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Role and treatment of early maladaptive schemas in Vietnam veterans with PTSD.

RUNNING HEAD: Early Maladaptive Schemas, PTSD and Vietnam Veterans

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Abstract

The role of early maladaptive schemas (Young, 1999) in understanding and treating posttraumatic stress disorder (PTSD) was investigated. The first study examined the role of perceived adverse parenting and early maladaptive schemas in the development of PTSD in Australian and New Zealand Vietnam war-veterans ($N = 220$). Veterans diagnosed with PTSD scored higher on the Young Schema Questionnaire (YSQ L3) and had higher scores on the Measure of Parental Style (MOPS) than veterans not diagnosed with PTSD. The results suggest that early maladaptive schemas have an important role in the development or maintenance of PTSD in Vietnam veterans. The second study measured at baseline, termination and three months the early maladaptive schemas, PTSD, anxiety, and depression of war-veterans ($n = 54$) participating in a PTSD group treatment program that included schema-focused therapy. Scores on the PTSD Check List, the Hospital Anxiety and Depression Scale, and 17 schemas decreased significantly after treatment. Change scores for the schema treatment were compared to change scores of war-veterans ($n=127$) who had completed a manualised Cognitive Behaviour Therapy program without schema-focused therapy. Pre-treatment measures were similar in both groups. Nevertheless, PTSD and anxiety improved significantly more for the schema-focused therapy group. Together, these findings support the feasibility of schema-focused therapy to assist veterans with PTSD.

Key Practitioner Message:

- War veterans with PTSD may have high levels of early maladaptive schemas.
- Early maladaptive schemas, possibly arising from adverse parenting, may be a vulnerability factor for PTSD.

- Addressing early maladaptive schemas, with schema-focused therapy, should be considered within PTSD treatment programs.

Keywords

Parenting. Schema. Vulnerability. PTSD. Veteran. Treatment.

Introduction

Cognitive schemas are considered to have a key role in the development and maintenance of psychological disorders as well as in their recurrence and relapse, and so an understanding of schemas may help to explain vulnerability to posttraumatic stress disorder (PTSD) and assist treatment (Bamber & McMahon, 2008). PTSD is typified by re-experiencing of the traumatic event/s, hyperarousal, avoidance of stimuli associated with the trauma/s, and a general numbing of emotions (*DSM-IV-TR*). Early Maladaptive Schemas (EMS) are considered to be highly generalised, resistant to change and exert a strong influence over cognition and affect, and this influence is exerted through information processing below conscious awareness (Riso & McBride, 2007). Young, Klosko, and Weishaar (2003) defined an EMS as a broad, pervasive theme or pattern comprised of memories, emotions, cognitions, and bodily sensations regarding oneself and one's relationship with others developed during childhood or adolescence, elaborated throughout one's lifetime, and dysfunctional to a significant degree.

Although cognitive models have usually stressed the impact of early events on the later experience of psychopathology through the development of negative cognitive styles, there appears to be no literature on the possible relationship between EMS and PTSD. Investigation of the relationship between EMS and anxiety (Muris, 2006), depression (Sachs-Ericsson, Verona, Joiner, & Preacher, 2006; Soygut & Savasir, 2001),

eating disorders (Waller, 2003; Waller, Ohanian, Meyer, & Osman, 2000), and self-mutilation (Castille, Prout, Marczyk, Shmidheiser, Yoder, & Howlett, 2007), has demonstrated an association between maltreatment during childhood, EMS, and the presence of these disorders. Given the lack of literature about the relationship between EMS and PTSD, the present study was by nature exploratory.

A number of factors appear to determine the course, severity and nature of post-trauma psychological reactions. These are usually divided into pre-trauma, trauma, and post-trauma factors (Ali, Dunmore, Clark, & Ehlers, 2002; Creamer & Forbes, 2003; Dalgleish, 2004). Although the severity of the trauma, such as combat exposure, remains a central component of the aetiology of PTSD, it is reasonable to assume that the potential impact of other risk factors varies according to the severity of the stressor (Koenen, Stellman, Stellman, & Sommer, 2003; Koenen et al., 2003).

Peri-trauma factors fall into two broad classes: event severity and factors that represent the way in which the event was interpreted at the time (Dalgleish, 2004). Under the umbrella of event severity, bereavement seems related to more severe and chronic disturbance (Breslau et al., 1998). However, exposure variables, such as severe personal injury, perceived life threat, longer duration, intensity, complexity, and exposure to the suffering of others may also adversely influence the course of symptomatology; therefore, the type of trauma experienced is also related to the risk of developing PTSD (Creamer & Forbes, 2003; Breslau et al., 1998; Koenen et al., 2003).

Post-trauma factors such as social support and stress management skills may moderate the development of the disorder and facilitate the recovery process (Creamer & Forbes, 2003; Koenen et al., 2003). The Vietnam veterans returned home to a deeply

hostile reception, and this lack of social support may have contributed to the higher than expected levels of mental illness (Bonanno, Galea, Bucciarelli, & Vlahov, 2007; Brewin, Andrews, & Valentine, 2000; Davidson, Hughes, Blazer, & George, 1991; Jones & Wessely, 2005; Stretch, 1991).

Studies have identified a number of pre-trauma risk or predisposition factors for PTSD (Brewin et al., 2000; Yehuda & McFarlane, 1995). Military personnel bring their own generalised biological and psychological vulnerabilities into the war experience. Previous exposure to adverse life events (Andrews et. al., 2003; Antony & Barlow, 2002), or childhood family instability (Herman, 1997; King, King, Foy, & Gudanowski, 1996) or circumstances including poor education, low income, early separation from parents, parental instability, violence in the home, childhood physical and sexual abuse, an adverse relationship with parents, neglect, prior psychiatric history and a pre-existing tendency towards anxiety and depression, may increase vulnerability to the development of PTSD (Koenen et al., 2003; Kulka et al., 1990; Williams & Poijula, 2002). The literature on risk factors for lifetime PTSD has been summarized in a meta-analysis by Brewin et al.(2000), who found that family psychiatric history, personal psychiatric history, and childhood abuse most consistently predict PTSD, regardless of the population studied or the methods used.

Most of these pretrauma factors appear to be the same factors that are postulated to cultivate the development of EMS (Young, 1999; Young et al., 2003). Schemas may be a maintaining factor for persistent pathology (Riso et al., 2006). Therefore, assessment of EMS may have significant implications for veterans' clinical profiles, case conceptualisation, and treatment planning.

The literature seems clear that there is a link between negative childhood experiences and the development of EMS and that these schemas are a major factor in the diathesis-stress model of psychiatric disorders (Bamber & McMahon, 2008; Muris, 2006; Sachs-Ericsson et al., 2006; Young, 1999; Young et al., 2003). As it is believed that certain individuals have a predisposition to develop psychopathology in the context of negative life events that result in activation of EMS (Harris & Curtin, 2002; Muris, 2006; Riso & McBride, 2007), we hypothesised that for veterans, such schema-activating situations might have arisen in upbringing, in harsh military training prior to Vietnam, in events during the Vietnam War or on return to their home country where many had to face an antagonistic public.

Study One

In this study we explored the relationship between childhood parenting experiences, EMS, and PTSD in a convenience sample of male Vietnam War veterans. We hypothesised that Vietnam veterans diagnosed with PTSD were more likely to have experienced adverse parenting during their childhood or teenage years than Vietnam veterans without PTSD. We also hypothesised that Vietnam veterans diagnosed with PTSD would have higher EMS, as measured by the Young Schema Questionnaire, than Vietnam veterans without PTSD.

