalize the person who she is trying to get to know.

If, over time, that person makes her uncomfortable, or does things that she doesn't approve of, she's free to stop trying to develop the relationship, and end it.

She needs to be aware, however, that *all* people make mistakes, and consider her ground rules for friendships or intimate relationships. If she confronts a person with something that makes her uncomfortable, she can use that person's reaction to her request in making a decision about what she wants from that person in the future (i.e., If the person is apologetic and makes a genuine effort to avoid making the same mistake in the future, then she might want to continue getting to know that person. On the other hand, if the person is insensitive to her request or belittles her in some other way, she may want to get out of that relationship).

The important point is that, like trust, she needs time to get to know someone, form an opinion of them. It is important that she adopts a view of others that is balanced and allows for changes.

A possible self-statement is "Although there are people I don't respect and don't want to know, I can't assume that about everyone I meet. I may come to that conclusion later, but it'll be after I've learned more about this person."

If 4 (b) is endorsed:

If those she expected support from let her down, she needs to be encouraged not to drop those people altogether at first. Encourage her to talk to them about how she feels, and what she wants from them. Encourage her to use their reactions to her requests as a way to evaluate where she wants her relationships to go. A possible self-statement could include: "People sometimes make mistakes. I will try to find out whether they understand it was a mistake or whether it reflects a negative characteristic of that person, which may end the relationship for me, if it is something I cannot accept."

E. INTIMACY ISSUES

Beliefs Related to Self

If 1 (a) is endorsed:

Understanding normal reactions following traumas may help her feel less panicky about what she is experiencing. It is important to emphasize that most people can't recover from such major traumatic events without the support of others. External sources of comfort such as alcohol or food, however, are just crutches which, instead of helping her to recover, may in fact prolong her reactions. Those temporary resournces may comfort her in the short-run because she has used them successfully to avoid and suppress her feelings. The feelings don't go away, however, and then she also has to deal with the consequences of the excess food, spending, alcohol, etc., which just compounds the problem.

Possible self-statements to work on with her include:

"I will not suffer forever".

"I can soothe myself and use the skills I have learned to cope with these negative feelings".

"I may need help dealing with my reactions, but that is normal".

"Even though my feelings are quite strong and unpleasant to experience, I know they are temporary and will fade over time".

"The skills and abilities I am developing now will help me to cope better with other stressful situations in the future".

If 1 (b) is endorsed:

Nothing needs work in this area, except perhaps some reminders to use the self-soothing techniques which were included in the B.R.A.I.N. program.

Beliefs Related to Others

If 3 (a) is endorsed:

In order for her to again have intimate relationships with others, she will need to adopt new, more adaptive beliefs about intimacy. Intimate relationships take time to develop and involve effort from both people. It is important to stress that she is not solely responsible for the failure of prior relationships. The development of relationships involves risk-taking, and it is possible that she may be hurt again. Staying away from relationships for that reason alone, however, is likely to leave her feeling empty and alone.

Possible self-statements regarding new relationships include:

"Even though a former relationship didn't work out, it doesn't mean that I can't have satisfying intimate relationships in the future".

"I can't continue to believe and behave as though everyone will betray me".

"I will need to take risks in developing relationships in the future, but if I take it slow, I'll have a better chance of telling whether any particular person can be trusted".

If 3 (b) is endorsed:

Not too much to work on, since the prior history of solid relationships will likely serve to frame an interpretation of the sexual assault/betrayal as a "statistical outlier" rather than something to be generalized to others in the world in general.

If 5 (a) is endorsed:

Encourage her to attempt to resolve her issues with the people who let her down and hurt her, by asking from them what she needs, and letting them know how she feels about what they said or did. Stress that if those people are unable to adjust to her requests or give you what she needs, she may decide that she can't be c!ose to those people any longer. She may find, however, that they responded the way they did due to ignorance or fear. As a result of her efforts, communication may improve and she may end up feeling closer to them than she did before the sexual assault.

Possible self-statements to encourage, regarding existing relationships, include:

"I can still be close to people, but I may not be able (or want) to be intimate with everyone I meet".

"I may lose prior or future intimate relationships with others who can't meet me half-way, but that's not my fault or due to the fact that I didn't try".

