The Effectiveness of Behavioral Activation Group Therapy: Treating Comorbid Depression on a Specialized Inpatient Posttraumatic Stress Disorder Unit for Combat Veterans

Theodore P. Wright
Western Michigan University

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THE EFFECTIVENESS OF BEHAVIORAL ACTIVATION GROUP THERAPY:
TREATING COMORBID DEPRESSION ON A SPECIALIZED INPATIENT
POSTTRAUMATIC STRESS DISORDER UNIT
FOR COMBAT VETERANS

by
Theodore P. Wright

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Faculty of The Graduate College
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Western Michigan University
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THE EFFECTIVENESS OF BEHAVIORAL ACTIVATION GROUP THERAPY: TREATING COMORBID DEPRESSION ON A SPECIALIZED INPATIENT POSTTRAUMATIC STRESS DISORDER UNIT FOR COMBAT VETERANS

Theodore P. Wright, Ph.D.
Western Michigan University, 2002

The comorbidity of depression and PTSD has been shown to be relatively prevalent. Researchers have found a 70% lifetime prevalence of comorbid PTSD and depression among combat veterans. This study examined the effectiveness of a behavioral activation (BA) group treatment when administered to combat veterans with comorbid depression and PTSD in the residential treatment program at the Battle Creek Veteran Affairs Medical Center. Forty-five veterans participated in the study. Twenty-four veterans participated in a BA treatment group while in the treatment program. Twenty-one veterans attended the treatment program, but did not participate in the BA treatment group and served as a comparison group. All of the participants completed a battery of assessments upon admission, at discharge, 1 month after discharge, and 2 months after discharge. It was hypothesized that veterans participating in the BA group would evidence a greater reduction in depressive and PTSD symptoms than those in the comparison group at the posttreatment and two follow-up assessments. Veterans in the BA group evidenced mild reductions of depressive symptoms, but no changes in PTSD symptoms. The comparison group
evidenced no reductions in depressive or PTSD symptoms. Factors associated with changes in symptoms were also explored.
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CHAPTER I

INTRODUCTION

Prevalence

Depression is one of the most prevalent psychiatric disorders (Kessler et al., 1994). Kessler and his colleagues completed a national study of psychiatric comorbidity. The researchers assessed for the presence of psychiatric disorders using Diagnostic and Statistical Manual of Mental Disorders, Third Edition-Revised (DSM-III-R, APA, 1987) criteria in 8,098 noninstitutionalized participants throughout the 48 coterminous states. Both lifetime and 12-month prevalence rates were gathered. After the initial surveys were completed, the researchers re-contacted nonresponders and offered a financial incentive for participation. This second phase allowed the authors to develop appropriate weights to estimate the presence of psychiatric problems in individuals who continued to not respond.

The experience of a major depressive episode was the most prevalent specific psychiatric disorder for both lifetime and 12-month rates. In the sample examined, 17.1% of the participants had experienced a major depressive episode in their lifetime. The next most prevalent disorder was alcohol dependence, with a 14.1% lifetime prevalence rate. Women tended to experience depressive episodes over their lifetime at a higher rate than men (21.3% and 12.7%, respectively). During the 12 months preceding the answering of the survey by participants, 10.3% of the sample had
experienced a major depressive episode, with 12.9% of the women and 7.7% of the men meeting diagnostic criteria within the last year. The next most prevalent disorder was simple phobia, with an 8.8% 12-month prevalence rate.

Kessler and his colleagues (Kessler, Sonnega, Bromet, Hughes, & Nelson, 1995) completed a second study that assessed for the presence of “secondary diagnoses” in a subsample of the 8,098 subjects who completed the original National Comorbidity Survey (Kessler et al., 1994). Participants consisted of 5,877 people throughout the country. Kessler et al. (1995) found that 7.8% of the subjects met DSM-III-R diagnostic criteria for posttraumatic stress disorder (PTSD) at some point during their lifetime. Women were found to experience PTSD more than twice as often as men over their lifetime, 10.4% and 5%, respectively.