Method

Participants

Australian and New Zealand Vietnam veterans were surveyed as personnel from both countries fought together in the same combat units. Vietnam veteran organisations and sub-branches were requested by email to advertise the study to their members with

information sheets and contact procedures for volunteers. During 2007, 301 questionnaires were sent to individual Vietnam veterans who volunteered to participate. Two hundred and twenty six questionnaires were returned but three were not completed, resulting in a response rate of 74 percent. Three of the 223 completed questionnaires could not be put into a PTSD category as the participant did not answer the PTSD classification question clearly, and data from these study volunteers were excluded.

As a clinical interview to determine PTSD status was not practical, PTSD diagnosis was defined by the response to the question, 'Have you been diagnosed with PTSD?' This question was asked within the questionnaire Vietnam War service demographic section. Only Veterans' Affairs accredited and authorised psychiatrists and clinical psychologists can diagnose veterans for government accepted disability for government funded treatment and compensation. Vietnam veterans diagnosed with PTSD go through a rigorous Department of Veterans' Affairs background check, medical and psychiatric assessment process. Surveyed veterans were members of the Veterans Associations and Clubs that have veteran member pension officers trained, accredited, and authorised by the Department of Veterans' Affairs to assist veterans with the application process for treatment and compensation. These facts encourage confidence in the PTSD status reported in this survey.

Measures

Demographic Questionnaires. This section of the survey requested demographic information on gender; age; schooling prior to Vietnam; called up for national service or not; number of tours of duty; age during each tour; arm of the military served with in Vietnam; service on land or sea; service in a combat or support role; ship, unit, or

squadron served with in Vietnam; wounded in Vietnam; hospitalized in Vietnam; reason for admission to hospital; time in hospital; any ongoing health problems and details; and if, or if not, diagnosed with PTSD.

Measure of Parental Style (MOPS). The MOPS is a 15-item self-report instrument (Black Dog Institute, 2007; Parker et al., 1997) designed to capture at-risk parenting behaviours in the first 16 years of a child's life. Participants rated each item as a description of their mother's and, on a separate form, their father's behaviour toward them in their first 16 years. The MOPS includes three scales: Indifference (six items), Abuse (five items), and Overcontrol (four items). It is rated on a four point Likert-type scale ranging from 0 to 3, based on recall of severity. Parker et al. (1997) reported alpha coefficients of .93 for both maternal and paternal indifference, .82 and .76 for maternal and paternal overcontrol, and .87 and .92 for maternal and paternal abuse, indicating acceptable internal consistency. Scores within each category of Indifference, Abuse, and Overcontrol were summed and divided by the total number of items in each category to produce a mean score. To provide for an overall adverse maternal or paternal parenting influence, the MOPS scales of Indifference, Abuse and Overcontrol were collapsed into maternal and paternal parenting categories, by summing each parenting category's Indifference, Abuse, and Overcontrol scores and dividing the result by the total number of items. This is consistent with previous research where MOPS scores were averaged across the two parents (Helen Ma, & Teasdale, 2004).

The *Young Schema Questionnaire (YSQ-L3;* Young & Brown, 2003) is a 232-item self-report inventory utilising a six-point Likert scale ranging from (1) 'completely untrue of me' to (6) 'describes me perfectly' designed to assess 18 EMS. The subscales

of previous versions of the YSQ have demonstrated high test-retest reliability and internal consistency as well as convergent and discriminant validity, and alpha coefficients range from .83 to .96 (Lee, Taylor, & Dunn, 1999; Waller, Meyer, & Ohanian, 2001; Welburn, Coristine, Dagg, Pontefract, & Jordon, 2002; Young et al., 2003). Construct validity of an earlier version of the YSQ-L3 was demonstrated in that the resultant factor structure in an Australian clinical sample was consistent with the model (Lee et al., 1999), and a confirmatory factor analysis using a Norwegian clinical sample provided further support (Hoffart et al., 2005). The enmeshment schema was not calculated in this sample of aged veterans because most parents were deceased.

The items were scored by only counting the ratings of 4, 5 and 6 (ratings of 1, 2 and 3 were not counted). Scores were obtained for each schema by calculating the proportion of the total possible score for each schema. For example, the emotional deprivation schema score was calculated by summing each item score above 3 and dividing by 54 (the highest possible score since there are nine items), and then multiplying by 100. This is in keeping with the scoring key accompanying the YSQ-L3 (Young & Brown, 2003).

The *Acute Stress Disorder Scale* (ASDS) is a modified version of the self-report Acute Stress Disorder Scale (ASDS) (Bryant, 1999). The ASDS was modified by replacing each occurrence of the word 'the trauma' with the word 'Vietnam'. This provided an indication of trauma symptoms but was not used as a diagnostic tool. The Acute Stress Disorder Scale has good internal consistency, test-retest reliability, and construct validity (Bryant & Harvey, 2000). Test-retest reliability of the ASDS scores between 2 and 7 days was strong ($r = .94$) (Bryant, Moulds, & Guthrie, 2000).

Participants were requested to answer each question about how they feel by circling a Likert scale number. 1 = Not at all, 2 = Mildly, 3 = Medium, 4 = Quite a bit, 5 = Very much. The scale total is derived by summing all the items. Higher scores indicate greater symptomatology. Examples of questions asked were: 'Have memories of Vietnam kept entering your mind?', and 'When you are reminded of Vietnam do you sweat or tremble or does your heart beat faster?'

Procedure

The study was approved by the Human Research Ethics Committee of Murdoch University, Perth, Western Australia. The study was promoted in Vietnam veterans' association newsletters or magazines, and volunteers contacted the researchers to obtain a copy of the questionnaires.

Statistical Analysis

We conducted a series of *t*-tests to explore the relationship between veterans' perceived adverse childhood parenting and PTSD diagnosis, and the relationship between veterans' early maladaptive schemas and their PTSD diagnosis. Given multiple study variables, the Bonferroni correction was applied. SPSS for Windows, version 15 was used for all analyses in both studies.

Results

Of the 220 male participants, 163 had a PTSD diagnosis (74.1% of the sample). The average age was 61 years (± 3.9). The Australian Vietnam veterans' health study of 1998 (Department of Veterans' Affairs, 1998) reported a PTSD rate of 31 percent for male veterans, indicating that veterans with PTSD were over-represented in our sample. The lifetime prevalence of PTSD among civilians is 8 percent in men (Corales, 2005).

The average age of the 57 male veterans who did not have PTSD (25.9% of the sample) was also 61 years ($SD = 5.2$). One hundred and fifty eight (71.8%) participants reported current ongoing health problems other than PTSD (e.g., heart, kidney, high blood pressure, skin problems, cancer, and arthritis). This high rate is consistent with large scale studies by the Department of Veterans' Affairs (Department of Veteran Affairs, 1998).

A tour of duty in Vietnam for these veterans was usually 12 months. Overall, the average number of months the veterans served in Vietnam was 9.2 ± 3.1 , with 98% of these veterans serving 13 months or less.

Insert Table 1

We found that average parental style scores differed significantly between PTSD and no-PTSD groups in both parenting categories and in all subscales of the MOPS. The PTSD group experienced greater indifference, abuse and overcontrol from both parents than the non-PTSD group.