If 5 (b) is endorsed:

Again, not likely much to work on, since the validation and support from solid relationships has confirmed, and will continue to confirm, that others in her social network can be relied upon for encouragement and strength during times of upheaval and crisis.

APPENDIX LL

Cognitive Processing Therapy Issues Checklists

Participant No: _____ **A. Safety Issues** Date: _____

Beliefs Related to Self

1. *Before the sexual assault*, which was closest to your experiences & beliefs:

☐ (a) You were repeatedly exposed to dangerous and uncontrollable life situations and believed you could not protect yourself from harm; or

☐ (b) You did not have previous exposure to dangerous or uncontrollable life situations and believed that you had control over most events and could protect yourself from harm.

2. Which of the following symptoms have you had related to self-safety beliefs?

☐ (a) Chronic and persistent anxiety

☐ (b) Intrusive thoughts about themes of danger

☐ (c) Irritability

☐ (d) Startle responses or physical arousal

☐ (e) Intense fears related to future victimization

Beliefs Related to Others

3. Before the sexual assault which was closest to your beliefs?

☐ (a) Most men are dangerous and will force women sexually; or

☐ (b) Most men are safe and will not force women sexually.

4. Which of the following symptoms have you had related to other-safety beliefs?

□ (a) Avoidant or phobic responses (afraid of the dark, avoiding men, etc.)

□ (b) Social withdrawal (not going out much, not having friends over, not dating)

B. Trust Issues

Beliefs Related to Self

5. *Before the sexual assault*, which was closest to your experiences & beliefs?

□ (a) You were repeatedly blamed for negative events growing up so didn't trust your ability to make decisions or judgments about situations or people; or

□ (b) You had prior experiences that led you to believe that you had perfect (or at least excellent) judgment about situations or people.

6. Which of the following symptoms have you had related to self-trust beliefs?

□ (a) Feelings of self-betrayal

□ (b) Anxiety

□ (c) Confusion

□ (d) Overcautious

□ (e) Inability to make decisions

□ (f) Self-doubt and excessive self-criticism

Beliefs Related to Others

7. Before the sexual assault which was closest to your beliefs?

□ (a) You were betrayed early in life, and developed the belief that "No one can be trusted"; or

□ (b) You had particularly good experiences with others growing up, and developed the belief that "All people can be trusted".

8. Which of the following symptoms have you had related to other-trust beliefs?

□ (a) Pervasive sense of disillusionment and disappointment in others

□ (b) Fear of betrayal or abandonment

□ (c) Anger and rage at betrayers

□ (d) If repeatedly betrayed, viewing even trustworthy people with suspicion

□ (e) Experiencing anxiety and terror at being betrayed, especially in close relationships when trust is beginning to develop

□ (f) Fleeing from relationships

9. Since the assault, which is closest to describing your experience with those you knew and trusted before the assault (reactions of family, friends, coworkers)?

□ (a) Blaming, distant or unsupportive; or

□ (b) Encouraging, close and supportive.

C. Power & Control Issues

Beliefs Related to Self

10. *Before the sexual assault*, which was closest to your experiences & beliefs:

- (a) You were repeatedly exposed to inescapable negative events and grew to believe you could not control events or solve problems; or
- (b) You grew up believing that you had control over most events and could solve problems.

11. Which of the following symptoms have you had related to negative self-control (over- or under-control) and self-power (helplessness) beliefs?

- (a) Numbing of feelings
- (b) Avoidance of emotions
- (c) Chronic passivity
- (d) Hopelessness & depression
- (e) Self-destructive patterns
- (f) Outrage when faced with events that are out of your control, or people who don't behave the way you'd like them to

Beliefs Related to Others

12. Before the sexual assault which was closest to your experiences & beliefs?

- (a) Experiences with others that led you to believe you had no control in your relationships with others, or no power in relation to powerful others; or

- (b) Experiences with others, and in relation to powerful others, that led you to believe you could influence others in ways that you chose.