Trauma experiences most often associated with the development of PTSD symptoms for women included rape and molestation, together accounting for 49% of the women diagnosed with PTSD. For men, combat exposure and witnessing someone being badly injured or killed were most commonly associated with the development of PTSD symptoms. While only 6.4% of the sample had exposure to combat, 38.8% of these individuals met diagnostic criteria for PTSD at some point in their lifetime.

Comorbidity

An important issue that arises when diagnosing individuals is the comorbidity of psychiatric disorders experienced by individuals. Comorbidity is the presence of
two or more concurrent psychiatric disorders. Comorbidity is an issue because the presence of concurrent multiple diagnosable disorders has been associated with greater distress and life dysfunction (Blanchard, Buckley, Hickling, & Taylor, 1998; Shalev et al., 1998; Southwick, Yehuda, & Giller, 1991).

Kessler et al. (1994) found that 79% of the respondents in their study who met diagnostic criteria for one disorder also had a diagnosable comorbid condition during their lifetime. These findings provide researchers with the challenges of identifying highly comorbid diagnoses, developing theoretical explanation for the high co-occurrence, and designing treatments that address the complex problems experienced by these individuals.

Research results have indicated that a significant proportion of those individuals who meet diagnostic criteria for posttraumatic stress disorder also meet diagnostic criteria for major depression (Kessler et al., 1995; Orsillo et al., 1996). Kessler et al. (1995) found that 47.9% of the men and 48.5% of the women surveyed who met diagnostic criteria for PTSD had also met diagnostic criteria for experiencing a major depressive episode. No other comorbid diagnosis with PTSD was found to be more prevalent among the female subjects and only alcohol abuse/dependence was found to be more prevalent (51.9%) than major depression among the male subjects.

Orsillo et al. (1996) examined the comorbidity of psychiatric disorders and PTSD among veterans who had been in a war zone. The authors found that, among veterans with a history of combat experience who were diagnosed with PTSD, 70%
had also met diagnostic criteria for major depression at some point in their lives. This lifetime prevalence rate of comorbidity between PTSD and depression was second to the rate of comorbidity between PTSD and alcohol abuse/dependence in this same population (77%). When these authors examined the rate of comorbidity of PTSD with other psychiatric disorders present at the time of the assessment, major depression was the most prevalent single diagnosis (55%) followed by panic disorder (25%) and alcohol abuse/dependence (18%). An important additional finding from this study was that both the lifetime prevalence and "current" rates of major depression were significantly higher among the veterans with PTSD than among the comparison group of combat veterans who did not meet criteria for PTSD. However, a significant difference was not found between the PTSD and non-PTSD groups in either lifetime prevalence or "current" rates of alcohol abuse/dependence.

Depression and PTSD Diagnoses

Current Diagnostic Criteria for Depression

The Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV, APA, 1994) provides the current criteria for diagnosing psychiatric disorders. For a person to be diagnosed with major depression, he or she must have at least five of nine different symptoms. Symptoms associated with depression include depressed mood nearly every day, diminished interest or pleasure in most activities, changes in weight gain or appetite, sleep disturbances, psychomotor agitation or retardation, loss of energy of fatigue, feelings of worthlessness or excessive guilt,
problems with concentration or decision making, and suicidal ideation or intent. These symptoms must cause impairment in functioning and cannot be caused by physiological problems, substance use, bereavement, or psychosis. There also cannot be a history of a manic, hypomanic, or mixed manic-depressive episode.