A series of *t*-tests was then conducted to explore the relationship between veterans' early maladaptive schema means and their PTSD diagnosis.

Insert Table 2

Average early maladaptive schema scores differed significantly between PTSD and no-PTSD groups, in every category. In each case the schema scores were higher in the PTSD group than the non-PTSD group. The 17 EMS scores on the YSQ-L3 accounted for 22.5% of the variance in PTSD. Stepwise discriminant function analysis revealed that the vulnerability to harm and the emotional inhibition EMS discriminated significantly between veterans with PTSD and those without PTSD (Wilks Lambda =

.804, Chi-square = 47.27, $p < .001$). Chronbach's alpha ranged from .862 (Entitlement EMS) to .940 (Mistrust/Abuse EMS).

The ASDS (modified) showed the mean score for veterans with PTSD ($M = 73.74$, $SD = 13.56$, $n = 163$) was greater than the mean score for veterans without PTSD ($M = 37.16$, $SD = 14.04$, $n = 57$), and this difference was significant ($t(218) = -17.38$, $p < .001$). This result indicates support for the diagnostic status of the Vietnam veterans.

Discussion

We found support for the hypothesis that Vietnam veterans with high EMS scores, as measured by the YSQ-L3, and high recalled childhood negative parenting behaviours as captured by the MOPS, were more likely to have been diagnosed with PTSD than veterans with low early maladaptive schema scores and low recalled negative parenting behaviours. These findings suggest that EMS increase vulnerability to PTSD or are involved in its maintenance.

Adverse Parenting and PTSD Diagnosis

Parenting discord was significantly greater in veterans with PTSD diagnosis than in veterans without PTSD. Although genetic dispositions and biological factors can play a role in psychopathology, this finding supports the large body of research that links poor childhood parental bonding experiences to an increased risk for later psychopathology (Bremner, Southwick, Johnson, Yehuda, & Charney, 1993; Breslau, Chilcoat, Kessler, & Davis, 1999; Bromet, Sonnega, & Kessler, 1998; Jones, Harris, & Leung, 2005; Parker, Tupling, & Brown, 1979; Sachs-Ericsson et al., 2006).

Early Maladaptive Schemas and PTSD Diagnosis

EMS were strongly associated with PTSD diagnosis, with significantly higher average schema scores in PTSD compared to no-PTSD groups. This may mean that some young Australian and New Zealand servicemen were vulnerable emotionally and cognitively prior to entering the Vietnam War, resulting in increased vulnerability to PTSD.

The present findings suggest that veterans with PTSD may experience the double negative effect of activated maladaptive schemas and PTSD symptoms. As an example, the seven schemas in the present study having the strongest associations with PTSD, in order, were vulnerability to harm, emotional inhibition, social isolation, insufficient self-control, mistrust/abuse, negativity/pessimism, and abandonment. As the themes of these schemas seem similar to the characteristics of PTSD, the schemas may contribute to the PTSD cognitions or, conversely, PTSD may strengthen the schemas. Due to the cross-sectional design in the present study, the direction of influence between the schemas and PTSD is not clear and requires further research.

The Vietnam veterans' schemas may have become activated during highly stressful events, such as harsh pre-war military training, during the Vietnam War, or perceived non-support post-war, and may have increased vulnerability to PTSD. For example, being left alone for a period after an intense battle could powerfully trigger an abandonment schema and have a strong enduring effect on that soldier's future cognitions related to abandonment. As Beck (1976) noted, schemas may become stronger or weaker as a result of changes in the environment.

Study Two

The PTSD treatment studies considered closest to the gold standards of treatment trials (i.e. with valid outcome measures, a randomized design, and manualised treatment) contain variations of exposure therapy and cognitive therapy (The Australian Centre for Posttraumatic Mental Health, 2008; Dalgleish, 2004; Ehlers et al., 2003). Eye movement desensitisation and reprocessing (EMDR) is also considered a treatment for amelioration of trauma and its sequelae (Marcus, Marquis, & Sakai, 2004; Stickgold, 2002). A publication by the United States Department of Veterans Affairs and the Department of Defense, designated Joint Clinical Practice Guidelines for PTSD, found support for cognitive therapy, stress inoculation therapy, exposure therapy and EMDR, and recommended the use of these four treatments with all trauma victims (Russell, Silver, Rogers, & Darnell, 2007). In the present study we explored only cognitive and exposure therapy as the focus was on group treatment.

Given the EMS and PTSD association found in the first study, we investigated whether early maladaptive schema-focused therapy (e.g., Young et al., 2003) within a war-related PTSD group program would modify veterans' EMS and influence treatment outcomes. To the best of our knowledge this has not previously been investigated. Many treatment programs attempt to modify overgeneralised beliefs and trauma-related cognitions, but these programs did not treat EMS, and no program treating war-related PTSD has measured whether EMS change (e.g., Kubany, Hill and Owens, 2003; Mueser et al., 2007; Monson et al., 2006; Resick and Schnicke, 1992). Welburn, Coristine, Dagg, and Pontefract (2000) explored CBT treatment effects of a civilian 12-week group day-treatment program on measures of psychiatric distress and EMS. The program had no schema-focused therapy. Eighty-four participants with anxiety, depression or PTSD

completed the program and showed significant pre-post decreases in psychiatric distress and in the vulnerability to harm, social alienation, and defectiveness EMS, but other EMS did not change. However, a study by Gude and Hoffart (2008) investigated whether civilian inpatients ($n = 24$) with agoraphobia and Cluster C personality disorders changed after five weeks (daily group sessions) of manualised cognitive agoraphobia treatment followed by six weeks (eight group sessions and ten individual sessions) of manualised schema-focused therapy, compared to inpatients ($n = 18$) in non-manualised psychodynamic treatment. Patients in the cognitive condition with schema-focused therapy showed greater improvement in interpersonal problems during treatment and at 12 months follow-up than patients in the treatment as usual condition. Although EMS were targeted in schema-focused therapy, the study provided no evidence of change in EMS.

The integrative treatment model Young (1999) referred to as schema-focused therapy has been adapted to other therapy contexts where the main target for intervention is the modification both of EMS and linked coping styles (Nordahl, Holthe, & Haugum, 2005). We reasoned that this model could be used for this purpose in PTSD treatment. According to Gray, Maguen, & Litz (2007), as a schema-focused intervention provides discrete information about schemas, clinicians can provide more efficient and effective treatment by detecting schemas unique to each patient. This view is supported by Riso (2007) who stated that “schema theory has enormous potential to enhance understanding of the persistence of psychopathology, uncover its developmental antecedents, and improve psychotherapeutic intervention” (p. 221).

In the second study we therefore hypothesised that the veterans' symptom scores and level of EMS would decrease as a result of a schema intervention. We also hypothesised that symptom reduction would be larger for the schema-focused therapy intervention compared to an historical control group who received traditional CBT.

Method

Participants

Schema Focused Therapy (SFT)

Over a two year period (2007-08) 54 veterans (age range 30-67, mean age 52, $SD = 11.1$, (including two females) diagnosed with PTSD by a psychiatrist participated in eight Hollywood Clinic PTSD group treatment programs (5 for older veterans and 3 for younger veterans). The 36 older veterans (age range 34-67, mean age 58, $SD = 7.2$) were mostly Vietnam veterans, but included four veterans from the Sinai, Rwanda and Cambodia peacekeeping operations. The 18 younger veterans (age range 30-49, mean age 39, $SD = 5.1$) consisted of veterans from recent or current operations such as East Timor, Bougainville, Afghanistan and Iraq. Psychological instruments utilised in this study are used within the Hollywood Clinic PTSD program for routine clinical assessment and program evaluation. Usually, the YSQ is administered only at intake, but all the veteran participants volunteered to further complete the YSQ-L3 instrument at program termination and at the three-month follow-up.