13. ***Which of the following symptoms have you had related to other-power beliefs?***

- (a) Passivity
- (b) Submissiveness
- (c) Lack of assertiveness that can generalize to all relationships
- (d) Inability to maintain relationships because you do not allow the other person to exert any control in the relationship (may include becoming enraged if the other person tries to exert even a minimal amount of control)

D. Esteem Issues

Beliefs Related to Self

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14. *Before the sexual assault*, which was closest to your experiences & beliefs:

☐ (a) You had prior experiences that represented violations of your sense of self, and developed negative beliefs about your self-worth which may have included any of the following (check all that apply):

- o There was little empathy or responsiveness to your needs;
- o You repeatedly experienced being devalued, criticized or blamed;
- o You believed you violated your own ideals or values at some point;
- o You grew up believing negative attitudes others had toward you;

or

☐ (b) You had prior experiences that enhanced your beliefs about your self-worth (your self-esteem).

15. Which of the following negative beliefs about self-worth do you have?

☐ (a) "I am bad, destructive, or evil"

☐ (b) "I am basically damaged and flawed"

☐ (c) "I am responsible for bad, destructive, or evil acts"

☐ (d) "I am worthless, and deserve unhappiness and suffering"

16. Which of the following symptoms have you had related to self-esteem beliefs?

☐ (a) Depression

☐ (b) Guilt

☐ (c) Shame

☐ (d) Possible self-destructive behaviour

Beliefs Related to Others

17. Before the sexual assault which was closest to your experiences & beliefs?

- (a) You had many bad experiences with people in the past, or had difficulty taking in new information about people you knew (particularly negative information), and found yourself surprised, hurt or betrayed. You may have concluded that other people were not good or not to be respected. You may have generalized that belief to everyone (even those who were basically good and to be respected); or
- (b) You had prior experiences with people that were positive, and believed that people were basically good and supportive. Negative events in the world did not seem to apply to your life.

18. Which of the following negative other-esteem beliefs do you have?

- (a) People are basically uncaring, indifferent and only out for themselves
- (b) People are bad, evil or malicious
- (c) The entire human race is bad, evil, or malicious

19. *Which of these symptoms have you had from negative other-esteem beliefs?*

- (a) Chronic anger
- (b) Contempt
- (c) Bitterness
- (d) Cynicism
- (e) Disbelief when treated with genuine caring compassion (“What do they really want?”)
- (f) Isolation or withdrawal from others
- (g) Antisocial behaviour, justified by the belief that people are only out for themselves

E. Intimacy Issues

Beliefs Related to Self

20. *Before the sexual assault*, which was closest to your experiences & beliefs:

- (a) You had prior experiences (or poor role models) which led you to believe that you were unable to cope with negative life events and unable to soothe, comfort or nurture yourself; or
- (b) You grew up with very stable and positive self-intimacy models and came to expect that you would be able to draw support from your own internal resources.

21. Which of the following symptoms have you had related to negative self-intimacy beliefs?

- (a) Inability to comfort and soothe yourself
- (b) Fear of being alone
- (c) Experience of “inner emptiness” or “deadness”
- (d) Periods of great anxiety or panic if reminded of the assault when alone
- (e) May look to external sources of comfort – food, drugs, alcohol, medications, spending money, or sex
- (f) May be more needy or demanding in relationships

Beliefs Related to Others

22. Before the sexual assault which was closest to your experiences & beliefs?

- (a) You experienced traumatic losses of intimate connections and believed you were unable to be close to another person; or
- (b) You previously had satisfying, close, intimate relationships with others.

23. Which of these symptoms have you had from negative other-intimacy beliefs?

- (a) Pervasive loneliness
- (b) Emptiness or isolation
- (c) Failure to experience connectedness with others, even in relationships that are genuinely loving and intimate

24. Which of the following most closely resembles the reaction you've had from others with whom you are (or were) most intimate?

- (a) Those closest to me (who I thought would be supportive) rejected or blamed me
- (b) Those closest to me (who I thought would be supportive) comforted or validated me

APPENDIX MM

Cognitive Processing Therapy – Revised

According to Social Cognitive Theory, it is the content of cognitions (and the effect of distorted cognitions upon emotional responses and behaviour) that explains PTSD symptoms. Certain memories (traumas) have been encoded in rich detail because they were so schema discrepant, leading to PTSD symptoms such as flashbacks, nightmares and hyperarousal. According to Information Processing Theory, when individuals encounter new information that is inconsistent with existing beliefs or schemata, either the new information (e.g., assault experience) is (a) assimilated (altered or distorted to fit) into existing schemas, or (b) the schemas are modified to accommodate the new information.