**Current Diagnostic Criteria for PTSD**

For a person to be diagnosed with PTSD with the *DSM-IV*, he or she must have been exposed to a traumatic event in which there was the occurrence or threat of harm to the person or someone else and the person experienced intense fear, helplessness, or horror. The person must report at least one symptom of re-experiencing of the trauma. Re-experiencing symptoms include unwanted recollections of the event, recurring disturbing dreams of the event, acting or feeling as if the event was recurring, psychological reactivity to external or internal cues related to the event, and physiological reactivity to external or internal cues related to the event. The person must experience at least three symptoms of avoidance or numbing. Avoidance and numbing symptoms include attempts to avoid thoughts or feelings associated with the event; attempts to avoid people, places, or activities associate with the event; trouble remembering specific parts of the event; decreased interest or participation in important activities; feeling detached or estranged; restricted range of affect; and negative view or no view of the future. The person must experience at least two symptoms of increased arousal. Symptoms of increased arousal include sleep problems, irritability or anger, problems concentrating,
hypervigilance, and exaggerated startle response. In order to be diagnosed with PTSD, the person must also report that these symptoms impair functioning and have lasted at least a month.

**Shared Symptoms Between PTSD and Depression**

An important consideration in examining the comorbidity of PTSD and depression is the overlap in symptoms required to meet each of the diagnoses. Of the 17 symptom clusters used to diagnose PTSD and 9 symptom clusters used to diagnose a major depressive episode in the *DSM-IV* (APA, 1994), 3 symptoms are similar. These symptoms include sleep problems, difficulty concentrating, and anhedonia. It may be argued that the overlap of symptoms between the disorders would create a tendency for comorbidity and, to the extreme, indicates that the disorders may be a unitary response to trauma rather than two separate identifiable response sets.

Blanchard et al. (1998) explored these potential hypotheses with subjects who had experienced motor vehicle accidents. The authors found that two independent, but correlated, conditions were identified in the analysis. Another finding was that there was no significant difference in the number of subjects meeting diagnostic criteria for major depression if the symptom threshold was decreased from 9 to 6 depressive symptoms.

Blanchard and his colleagues also noted that those who met both diagnoses were more subjectively distressed and socially dysfunctional than those who only met
diagnosis for PTSD. Another group of researchers (Southwick et al., 1991) had also found that subjects with comorbid PTSD and depression evidenced symptoms related to personal distress, suicide, and social dysfunction. These researchers indicated that combat veterans with PTSD and depressive symptoms tended to report a higher level of self-criticism and guilt than subjects without this comorbidity.

Treatment

PTSD Treatment

Researchers have completed many studies examining the effectiveness of treatments for PTSD (Foa, Keane, & Friedman, 2000). One population of subjects that has received special attention in the PTSD treatment research has been combat veterans (Rosenheck, Fontana, & Errera, 1997; Scurfield, 1993; Shalev, 1997). Treatments studied for combat-related PTSD have included eye movement desensitization and reprocessing (EMDR) (Carlson, Chemtob, Rusnak, & Hedlund, 1996; Devilly, Spence, & Rapee, 1998; Rogers et al., 1999; Silver, Brooks, & Obenchain, 1995; Young, 1995), behavioral family therapy (Glynn et al., 1995), implosive therapy (Keane, Fairbank, Caddell, & Zimering, 1989), anxiety management training (Pantalon & Motta, 1998), relaxation (Silver et al., 1995; Watson, Tuorila, Vickers, Gearhart, & Mendez, 1997), exposure (Rogers et al., 1999; Rothbaum et al., 1999), and biofeedback (Silver et al., 1995). The effectiveness of these different treatment approaches has been mixed, but has usually been very modest.
Inpatient multimodal programs which combine individual treatment approaches have been used extensively with combat veterans with PTSD (Creamer, Morris, Biddle, & Elliott, 1999; Fontana & Rosenheck, 1997; Hammarberg & Silver, 1994; Hutzell et al., 1997; Johnson, Lubin, James, & Hale, 1997; Johnson et al., 1996; Ragsdale, Cox, Finn, & Eisler, 1996; Richards, Lovell, & Marks, 1994; Ruzek et al., 2001). Most of these programs have been Specialized Inpatient PTSD Units (SIPUs) in Department of Veteran Affairs Medical Centers (VAMCs) (Courtois & Bloom, 2000; Rosenheck et al., 1997). Research has shown limited effectiveness of these programs in reducing PTSD symptoms (Fontana & Rosenheck, 1997; Johnson et al., 1996; Ruzek et al., 2001; Shalev, 1997). Some possible explanations for the lack of treatment response is the chronicity of the problem (Johnson et al., 1999; Johnson et al., 1996; Ruzek et al., 2001), comorbidity with other psychiatric disorders (Courtois & Bloom, 2000), treatment resistance (Shalev, 1997), secondary gain issues (Johnson et al., 1996), or an increase in affective symptoms in response to eliciting trauma memories (Johnson et al., 1996; Ruzek et al., 2001). Foa et al. (2000) caution about making premature conclusions regarding factors associated with reduced treatment response. Foa and her colleagues suggest that researchers have not systematically studied these factors, so no evidence exists to support the role of any specific factors.