All 54 veterans completed the PTSD program. Follow-up data were obtained for 49 of the veterans; between discharge and three month follow-up two had moved permanently interstate, and a further three did not return for the one-day follow-up. Two of the veterans who missed follow-up received and returned the completed YSQ by mail.

Traditional cognitive behaviour therapy (TCBT)

This group consisted of 127 male Vietnam veterans diagnosed with PTSD by a psychiatrist who were seen over a six year period (1996 – 2002) before SFT was used at Hollywood Clinic. They were aged between 28-75 years with a mean age of 52(\pm 6.0). This data was obtained from the Australian Centre for Posttraumatic Mental Health (ACPMH) data base.

Procedure

The study was approved by the institutional ethics committee.

The specialist treatment for war veterans delivered at Hollywood Clinic is manualised, is delivered by experienced psychologists trained to treat PTSD, must conform to national guidelines, and is accredited by the ACPMH on behalf of the Department of Veterans' Affairs (Creamer, Elliott, Forbes, Biddle, & Hawthorne, 2006). The 36 SFT group 'older veterans' received 190 hours of the twelve week group treatment program including 12 individual treatment sessions. The program was delivered initially for four weeks to inpatients followed by weekly outpatient sessions. The 18 SFT group 'younger veterans' received the same group program as the older veterans but it was delivered initially in a two week block followed by twice-weekly outpatient sessions. The younger group received an additional six one-hour sessions of individual treatment, an additional eight hours of alcohol and substance use management, and six hours of insomnia management sessions compared to the older group.

The TCBT treatment approaches were similar to the SFT groups, with 190 hours of contact time in the TCBT group. A variety of psychoeducation and treatment modules were incorporated in the TCBT and SFT group programs, including understanding PTSD,

anxiety and depression symptom management, exposure therapy, anger management training, and relationship skills modules. Physical health and life-skills modules were also included, such as relaxation and breathing training.

The major differences between the TCBT and SFT programme were the content of the individual sessions and the key cognitive restructuring module, 'Managing Painful Feelings'. In the TCBT this consisted of fifteen 90 minute group sessions which taught veterans to identify and correct inaccurate beliefs that lead to negative feelings and behaviour (Mueser et al., 2007). The aim was to reduce cognitive and behavioural avoidance and gain reflective self-awareness through understanding and testing of catastrophic beliefs and finding alternative interpretations (Gude & Hoffart, 2008).

In contrast, SFT participants received nine of the 15 sessions described above but the last six were entirely based on a SFT approach. Participants were informed about their primary schemas and taught how these were maintained by linking them to schema coping styles (surrender, avoidance, or overcompensation). Initially each veteran chose three of their highest EMS to work on with the therapist in the group and individual settings, where cognitive, affective, behavioural, and interpersonal strategies were used to reduce EMS. These included:

1. Testing the validity of the schema (testing objective evidence for and against a schema, using the veteran's whole life, Socratic exploration)
2. Reframing the evidence supporting a schema (alternative explanations, empathic reflection)
3. Evaluating the advantages or disadvantages of the veteran's coping styles (empathic reflection and challenging)

4. Experiential affect work, imagery, conducting dialogues between the 'schema side' and the 'healthy side'
5. Constructing schema flash cards (adaptive responses to specific schema triggers).

For homework, veterans were encouraged to identify and challenge one highly problematic schema within a current life situation, and report progress at the commencement of each group session. For example, the emotional inhibition schema might be identified and challenged in relation to avoidance of emotional expression and engagement with family members. Veterans attempted to replace schema-driven patterns of behaviour with more adaptive patterns by defining specific behaviours (identified in group therapy) as targets of change. The therapist helped link the target behaviour to its childhood origins, sometimes with imagery, and evaluated the advantages and disadvantages of maintaining the behaviour (Young et al., 2003).

Another major difference in programme content was that exposure to trauma memories focused entirely on war experiences in TCBT. However, in the SFT programme participants in individual therapy received image rescripting or traditional exposure on memories related to schemas whether they were childhood or war related. This is consistent with the developmental emphasis in SFT (Young, 1993).

A final difference in the programmes was that TCBT focused on the two factor theory and the central role of avoidance in maintaining PTSD in the segment that focused on understanding PTSD (Mowrer, 1960). The same segment in SFT also placed an emphasis on how pre war factors such as childhood experiences increased vulnerability to

PTSD and how subsequent experiences such as amount of support elicited from others maintains PTSD.

The Clinician Administered PTSD Scale-1 (CAPS-1) (24 items) structured interview was administered by a psychiatrist prior to intake to determine PTSD status and eligibility for treatment. All participants fully met the diagnostic criteria for PTSD diagnosis in accordance with the *DSM-IV-TR* or ICD-10. Data collected at the initial interview are detailed in Hawthorne et al. (2004).

Participants in the SFT group completed measures of PTSD, EMS, anxiety and depression at intake, at program termination, and at three months follow-up. TCBT outcome data was collected at three-month follow-up but not at treatment termination.

PTSD Checklist Military (PCL-M)

The PCL-M is the military version of the PCL. It is based on the 17 *DSM-IV-TR* (2000) symptoms of PTSD. The PCL contains three subscales which measure intrusive thoughts, avoidance behaviour, and arousal symptoms (Hawthorne, Biddle, & Goulopoulos, 2004). It is rated on a five point Likert scale to indicate the degree of a particular symptom over the past month, and total score is derived by summing the 17 items. A description of the instrument and psychometric properties including validation studies can be found in Forbes, Creamer, and Biddle (2001), Blanchard, Jones-Alexander, Buckley, and Forneris (1996), and Weathers, Litz, Herman, Huska, and Keane (1993).

Hospital Anxiety and Depression Scale (HADS)

The HADS is a self-assessment instrument of 14 items providing incremental measures of severity in two scales, measuring depression and anxiety (Snaith & Zigmond, 1994; Zigmond & Snaith, 1983). These scales are used in the ACPMH

national dataset as continuous measures (Creamer et al., 2006; Hawthorne et al., 2004). It has good psychometric properties, with high internal consistency (alpha = .90 for depression and .93 for anxiety) and a robust two-factor structure (Forbes et al., 2008; Hawthorne et al., 2004). The HADS has been validated as a screening measure among populations similar to veterans and has been widely validated in other populations (Hamer, Sanjeev, Butterworth, & Barczak, 1991; Hawthorne et al., 2004). The ACPMH has found the HADS to be sensitive to change in veterans' mental health status (Hawthorne et al., 2004).

Data Analysis

At intake, there were no significant differences between the older veteran group receiving SFT and the younger group receiving SFT on either the PCL-M or on the anxiety subscale of the HADS. Depression, although of clinical intensity in both groups, differed at intake (older: $M = 11.14$, $SD = 3.9$; younger: $M = 13.66$, $SD = 4.2$, $t(52) = -2.15$, $p = .036$). However, given that there were no significant differences on change scores on the PCL-M or HADS the older and younger veterans were combined in the analysis.