These COGNITIVE rationales, or hypotheses, to explain PTSD symptoms are vastly different than traditional behavioural models of explanation, which require extinction of fear responses (habituation to discriminative stimuli) in response to repeated, prolonged exposures.

CPT is a confusing hybrid of these two models & intervention approaches, and for that reason COGNITIVE and BEHAVIOURAL components are separated for the Revised CPT protocol (CPT-R). The BEHAVIOURAL components are partialed out, and administered to all 3 groups in the study; whereas, the COGNITIVE components constitute the discrete active therapy procedures.

COGNITIVE *(Social-Cognitive)* *(Information-Processing)* *(Schema Discrepancy)*	***BEHAVIOURAL*** *(Fear Networks in Memory)* *(Cues Trigger Fight / Flight Response)* *(Exposure / Desensitization)*
McCann & Pearlman cognitive themes: Safety, Trust, Power, Esteem, Intimacy	40-45 minute focusing on traumatic event, through questioning & audiotape
Faulty Thinking/Challenging Questions handouts & A-B-C 3-column worksheet	Physical relaxation and calming techniques to reduce hyperarousal
Sexual Assault Checklists with specific disputing beliefs and challenges taken from the CPT manual by P. Resick	Clients review traumatic events repeatedly through describing events and becoming aware of what they feel
Role-plays of interactions between counselor & client in video clips, with actors and scripts corresponding to those from the original CPT manual	Clients write out the sexual assault events in great detail, noting physical sensations, emotions, and thoughts during and after their traumas
2 hours of psychoeducation, plus 3 hours of individual cognitive therapy	7 hours of behavioural through TSF, CAPS and TMI-PS with tape combined

APPENDIX NN

Comparison of Cognitive Processing Therapy and Cognitive Processing Therapy-Revised

One concern that may arise when evaluating the Sexual Assault & PTSD Study is that the original CPT protocol was revised; however, as illustrated in the tables above and below, CPT-R uses the same number of hours of intervention, most of the same forms, the same role-plays to illustrate points, and the same disputations of parallel distorted cognitions. In addition, both the behavioural and cognitive aspects of the original CPT protocol are included in CPT-R.

COGNITIVE PROCESSING THERAPY (CPT) (Session Numbers Listed at Left)	***COGNITIVE PROCESSING THERAPY- REVISED (CPT-R)*** *(Parallel Components Side by Side)*
1. Education re: PTSD symptoms, and Social-Cognitive rationale for therapy along with discussion of Stuck Points	Education re: PTSD symptoms, and Social-Cognitive rationale for therapy + Stuck Points
2. A-B-C Worksheets & Narrative Desc. of traumatic event with body words	A-B-C Worksheets & Narrative (TSF) of traumatic event with body words
3. Psychoeducation re: connections between thoughts & emotions, and detailed account of assault, including actions, sights, sounds, smells, emotions and thoughts	Psychoed re: connections between thoughts & emotions, and detailed reporting of assault, including actions, sights, sounds, smells, emotions and thoughts (TMI-PS)
4. Continued identification of stuck points, and aspects that are particularly intense, and repeated speaking, writing and listening related to those moments	Continued identification of stuck points, and aspects that are particularly intense, and repeated speaking (CAPS x 5), listening (provocation script x 4) and writing (TRGI x 5) related to them
5. Connections between physical, emotional, sensory and cognitive aspects of trauma memories; and use of Challenging Questions Sheet	Use of TMI-PS - encourage integration of physical, emotional, sensory, and cognitive aspects of trauma memories; and use of Challenging Questions

to dispute distorted cognitions 6. Disputing distorted cognitions and using the Faulty Thinking Patterns sheet	Sheet to dispute distorted cognitions Disputing distorted cognitions and using the Faulty Thinking Patterns sheet
COGNITIVE PROCESSING THERAPY (CPT) (Session Numbers Listed at Left)	***COGNITIVE PROCESSING THERAPY- REVISED (CPT-R)*** *(Parallel Components Side by Side)*
7. Assessing and disputing beliefs related to Safety Issues 8. Assessing & disputing beliefs related to Trust Issues 9. Assessing & disputing beliefs related to Power & Control Issues 10. Assessing & disputing beliefs related to Esteem Issues 11. Assessing & disputing beliefs related to Intimacy Issues 12. Wrapping up and addressing any remaining distortions in thinking	Assessing and disputing beliefs related to Safety Issues (from Resick manual) Assessing and disputing beliefs related to Trust Issues (from Resick manual) Assessing and disputing beliefs related to Power Issues (from Resick manual) Assessing and disputing beliefs related to Esteem Issues (from Resick manual) Assessing and disputing beliefs related to Intimacy Issues (frm. Resick manual) Wrapping up and addressing any remaining distortions in thinking
TOTAL: 12 hours	***TOTAL: 12 hours***