Two recent movements in the inpatient treatment of combat-related PTSD has been to reduce the length of the treatment (Fontana & Rosenheck, 1997; Johnson et al., 1996; Ragsdale et al., 1996; Rosenheck et al., 1997) and to change the focus of
treatment (Hutzell et al., 1997; Johnson, Feldman, Southwick, & Charney, 1994; Johnson & Lubin, 1997; Johnson et al., 1997; Johnson et al., 1996). Reduction in treatment length has been supported by researcher findings of reductions in PTSD symptoms with shorter inpatient stays that equal, or are greater than, reductions in symptoms with longer inpatient stays. For example, Fontana and Rosenheck (1997) found that veterans completing an average of 37 days in treatment evidenced reduction in symptoms equal to veterans completing an average of 100 days in treatment. These researchers also found that the veterans in the shorter programs tended to sustain improvements while the veterans in the longer programs tended to show deterioration back to pretreatment symptoms levels over 12 months.

Other researchers (Hutzell et al., 1997; Johnson et al., 1994) have suggested that programs begin to focus less on specific symptoms of PTSD and more on reintegrating veterans into society. The researchers refer to programs that focus on attempts to reduce core PTSD symptoms as “first generation” programs and programs that focus on helping veterans reintegrate into society, work, and family as “second generation” programs. Johnson and Lubin (1997) found that veterans rated interventions characteristic of first generation programs more helpful than interventions characteristic of second generation programs immediately after treatment. However, these ratings reversed by the 12-month follow-up assessments. In another study, Johnson and his colleagues (Johnson et al., 1997) examined the relative effectiveness of treatment components with external focus, that were action oriented, and had little Vietnam content (second generation) and components with
more internal focus, that were verbal oriented, and had high Vietnam content (first
generation). The researchers found that the second generation components produced
greater improvement than first generation components.

**Depression Treatment**

With research findings indicating that combat veterans diagnosed with PTSD
are also at a high risk of developing major depressive symptoms (Davidson, Kudler,
Saunders, & Smith, 1990; Fairbank, Keane, & Malloy, 1983; Kessler et al., 1995;
Orsillo et al., 1996; Southwick et al., 1991), the need to include treatment
components for depression in conjunction with the treatments aimed at reducing
symptoms related to PTSD in multimodel programs becomes important. Two types of
interventions that have shown the most promise in treating depression are medication
and psychological treatments (Dobson, 1989; Hollon et al., 1992; Jacobson & Hollon,
1996). Tricyclic antidepressants, monoamine oxidase inhibitors (MAOIs), second
generation heterocyclics, and selective serotonin reuptake inhibitors (SSRIs) have all
been used to treat depression with varying degrees of success (Rehm & Tyndall,
1993).

Some of the most common psychological treatments used to treat depression
are cognitive-behavioral therapies (CBT) (Dobson & Block, 1988). Research results
have supported the use of CBT for depression (DeRubeis & Freeley, 1990; Dobson,
1989; Fuchs & Rehm, 1977; Hollon et al., 1992; Jacobson et al., 1996; Sacco &
Beck, 1995; Shaw, 1977). The possible additive effect of using medication and CBT
concurrently has also been examined (DeRubeis, Gelfand, Tang, & Simons, 1999; Hollon et al., 1992; Hollon, Shelton, & Loosen, 1991; Jacobson & Hollon, 1996). Results indicated that the medications and CBT are generally equivalent in reducing symptoms of depression. The relative efficacy of the two interventions individually and of the interventions combined continues to be debated (DeRubeis et al., 1999; Elkin et al., 1989; Hollon et al., 1992; Jacobson & Hollon, 1996).