We performed analyses to establish whether schema-focused therapy resulted in the weakening of veterans' schemas and facilitated symptom reduction. Repeated measures analysis of variance was conducted to compare veterans' PCL scores and HADS scores at each assessment point. Significant effects were investigated further with planned contrasts between program intake and termination, and between termination and follow-up. Repeated measures analysis of variance was performed to compare veterans' EMS levels over time. To explore if EMS decreased most in treatment responders, the 18

schemas were grouped into the five domains for regression analysis. In addition, SFT group veterans' PCL and HADS results at intake and three months follow-up were measured against the TCBT group data to determine if schema-focused therapy within treatment resulted in greater symptom improvement. Whether the group that received schema-focused therapy experienced additional effectiveness in psychopathology change was investigated in Group by time interactions. We then utilised independent group *t*-tests to calculate if PTSD, anxiety, and depression mean scores differed between groups at baseline and at follow-up to establish initial match and the magnitude of change at follow-up.

Results

The effects of schema-focused therapy on veterans' EMS scores within a PTSD treatment group are shown in Table 3.

Insert Table 3

A within subjects analysis of variance, using the conservative Greenhouse-Geisser ϵ adjustment, revealed a significant reduction in 17 EMS scores from program intake to discharge to follow-up in the SFT group. The enmeshment schema score did not change significantly over this period. The EMS that appear to have weakened most over this period of time are emotional inhibition ($p < .001$), self-sacrifice ($p < .001$), entitlement ($p < .001$), insufficient self-control ($p < .001$), punitiveness ($p < .001$), and unrelenting standards ($p < .001$).

All schema scores, except dependence/incompetence, enmeshment, and punitiveness, decreased significantly from treatment intake to discharge ($n = 54$). The self-sacrifice ($p = .013$), unrelenting standards ($p = .045$), insufficient self-control ($p =$

.010), approval seeking ($p = .039$), and punitiveness ($p = .024$) schema scores decreased further from discharge to three-month follow-up ($n = 50$). The changes in all other schemas were maintained from discharge to follow-up. Chronbach's alpha for: the intake EMSs ranged from .878 (Emotional Deprivation) to .949 (Dependence/Incompetence); the discharge EMSs ranged from .885 (Enmeshment) to .953 (Unrelenting Standards); and the follow-up EMSs ranged from .851 (Enmeshment) to .953 (Dependence/Incompetence and Social Isolation) (see Table 7).

Change in the impaired autonomy domain was the most important predictor of treatment change for PTSD ($\beta = .68, p = .009$). We explored this further with regression analysis to find that changes in all four of the impaired autonomy domain EMS (dependence/incompetence, vulnerability to harm, enmeshment, and failure schemas) accounted for 26.3 percent of the variation in changes in PTSD ($p = .009$).

Veterans' PTSD, Anxiety, and Depression

The results of our investigation into changes in symptoms of psychopathology in veterans who participated in the SFT PTSD treatment group are shown in Table 4.

Insert Table 4

All symptoms decreased from program intake baseline to three months post course follow-up ($p < .001$). Scores in the intake to discharge contrast ($n = 54$) were significant for PTSD ($F(1, 53) = 43.11, p < .001, \text{partial } \eta^2 = .45$), anxiety ($F(1, 53) = 30.45, p < .001, \text{partial } \eta^2 = .37$), and depression ($F(1, 53) = 30.77, p < .001, \text{partial } \eta^2 = .37$). Scores were maintained at the same level from program discharge to follow-up ($n = 49$): PTSD ($F(1, 48) = 1.50, p = .228, \text{partial } \eta^2 = .03$), anxiety ($F(1, 48) = 0.71, p = .405, \text{partial } \eta^2 = .02$), and depression ($F(1, 48) = 0.34, p = .562, \text{partial } \eta^2 = .01$).

We then determined whether the change in domain schema scores (intake scores minus three-month follow-up scores) was associated with change in psychopathology (intake score minus three-month follow-up score) during the same period independently of scores at baseline. We grouped the 18 schemas into the five domains outlined by Young et al. (2003) to enable an efficient statistical analysis: Disconnection and rejection – abandonment, mistrust/abuse, emotional deprivation, defectiveness/shame, and social isolation schemas; impaired autonomy and performance – dependence/incompetence, vulnerability to harm, enmeshment, and failure schemas; impaired limits – entitlement, and insufficient self-control schemas; other-directedness – subjugation, self-sacrifice, and approval-seeking schemas; overvigilance and inhibition – negativity/pessimism, emotional inhibition, unrelenting standards, and punitiveness schemas. The average score of each domain (sum of schema scores within a domain divided by number of schemas in that domain) was used in the analysis.

We found that 26.1 percent of the variation for changes in PTSD [$F(5,35)$ for $\Delta R^2 = 2.86$, $p = .029$] was explained by treatment changes in schema domain scores. Intake scores and domain change scores were not associated with score change in anxiety. However, predictor scores at intake (primarily depression) were associated with 37 percent of the variation in depression change [$F(8,40)$ for $\Delta R^2 = 2.91$, $p = .012$] (those with highest depression scores at intake showed most decrease at discharge).

A comparison was then made between veterans who participated in SFT groups and veterans who participated in TCBT groups (see Table 5). Scores at intake and three-months post-course follow-up were investigated as TCBT group scores were recorded only at intake and three month follow-up.

Insert Table 5 and Table 6

The Group * Time interaction revealed a greater decrease in PTSD ($p = .026$) and anxiety ($p = .045$) scores in the SFT group than in the TCBT group, with a similar trend for depression ($p = .085$).

The significant main effect for Time indicated that both treatment approaches were effective, demonstrated by a reduction in PTSD ($p < .001$), anxiety ($p < .001$), and depression ($p < .001$) scores.

PTSD scores were similar in the SFT ($n = 49$) and TCBT ($n = 127$) at intake ($t(174) = -0.77, p = .420$), but differed between groups at the three-month follow-up ($t(174) = -2.70, p = .008$) (see *Figure 1*).

Insert Figure 1

Similarly, anxiety did not differ between the SFT ($n = 49$) and TCBT group ($n = 123$) at intake ($t(170) = -0.97, p = .334$), but differed between groups at three-month follow-up ($t(170) = -3.01, p = .003$) (see *Figure 2*).

Insert Figure 2

Discussion

Our results suggest that schema-focused therapy within a group PTSD treatment program may weaken EMS and thereby have a positive effect on mental health status through symptom improvement in PTSD, depression, and anxiety. Further, our findings indicate support for the central role of treating cognitive processes in PTSD. Young et al. (2003) maintained that schemas are difficult to change as they are deeply held beliefs learnt at a young age that provides feelings of security and predictability. Nevertheless, the present study has demonstrated evidence of EMS change within a chronic PTSD war-

veteran group treatment program. Nordahl et al. (2005) also demonstrated pre-post change in fifteen early maladaptive schemas utilising SFT with a civilian sample in relation to personality pathology. We consider that the significant modification in the majority of schemas in the SFT group may indicate a clustering effect where change in one EMS may facilitate change in others, or it may indicate the efficacy of group therapy for changing schemas.