APPENDIX OO

Rationale and Training Procedures for Study

Rationale	Training
Recruitment- incident occurred at 14+ * Early, multiple (more than 3) ongoing, continuous and severe trauma were screened out due to the intensity of the Script driven symptom provocation and TMI-PS. * The last study showed evidence that participants were severely disturbed with no delay of treatment, whereas we could not provide immediate therapy due to the large number of participants. * The study is long, includes a lot of triggering, and participants would not be getting intervening therapy outside of study without it being a confound.	1. Developed and practiced telephone intake protocol.
Formal Screening ***TAQ*** * The cut off score varied. Participants were screened out who had severe, continuous or early onset (0-6 years) traumas. * Participants also had to have a balance of safety and competence. According to Vanderkolk, Spinnozola & Hopper (2001), individuals did better in treatment if they had this balance to tolerate the script driven symptom provocation.	
DES * Inclusion score was less than 40. * If score is greater than 40, individuals may have DID. We didn't want this high level	

of dissociation as this would prevent them from connecting to the material.	
CAPS * PTSD cutoff score was greater than 45,(frequency + intensity). * This scoring rule was selected because Orr (1997) used script driven symptom provocation with women who experienced sexual abuse (which paralleled our procedure and was closest to our population). * The PTSD score of 45 was the dividing line between women who reacted to script driven symptom provocation vs. those who scored lower (average score 35 for PTSD). * We closely followed Dr. Blake's (1994, National Center for PTSD) recommendations for CAPS formal training: (a) have had previous experience with diagnostic interviews; (b) have a working familiarity with PTSD and associated symptoms; (c) observe actual CAPS interviews by experienced clinicians; (d) practice using the interview in a role-play or mock-interview situation.	1. Read scoring and administration instructions. 2. Talked with experienced CAPS interviewer. 3. Consultation/interaction with other team interviewers. 4. Did 4 to 5 interviews with volunteers with real life experiences- involved 2 to 3 interviewers interviewing same person. 5. Determined interrater reliability before actually starting with real participants (average .94). 6. Some prior training in formal assessments. 7. Experience with PTSD and symptoms.
Trauma Scene Form and Tapes ***** It was important to have a model to follow that was consistent and provided the same stimulus across measure of time. * The TSF was developed originally by vander kolk and Hopper (2001) to parallel script driven symptom provocation.	1. Listened to previous tapes of last study to know the flow, timing, words etc. 2. Looked at previous scripts 3. Went through all TSF forms and ensured that they flowed, there was incorporation of body words, voice inflection- all prepared before the study began. 4. Reviewed tapes with CAPS' interviewers to give feedback on intonation, flow, emphasis on story.
TMI-PS * Hopper & Vander Kolk (2001) created the TMI-PS in their study with PTSD patients, to be used specifically with	1. Watched videos of whole process of last study to see the timing of the procedure, how to clarify and probe with questions. 2. Could be prepared by how much

script driven symptom provocation.	emotional response would occur. 3. Talked to people who had administered the TMI-PS. 4. Ran dry runs with supervision and EEG assessments with volunteers.
qEEG and E-cap Assessments	1. Identified and consulted with an expert in qEEG neurofeedback assessment-world renown Paul Swingle who spent time at Harvard in this area. 2. In consultation with him, he provided the most likely patterns for PTSD (alpha asymmetry, in Frontal, Parietal asymmetry, alpha suppression, czfz); recommended the software and hardware to purchase, sites we measured; how to reduce artifacts, recommended frequency ranges for each brainwave type (alpha, beta, delta, theta). 3. Protocol was established first (e-cap, mini-Q, gel, electrodes, procedures for abrading e-cap) 4. Looked at literature for established and accepted standards for EEG assessments (Davidson & colleagues) - abrade the cap less than 5 Kiloohms at each site, left/right differences less than .5 kiloohms. 5. Spent one year, meeting weekly (3 hours) practicing with equipment that established our protocols (baseline, script response, trauma scene form). • Established artifact rejection threshold most appropriate for the procedure (Script Driven symptom provocation). Experimented from everything wide open (240 microvolts) that let everything in, to too low (60 microvolts) that let nothing in. Ended up with 140 microvolts. • Worked with software developer to get shorter runs (originally 1 min. runs, but