Despite the ongoing debate regarding the superiority of the two treatments, CBT has been shown to significantly reduce symptoms related to depression across several studies (Dobson, 1989). CBT is a treatment approach designed to change a person’s immediate thinking patterns, behaviors, and beliefs (Addis & Jacobson, 1996; Beck, Rush, Shaw, & Emery, 1979). The therapy is structured and includes progressively changing overt behavior, modifying problematic thinking, and challenging and modifying a client’s belief system or cognitive schema (Jacobson et al., 1996).

Dobson (1989) completed a meta-analysis examining the effectiveness of CBT in the treatment of depression across 28 separate studies. Dobson found that CBT was more effective than pharmacotherapy, behavior therapy, and no treatment. Results indicated that subjects receiving CBT evidenced fewer symptoms posttreatment, as measured by the Beck Depression Inventory, than 98% of the subjects receiving no treatment, 67% of the subjects receiving behavioral treatments, and 70% of the subjects receiving medication. Dobson also found that the effectiveness of cognitive therapy was not related to the length of treatment, with an
average length of treatment in the studies of 14.9 weeks ($SD = 9.5$). Dobson indicated that continued research was necessary to identify the components of the CBT package that may be associated with the changes in depression level. He noted that most of the change in therapy often occurs early in the treatment package, when the emphasis of the therapy is on increasing a subject’s behaviors.

The Development of the Behavioral Activation Treatment

Dismantling Cognitive-Behavioral Therapy

Jacobson and his colleagues (Jacobson et al., 1996) identified three components within the CBT package that could be examined independently and that may account for some, if not all, of the change associated with treatment efficacy. The three components included interventions aimed at modifying clients’ cognitive structures and processes, interventions designed to increase clients’ activity levels, and interventions developed to teach clients how to cope cognitively with negative life events and related thoughts. These authors also discussed possible theoretical explanations for how each of these components may be related to the reduction of depressive symptoms.

Generally, cognitive theory hypothesizes that clients become depressed because of problematic cognitive structures or core schema (Beck et al., 1979; Jacobson et al., 1996; Sacco & Beck, 1995). These dysfunctional structures are identified through overt and internal behavior, including verbal behavior. The goal in cognitive therapy is to identify and effect change in the client’s core cognitive schema.
By modifying these structures, it is hypothesized that thought processes and behaviors will change and lead to more functional and adaptive ways of approaching life.

Jacobson et al. (1996) provided theoretical hypotheses related to the possible mechanisms of change associated with increasing a client’s activity level and modifying cognitive coping skills. It is hypothesized that by increasing behavior activity level, clients increase the sources of reinforcement available to them in their lives. With little activity, the client receives limited reinforcement in his or her life, which leads to further decreased activity, which results in even less exposure to reinforcing events, and results in increased depression. By changing a client’s cognitive coping skills in conjunction with increasing activity level, it is hypothesized that the client will be able to better manage personal cognitive reactions to life events as they occur while increasing the reinforcement he or she is experiencing in his or her life. The constant practice of these new coping skills leads to the replacement of negative interpretations of life events with more positive ones, which results in decreased symptoms of depression.

Lejuez, Hopko, LePage, Hopko, and McNiel (2001) suggested that, in conjunction with needing to increase reinforcement in a person’s life, there may be an additional explanation for depression associated with a person’s activity level. These authors suggest that depressive symptoms may also be associated with depressed behaviors producing more immediate negative reinforcement than nondepressed behaviors. The authors indicate that developing “contrived” reinforcers for
nondepressed behaviors, until the behaviors themselves produce reinforcing effects, may be important.