Veterans may experience a negative impact both from PTSD symptoms and activated EMS. Such a symptom conundrum may facilitate thoughts of impending harm, feelings of failure, and negative perceptions of independent and successful living. In practical terms for clinicians working with veterans, treatment of EMS may invoke a change in symptoms of PTSD, particularly as we found that a significant proportion of the variation in changes in PTSD was explained by treatment changes in EMS. Change in the EMS impaired autonomy domain (dependence/incompetence, vulnerability to harm, enmeshment, and failure schemas) was the most important predictor of treatment change for PTSD. We considered this finding not surprising given the nature of these particular EMS integrated with the symptoms and characteristics of chronic war-related PTSD. Our findings may indicate that veterans with the dependence/incompetence schema may feel unable to handle everyday responsibilities, and those with the vulnerability to harm schema may possess an exaggerated fear that catastrophe will strike at any moment. Furthermore, veterans with the enmeshment/undeveloped self schema may feel a lack of clear identity or direction, and those with a firm failure schema may believe they will inevitably fail in areas of achievement, possibly evidenced by PTSD related examples in personal, employment, and social arenas (Young et al., 2003).

Therefore, clinicians may find it helpful to assess and target the impaired autonomy domain. However, it is also possible that treatment of PTSD may weaken schemas. Irrespective of the hypothesised direction of influence, given the likely schema-PTSD relationship, SFT may be an important component of treatment, and may influence treatment gains.

Although the TCBT group, with no schema-therapy, also experienced a reduction in PTSD, anxiety, and depression, comparison between the two groups demonstrated a greater symptom decrease in PTSD and anxiety at three months post course in the SFT group. This result implies that schema-focused therapy may produce greater reductions in PTSD and anxiety, which may indicate empirical support for this modality's effectiveness in a veteran group setting, possibly in conjunction with CBT and exposure therapy.

Minor differences in treatment for the older and younger veterans (who received extra individual therapy sessions and psychoeducation for alcohol and insomnia management) seemed less important for outcome than SFT, particularly as much of the variation in PTSD was associated with treatment changes in EMS.

Depression decreased to a similar extent in both the SFT and TCBT groups at three month follow-up. The lack of difference was unexpected as depression exhibits high comorbidity rates with PTSD and shares associated symptoms. EMS have been assessed or treated in depression (e.g., Harris & Curtin, 2002; McGinn, Cuker, & Sanderson, 2005; Shah & Waller, 2000). Interestingly, we found that the depression score at intake was the most important predictor of depression treatment change ($\beta = .81$, $p = .001$). It is possible that schemas associated with depression may require a different

or more intense type of SFT than the anxiety disorders. It is also possible that SFT for comorbid depression within a chronic PTSD group may require additional individual therapy. These hypotheses will require further exploration with a larger sample.

Study Limitations

A significant limitation in our first study is the use of retrospective accounts of parenting as remembered by adults about their childhood (McGinn et al., 2005). Limitations in memory, psychopathology, and mood-influenced memory processes may make retrospective accounts unreliable (Brewin, Andrews, & Gotlib, 1993). Gillham, Putter, and Kash (2007) also suggested that retrospective reports of parenting are susceptible to mood bias. For example, the MOPS scores may represent perceived parenting rather than actual parenting. However, in a broad review of retrospective research, Brewin et al. (1993) concluded that the evidence for recall deficits is inconsistent. There is little evidence for a general deficit in memory associated with anxiety or depression, although conclusions are limited by studies that have focused almost exclusively on memory for impersonal stimuli. Recall deficits have not been examined for perceived parenting among PTSD samples. However, Brewin et al. (1993) stated that “the data on personal memories that are available from naturalistic studies suggest that psychiatric patients’ recall is as reliable as that of nonpatients” (p. 94). A systematic review by Hardt and Rutter (2004) suggested that retrospective recall of childhood events can provide accurate data; however, a tendency to underreport instances of maltreatment was detected. Additionally, Gerisma, Das, and Emmelkamp (1993) found that memories of parental behaviour were highly stable across clinically significant changes in depressed mood. Similarly, Schraedley, Turner, and Gotlib (2002) found that

recall of parental psychopathology remained stable irrespective of changes in depression status over time. But even given these findings it is possible that the symptoms of PTSD may have negatively influenced reports of parenting, anxiety, depression, and early maladaptive schemas.

The sample selection in our first study is a study limitation as participants were volunteers and not randomly selected. As 74.1% of the veterans who responded had been diagnosed with PTSD, the sample is not necessarily representative of all Vietnam veterans (31% of whom have PTSD). However, a number of characteristics of the present study veteran cohort do compare closely with the broader male Vietnam veteran community (Department of Veterans' Affairs, 2005), such as the high level of ongoing health problems, the average age at the start of Vietnam service, the national Servicemen proportion of the sample, and the percentage completing one tour of Vietnam.

Current PTSD status was not measured in the first study and this may be a study limitation. However, we did utilise a trauma symptom measure (a modified Acute Stress Disorder Scale), and while not used for diagnostic purposes, results provided support for the diagnostic status of the Vietnam veterans and for the persistence of symptoms. Also, in both study one and the study two SFT group, the PTSD diagnosed veterans recorded the same high level of early maladaptive schemas, with no overall significant difference between the two groups, but with significantly higher scores than in veterans without a PTSD diagnosis who participated in the first study. Together, these findings suggest that the veterans with PTSD who participated in the first study were representative of the broader population of veterans with PTSD.

Although the measures used have demonstrated adequate reliability and validity in psychometric studies, this study relied exclusively on self-reports to obtain information. The generalisability of the results to the population at large is questionable since this was a specific veteran sample in which there was a high incidence of chronic war-related PTSD (McGinn et al., 2005).

The study design may place limits on how far to generalise the study results. The use of an historical control group meant that it was not possible to control for all confounding variables; nor was it possible to determine whether EMS change after traditional CBT. Whilst SFT within the second study PTSD treatment program may have weakened early maladaptive schema content and reduced psychopathology, the discrete or moderating role or influence of other factors on the outcome is not clear. For example, moderators might include the impact of standard CBT apart from schema-focused therapy, physiological symptom alleviation, prolonged exposure, life-skills training, improved social or partner relationships, the veteran-group support context, or an improvement in staff skills and delivery in recent years. Other factors not measured by this study, such as combat intensity (e.g., Koenen et al., 2003; O'Toole, Marshall, Shureck, & Dobson, 1999), peri-traumatic dissociation (e.g., Brewin, Andrews, & Valentine, 2000; Dalgleish, 2004; Simmons & Granvold, 2005) or combat stress reaction (e.g., Solomon & Mikulincer, 2007), may have a role in war-related PTSD development and maintenance.

Directions for Future Research

Given the results of this study, further research investigating early maladaptive schemas and PTSD is warranted. A prospective design with military personnel deploying

to war zones would supply baseline data and time-linked pre-war schema, and post war psychopathology could be employed. Future research might also explore whether early maladaptive schema modification precedes symptom improvement (e.g., Gude & Hoffart, 2008; Nordahl et al., 2005), or if symptom improvement precedes schema weakening as reported by Welburn et al. (2000). Within this prospective research design, three distinct treatments for PTSD could be investigated: cognitive therapy, exposure and cognitive therapy, or exposure therapy, to discover if symptom improvement (PTSD, anxiety, and depression) for each treatment precedes schema weakening. This design would also test which treatment had the strongest effect on schema modification. The study would require a wait-list control group with baseline symptom and EMS measures. Future study could also explore the question of which part/s of schema-focused therapy (cognitive, affective, or behavioural) is most effective. Given that the SFT group experienced six schema-focused group therapy sessions, compared to the Gude and Hoffart (2008) eight group and ten individual schema-focused sessions, a further study could investigate the most effective number, type, and combination of schema-focused therapy sessions within a group treatment program.