	needed it to be 15 sec. so that participants did not have to tolerate high level of intensity for long). • Established forms for run procedures (Eyes open, eyes closed, toggle sites). Paul Swingle recommended counterbalancing the order of sites measured so that it could not be argued that it was high due to the intensity at the beginning of the tape.
Training for E-cap	1. Learned the site locations, taking correct measures of the scalp, how to set up tray (what was on it, how to prepare instruments, how to dispose blunt needle, wash and dry cap). 2. Practiced how to place e-cap, abrade scalp and get impedances down with volunteers. 3. Developed a protocol what to say and do with each participant and practiced weekly.
Computer (Running the EEG)	1. Practiced program, how to set it up, and save data. 2. Practiced dry runs with volunteers with full EEG assessment (e-cap, abrading, TSF and TMI-PS). 3. Came up with a protocol how to minimize artifact level- e.g. mouth softly open, roll shoulders back. 4. Developed protocol for team assignment of tasks during qEEG assessment. 5. In appendix another set of protocols were established for transforming the EEG data into SPSS and getting ready for analyses.
Development of the Psychoeducation Sessions	1. Took material directly from the manuals to prepare OEI and CPT-R. 2. Therapists went through the OEI and CPT-R and worksheets numerous times to train. 3. Dry runs were conducted with team members and volunteers who critiqued

	and modified them 3 or more times to come up with the final version. 4. Practiced to deliver it smoothly and were video recorded.

APPENDIX PP Table PP1

Key for Quantitative Electroencephalography Variable Symbols

Variable Symbol	Variable Description
Pre	Pretreatment
Post	Posttreatment
BL	Baseline
TS	Trauma Script (Provocation)
TM	Trauma Memory (Provocation)
F	Frontals
P	Parietals
EO1	Eyes Open (first run)
EO2	Eyes Open (second run)
Alpha Right Minus Left*	Range corrected scores between left and right hemispheres
Example 1: PreBLFEO1AlphaRightMinus Left	Pretreatment Baseline score at Frontal site with eyes open (first run)
Example 2: PostTSPEO2AlphaRight Minus Left	Posttreatment Trauma Script score measured at Parietal site with eyes open (second run)

Note: * Each of the asymmetry indices (different scores) are range corrected (R - L/R +L)

APPENDIX QQ Table QQ2

Beck Depression Inventory, Version II Scores (Pre, Post, 3 Months) between Groups

	Control			CPT-R			OEI		
Range	Pre	Post	3 Month	Pre	Post	3 Month	Pre	Post	3 Month
Minimal	2	4	2	1	4	4	1	4	5
Mild	3	0	3	1	2	0	5	2	0
Moderate	1	3	1	3	1	1	2	3	3
Severe	4	3	3	3	2	3	1	0	0

Note: Minimal = 0-13; Mild = 14-19; Moderate = 20-28; Severe = 29-63 according to Beck, A.T., Steer, R.A., & Brown, G.K. (1996). *BDI-II Manual*. New York: The Psychological Corporation. Initial Equivalence was established at pretreatment.

APPENDIX RR

Total Score of Clinician-Administered PTSD Scale and Beck Depression Inventory-II

(pretreatment to posttreatment)

		CAPS Total Score		BDI-II Total Score	
Group	No.	Pre	Post	Pre	Post
BRAIN	106	59	32	2	6
	109	89	66	34	13
	113	58	16	16	7
	118	60	27	19	23
	121	57	41	21	23
	124	64	46	0	11
	125	46	46	16	31
	129	93	88	45	42
	132	66	65	34	25
	136	70	69	31	32
CPT-R	102	71	54	26	18
	104	46	13	8	7
	108	63	56	38	28
	112	60	13	26	7
	115	109	93	43	35
	116	77	31	22	11
	120	67	26	17	2
	128	81	55	39	34

(table continues)

		CAPS Total Score		BDI-II Total Score	
Group	No.	Pre	Post	Pre	Post
OEI	103	71	57	39	21
	105	46	26	15	26
	107	47	37	14	25
	110	46	15	19	5
	114	56	38	15	13
	119	54	57	17	13
	123	46	58	6	16
	130	78	34	20	7
	133	74	48	27	17

Note: Initial Equivalence was established at pretreatment for both instruments ($p > .05$)

Asymmetry; 1 = Frontals Only; 2 = Parietals Only; 3 = Frontals Plus Parietals

APPENDIX SS

Summary of Asymmetry Patterns

(Group Counts by Time, Run, and Condition)

A Comparison of Asymmetry Occurrences with Laterality Assumed vs Adjusted for Eye Dominance

		UNILATERAL												DOMINANT											
		PRE						POST						PRE						POST					
		EO1			EO2			EO1			EO2			EO1			EO2			EO1			EO2		
	Asym	BL	TS	TM	BL	TS	TM	BL	TS	TM	BL	TS	TM	BL	TS	TM	BL	TS	TM	BL	TS	TM	BL	TS	TM
B	NA	7	4	5	5	5	4	9	5	8	7	6	5	5	2	4	3	5	3	7	3	7	5	5	4
R	FO	0	3	0	3	3	2	0	2	1	2	2	1	0	3	1	2	1	3	0	2	2	2	1	2
N	PO	0	2	4	2	2	3	1	3	1	1	1	4	1	2	3	2	4	2	1	3	0	1	2	3
10	FP	3	1	1	0	0	1	0	0	0	0	1	0	4	3	2	3	0	2	2	2	1	2	2	1
C	NA	4	3	5	3	7	6	2	2	3	4	5	3	2	2	3	2	5	4	2	2	2	4	4	2
P	FO	1	0	1	1	0	1	3	1	4	0	2	4	1	1	1	0	0	1	3	1	3	0	1	3
T	PO	3	4	2	3	1	0	2	3	0	0	1	1	3	3	2	4	1	0	2	3	1	0	2	2
8	FP	0	1	0	1	0	1	1	2	1	4	0	0	2	2	2	2	2	3	1	2	2	4	1	1

(table continues)

O	***NA***	***4***	***2***	***4***	***4***	***4***	***5***	***3***	***3***	***3***	***3***	***5***	***6***	***2***	***1***	***1***	***2***	***1***	***2***	***1***	***1***	***3***	***3***	***2***	***3***
E	***FO***	***2***	***3***	***0***	***4***	***1***	***3***	***1***	***2***	***2***	***1***	***2***	***2***	***1***	***3***	***2***	***3***	***1***	***3***	***2***	***3***	***5***	***2***	***2***	***2***
I	***PO***	***1***	***2***	***1***	***1***	***1***	***0***	***4***	***4***	***3***	***2***	***0***	***0***	***2***	***2***	***1***	***2***	***1***	***0***	***3***	***3***	***0***	***1***	***1***	***0***
9	***FP***	***2***	***2***	***2***	***0***	***3***	***1***	***1***	***0***	***1***	***3***	***2***	***1***	***4***	***3***	***5***	***2***	***6***	***4***	***3***	***2***	***1***	***3***	***4***	***4***
T	***NA***	***15***	***9***	***14***	***12***	***16***	***15***	***14***	***10***	***14***	***14***	***16***	***14***	***9***	***5***	***8***	***7***	***11***	***9***	***10***	***6***	***12***	***12***	***11***	***9***
T	***FO***	***3***	***6***	***1***	***8***	***4***	***6***	***4***	***5***	***7***	***3***	***6***	***4***	***2***	***7***	***4***	***5***	***2***	***7***	***5***	***6***	***10***	***4***	***4***	***7***
L	***PO***	***4***	***8***	***7***	***6***	***4***	***5***	***7***	***10***	***4***	***3***	***2***	***5***	***6***	***7***	***6***	***8***	***6***	***2***	***6***	***9***	***1***	***2***	***7***	***5***
	FP	***5***	***4***	***3***	***1***	***3***	***3***	***2***	***2***	***2***	***7***	***3***	***1***	***10***	***8***	***9***	***7***	***8***	***8***	***6***	***6***	***4***	***9***	***7***	***6***

Note: Total asymmetries were calculated for each treatment group: NA = No Asymmetry; FO = Frontals Only; PO = Parietals Only; FP = Frontals plus Parietals.