Study Conclusions

Despite limitations, the results of our research with both retrospective (first study) and prospective (second study) designs provide preliminary evidence that in war veterans EMS play a major role in the growth, maintenance, and treatment of PTSD. It appears that the veterans' early childhood milieu and associated EMS may play a role in PTSD development, although it is possible that the combat zone and linked stressful post-deployment sequels may activate or foster schemas linked with PTSD.

Psychotherapeutic processes that target EMS can produce change not only in core cognitive structures but also lead to decreases in symptoms of psychopathology.

Although further research is needed, it is likely that schema-focused interventions augmenting existing cognitive and exposure-based therapy will assist veterans.

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Table 1

Relationships between Perceived Parenting Style Scores and PTSD Diagnosis

Parenting Style	Mean (\pm Standard Deviation)		<i>t</i>	<i>df</i>	<i>p</i>
	PTSD (n = 163)	No PTSD (n = 57)			
Maternal Parenting	.41 \pm .51	.22 \pm .27	-3.44	185	.001
Mother Indifference	.31 \pm .56	.14 \pm .38	-2.57	141	.011
Mother Abuse	.28 \pm .54	.09 \pm .23	-3.61	212	.000
Mother Overcontrol	.73 \pm .73	.52 \pm .45	-2.51	158	.013
Paternal Parenting	.56 \pm .67	.29 \pm .42	-3.60	159	.000
Father Indifference	.53 \pm .71	.26 \pm .47	-3.24	150	.001
Father Abuse	.54 \pm .83	.22 \pm .47	-3.50	174	.001
Father Overcontrol	.65 \pm .71	.42 \pm .50	-2.68	138	.008

Note. Equal variances not assumed. Maternal Parenting and Paternal Parenting are derived from collapsed indifference, abuse and overcontrol subscales.

The Bonferroni correction was applied to the three subscales of each parenting category as the study was concerned with both maternal and paternal parenting influences.

The corrected p value for $.05/3 = .017$.

Table 2

Relationships between Early Maladaptive Schema Mean Scores and PTSD Diagnosis

Early Maladaptive Schema	Mean (\pm Standard Deviation)		t	df	p
	PTSD ($n = 163$)	No PTSD ($n = 57$)			
Emotional Deprivation	29 \pm 31	17 \pm 23	-3.24	129	.002
Abandonment	21 \pm 23	5 \pm 9	-7.42	214	.000
Mistrust/Abuse	28 \pm 28	6 \pm 10	-8.38	216	.000
Social Isolation	33 \pm 30	8 \pm 17	-7.64	175	.000
Defectiveness/Shame	18 \pm 23	4 \pm 8	-7.01	217	.000
Failure	14 \pm 24	3 \pm 9	-4.78	217	.000
Dependence/Incompetence	10 \pm 17	2 \pm 7	-4.62	213	.000
Vulnerability	28 \pm 26	6 \pm 11	-9.08	212	.000
Subjugation	18 \pm 24	5 \pm 10	-5.31	212	.000
Self-Sacrifice	42 \pm 27	26 \pm 20	-4.65	129	.000
Emotional Inhibition	48 \pm 32	18 \pm 23	-7.41	136	.000
Unrelenting Standards	40 \pm 28	22 \pm 20	-5.05	132	.000

Entitlement	23 ± 23	9 ± 14	-5.68	163	.000
Insufficient Self-Control	35 ± 29	11 ± 17	-7.37	164	.000
Approval Seeking	19 ± 23	7 ± 12	-4.70	180	.000
Negativity/Pessimism	31 ± 31	8 ± 18	-6.62	163	.000
Punitiveness	37 ± 28	17 ± 17	-6.18	154	.000

Note. Equal variances not assumed. The Bonferroni correction for .05/17 is $p = .003$.

Table 3

Repeated Measures Analysis of Variance of Early Maladaptive Schema Mean Scores within the 2007-8 Hollywood Clinic PTSD Treatment Group at Intake, Discharge, & 3 Month Follow-up

Early Maladaptive Schemas	Mean (± Standard Deviation)			<i>F</i>	Partial η^2
	Intake	Discharge	3 Months Post-Course		
Emotional Deprivation	32 ± 30	21 ± 25 ^a	23 ± 25	5.91* (1.4, 68.8)	.11
Abandonment	31 ± 27	21 ± 23 ^a	25 ± 27	6.44** (1.7, 85.4)	.12
Mistrust/Abuse	44 ± 32	34 ± 29 ^a	35 ± 27	7.55** (1.8, 88.1)	.13
Social Isolation	44 ± 36	32 ± 35 ^a	33 ± 35	6.61** (1.7, 81.0)	.12
Defectiveness/Shame	32 ± 30	22 ± 28 ^a	25 ± 28	6.22** (1.8, 87.4)	.11
Failure	34 ± 36	23 ± 31 ^a	23 ± 31	7.10** (1.7, 81.5)	.13
Dependence/Incompetence	24 ± 29	18 ± 25	17 ± 25	3.50* (1.7, 81.0)	.07
Vulnerability	40 ± 31	31 ± 30 ^a	30 ± 30	5.19* (1.5, 73.9)	.10
Enmeshment	9 ± 19	8 ± 16	8 ± 15	0.33 (1.4, 66.3)	.01
Subjugation	31 ± 33	21 ± 26 ^a	21 ± 25	8.36** (1.7, 83.2)	.15

Early Maladaptive Schemas, PTSD and Vietnam Veterans

Self-Sacrifice	51 ± 29	44 ± 30 ^a	37 ± 30 ⁿ	12.27*** (1.9, 95.2)	.20
Emotional Inhibition	63 ± 34	50 ± 35 ^a	46 ± 35	13.03*** (1.9, 92.7)	.21
Unrelenting Standards	51 ± 31	44 ± 32 ^a	39 ± 31 ⁿ	8.90*** (1.9, 90.9)	.15
Entitlement	30 ± 27	20 ± 24 ^a	20 ± 24	12.45*** (1.9, 93.2)	.20
Insufficient Self-Control	42 ± 27	35 ± 28 ^a	28 ± 24 ⁿ	10.54*** (1.8, 88.4)	.18

Table 3 (continued)

Early Maladaptive Schemas	Mean (± Standard Deviation)			<i>F</i>	Partial η^2
	Intake	Discharge	3 Months Post-Course		
Approval Seeking	25 ± .27	20 ± 23 ^a	16 ± 22 ⁿ	7.78** (1.6, 79.9)	.14
Negativity/Pessimism	41 ± 35	30 ± 32 ^a	30 ± 31	6.75** (1.8, 86.1)	.12
Punitiveness	46 ± 29	40 ± 31	34 ± 31 ⁿ	9.90*** (1.9, 95.6)	.17

Note. *F* for Greenhouse-Geisser ϵ adjustment test. * $p < .05$, ** $p < .01$, *** $p < .001$. ^a = significant difference between intake & discharge. ⁿ = significant difference between discharge & follow-up.