APPENDIX TT

Summary of Asymmetry Patterns (Individual Outcomes by Time, Run, and Condition)

A Comparison of Asymmetry Occurrences with Laterality Assumed vs Adjusted for Eye Dominance

		PRE												POST											
		LATERALITY ASSUMED						DOMINANCE ADJUSTED						LATERALITY ASSUMED						DOMINANCE ADJUSTED					
		EO1			EO2			EO1			EO2			EO1			EO2			EO1			EO2		
GP	NO	BL	TS	TM	BL	TS	TM	BL	TS	TM	BL	TS	TM	BL	TS	TM	BL	TS	TM	BL	TS	TM	BL	TS	TM
BRAIN 10	106	0	0	3	0	1	3	2	2	1	2	3	1	0	0	3	0	0	3	2	2	1	2	2	1
	109	2	2	3	3	1	3	2	2	3	3	1	3	0	3	0	0	3	3	0	3	0	0	3	3
	113	0	1	3	3	0	0	0	1	3	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	118	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	0	0	1	0	1	0	0
	121	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	3	0	0	0	0	0
	124	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	0	1	1	1	1	1
	125	2	1	0	1	3	1	2	1	0	1	3	1	0	0	0	0	0	0	0	0	0	0	0	0
	129	0	0	0	0	1	0	2	2	2	2	3	2	0	0	0	0	1	0	2	2	2	2	3	2
	132	0	3	2	2	0	2	0	3	2	2	0	2	0	3	0	0	2	3	0	3	0	0	2	3
	136	3	3	3	0	3	3	3	3	3	0	3	3	0	3	0	3	0	3	0	3	0	3	0	3
CPT 8	102	1	3	1	2	0	2	1	3	1	2	0	2	2	3	2	2	0	3	2	3	2	2	0	3
	104	0	2	3	3	0	1	0	2	3	3	0	1	0	3	1	0	1	1	0	3	1	0	1	1
	108	0	0	0	0	0	0	2	2	2	2	2	2	3	0	0	0	1	1	1	2	2	2	3	3
	112	0	0	0	3	0	0	0	0	0	3	0	0	1	0	0	2	0	0	1	0	0	2	0	0
	115	3	0	3	3	0	0	3	0	3	3	0	0	3	1	1	2	0	1	3	1	1	2	0	1

(table continues)

	116	0	3	0	1	0	0	2	1	2	3	2	2	1	2	1	2	0	0	3	0	3	0	2	2
	120	3	3	0	0	3	0	3	3	0	0	3	0	1	2	1	0	3	1	1	2	1	0	3	1
	128	3	3	0	0	0	0	3	3	0	0	0	0	0	3	0	0	0	0	0	3	0	0	0	0
OEI 9	103	1	1	1	1	3	1	1	1	1	1	3	1	3	1	0	3	0	0	3	1	0	3	0	0
	105	0	1	1	1	1	1	0	1	1	1	1	1	0	0	0	2	1	0	0	0	0	2	1	0
	107	0	0	0	0	0	0	2	2	2	2	2	2	0	0	3	2	1	0	2	2	1	0	3	2
	110	0	0	0	0	0	0	0	0	0	0	0	0	3	1	1	2	2	1	3	1	1	2	2	1
	114	3	3	3	1	2	0	3	3	3	1	2	0	1	3	2	1	2	1	1	3	2	1	2	1
	119	1	3	0	1	0	0	3	1	2	3	2	2	3	3	3	0	0	0	1	1	1	2	2	2
	123	0	1	0	0	0	0	2	3	2	2	2	2	0	0	3	3	0	0	2	2	1	1	2	2
	130	2	2	2	0	2	1	2	2	2	0	2	1	3	3	1	0	1	0	3	3	1	0	1	0
	133	2	2	2	3	2	2	2	2	2	3	2	2	2	3	0	0	0	2	2	3	0	0	0	2

Note: Individual asymmetry patterns were recorded in each treatment group: 0 = No Asymmetry; 1 = Frontals Only; 2 = Parietals Only; 3 = Frontals Plus Parietals