Table 4

Repeated Measures Analysis of Variance of PCL and HADS Scores within a 2007-8 Hollywood Clinic PTSD Treatment Group at Intake, Discharge, & 3 Month Follow-up

Measurement	Mean (± Standard Deviation)			<i>F</i>	Partial η^2
	Intake	Discharge	3 Months Post-Course		
PTSD					
PCL ($n = 49$)	63.8 ± 10.4	55.5 ± 11.0 ^a	53.9 ± 13.7	29.25*** (2, 96)	.38
Anxiety					

Early Maladaptive Schemas, PTSD and Vietnam Veterans

HADS (<i>n</i> = 49)	13.8 ± 3.5	11.8 ± 3.7 ^a	11.4 ± 3.9	18.66*** (2, 96)	.28
Depression					
HADS (<i>n</i> = 49)	11.7 ± 4.1	9.5 ± 3.9 ^a	9.2 ± 4.1	15.95*** (1.8, 84.5) ^o	.25

Note. °*F* for Greenhouse-Geisser ε adjustment test. ****p* < .001. .^a = significant difference between intake & discharge with no further change between discharge and follow-up.

Table 5

PCL and HADS Mean Scores in the Veterans' Hollywood Clinic 2007-8 PTSD Treatment Group with Schema Therapy and a Comparison Group at Intake and 3 Month Follow-up

Measurement	Group	Mean (± Standard Deviation)	
		Intake	3 Months Post-Course
PTSD	Schema Group	63.8 ± 10.4	53.9 ± 13.7 ^a
	Comparison Group	65.1 ± 9.9	59.4 ± 11.6 ^a
Anxiety	Schema Group	13.8 ± 3.5	11.4 ± 3.9 ^a
	Comparison Group	14.4 ± 3.7	13.3 ± 3.7 ^a
Depression	Schema Group	11.7 ± 4.1	9.2 ± 4.1 ^a
	Comparison Group	11.9 ± 3.8	10.6 ± 4.4 ^a

Note. *n* = 49 for Schema Group. ^a = significant difference between intake and 3 month follow-up.

Table 6

Repeated Measures Analysis of Variance Between-Subjects Factors of PCL and HADS Mean Scores between the Veterans' Hollywood Clinic 2007-8 PTSD Treatment Group with Schema Therapy and a Comparison Group at Intake and 3 Month Follow-up for Group, Time, and Group by Time

F ratio (Partial η²)

Measurement	Group	Time	Group * Time
PTSD (PCL)	4.41 (.025)*	71.22 (.290)***	5.06 (.028)*
Anxiety (HADS)	5.52 (.031)*	30.43 (.152)***	4.06 (.023)*
Depression (HADS)	1.64 (.010)	31.35 (.156)***	2.99 (.017)

Note. * $p < .05$, *** $p < .001$ F ratios had 1,174 degrees of freedom for the PCL, and 1,170 degrees of freedom for the HADS.

Table 7

Chronbach's Alpha in Veterans' Early Maladaptive Schema Scores

Early Maladaptive Schema	Items	Study 1		Study 2	
		α	Intake α	Discharge α	Follow-up α
Emotional Deprivation	9	.917	.878	.886	.871
Abandonment	17	.915	.919	.908	.946
Mistrust/Abuse	17	.940	.943	.937	.936
Social Isolation	10	.928	.939	.951	.953
Defectiveness/Shame	15	.922	.938	.946	.951
Failure	9	.928	.943	.947	.949
Dependence/Incompetence	15	.908	.949	.932	.953
Vulnerability	12	.907	.913	.917	.936
Enmeshment	11	N/A	.903	.885	.851
Subjugation	10	.898	.937	.900	.895
Self-Sacrifice	17	.915	.926	.944	.947
Emotional Inhibition	9	.918	.918	.938	.937

Unrelenting Standards	16	.919	.931	.953	.947
Entitlement	11	.862	.882	.895	.898
Insufficient Self-Control	15	.934	.902	.911	.897
Approval Seeking	14	.917	.934	.915	.920
Negativity/Pessimism	11	.937	.933	.936	.932
Punitiveness	14	.914	.905	.938	.945

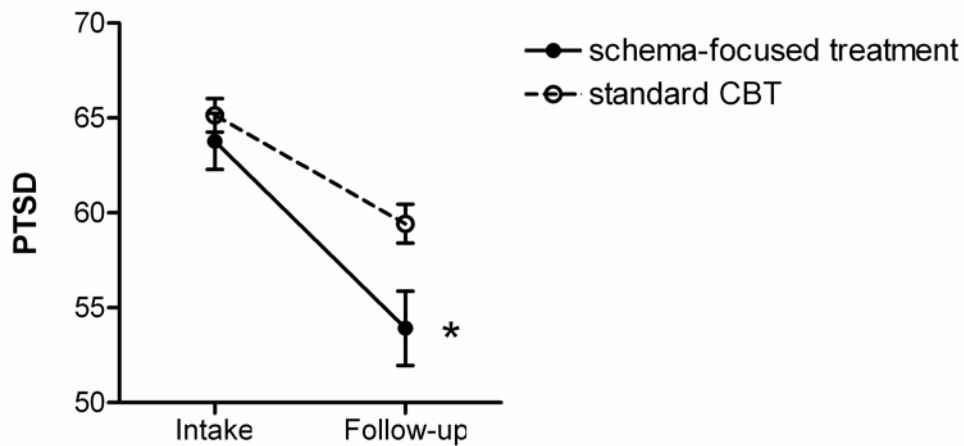


Figure 1. Comparison of PTSD scores (\pm SEM) on the PTSD Symptom Checklist (PCL) at intake and 3 month follow-up. Scores were similar in the schema-focused and traditional CBT groups at intake, but were lower in the schema-focused treatment group at 3-month follow-up (* $p < 0.01$).

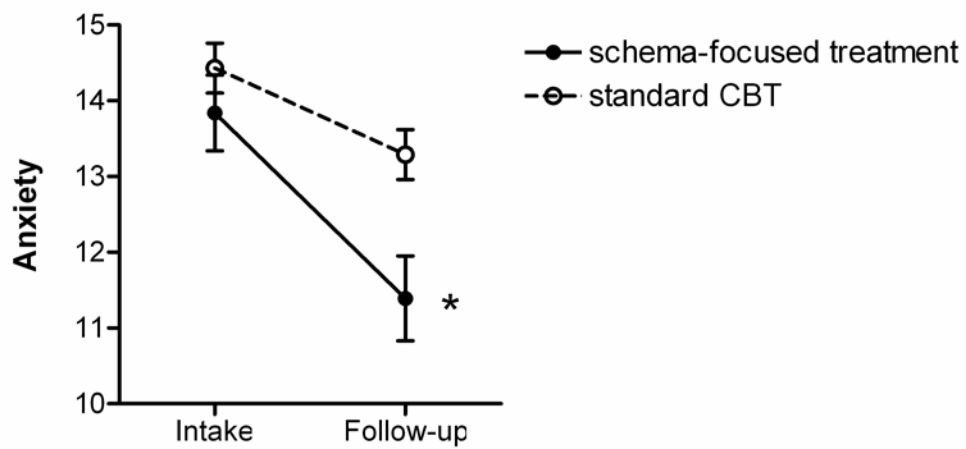


Figure 2. Comparison of anxiety scores (\pm SEM) on the Hospital Anxiety and Depression Scale at intake and 3 month follow-up. Scores were similar in the schema-focused and traditional CBT groups at intake, but were lower in the schema-focused treatment group at 3-month follow-up (* $p < 0.01$).