Jacobson et al. (1996) designed a study to examine the relative efficacy of interventions designed to address each of these areas. The authors assigned 150 subjects to receive either the full CBT, the behavioral activation (BA) components of CBT, or the combination of the BA components and psychoeducation related to modifying automatic thoughts. The authors found that each of the different treatment modalities were equivalent in reducing symptoms related to depression. The authors indicated that these findings support the use of BA for the treatment of depression due to its relative brevity and simplicity when compared to the full cognitive-behavioral treatment protocol.

**Behavioral Activation Treatment**

The BA treatment procedure used by Jacobson and his colleagues involved identifying problematic behaviors specific to the individual client and using interventions designed to increase the client’s activity level in his or her natural environment (Jacobson, 1997). The authors included specific interventions believed to achieve these desired results which include: monitoring daily activities, assessing pleasure and mastery over activities, increasing difficulty level of activities to facilitate feeling pleasure and mastery, cognitively rehearsing activities individuals are scheduled to complete, identifying and solving problems as they arise using behavioral principles, and teaching social skills.
Lejuez et al. (2001) developed a BA treatment consistent with the Jacobson (1997) treatment and explored the effectiveness of the BA treatment in reducing symptoms of depression in three case studies. The subjects attended 9, 10, and 12 individual sessions, which focused on increasing activity level, increasing pleasant activities, and decreasing overt and covert behavior associated with depression. Each of the subjects evidenced statistically and clinically significant reductions in scores on the Beck Depression Inventory and increased subjective ratings of life functioning.

Porter (2000) developed a group treatment based on the Jacobson BA treatment manual and examined the effectiveness of the intervention with outpatient depressed clients being seen in community mental health centers. The researchers reported positive results, with significant reductions in depressive symptoms across assessment sessions. The results of this study raised at least two questions that could be addressed in further research. First, how effective would the treatment be in an inpatient setting? Second, would the treatment benefit individuals struggling with multiple psychiatric disorders?

Future Research

Given past research results (Jacobson et al., 1996; Lejuez et al., 2001; Porter, 2000) and current trends in treating combat-related PTSD (Hutzell et al., 1997; Johnson et al., 1994), the inclusion of a BA component in an inpatient treatment program specializing in the treatment of PTSD may provide addition benefits to patients suffering from comorbid PTSD and depression while answering some of the
questions raised by the Porter study. The flexibility, brevity, and simplicity of the behavioral activation procedure makes it amenable to being incorporated into a pre-existing inpatient treatment program, such as the specialized inpatient PTSD Unit (SIPU) at the Battle Creek Veteran Affairs Medical Center (BCVAMC).

The Battle Creek VAMC SIPU

The Battle Creek VAMC SIPU is composed of three different treatment groups, generally associated with a veteran’s history of previous PTSD treatment and a veteran’s subjective ability to confront progressively more intense treatment processes. The three groups are described as “tracks” and include the “choices” track (C-track) which lasts 22 days, the “rehabilitation” track (R-track) which lasts 28 days, and the “stress recovery” track (S-track) which lasts 56 days. Veterans attending the R- and S-tracks are admitted and discharged at the same time, creating treatment cohorts. The C-track group members are admitted and discharged at different times, creating a fluid group membership with constant member turnover.

Generally, veterans attend the groups sequentially from the C- to the R- to the S-track. The different tracks are housed in the same area and interact socially. They also attend many psychoeducational groups together. The primary difference in treatment is a specific therapeutic group that meets up to three times a week and is only attended by members of the specific cohort. This treatment group focuses on progressively more trauma-specific material from the C- to the S-track. The S-track group is devoted to discussing the veterans’ experiences before, during, and after
their military experience, with primary emphasis on lifetime traumatic experiences. Although there are scattered examples of the use of various components of CBT in the inpatient program, there is not a treatment modality currently in place that specifically targets the treatment of depression. The program uses both first and second generation treatment components. The C-track tends to focus more on second generation interventions, while the R- and S-tracks tend to focus more on first generation interventions.

The treatment program is voluntary and has a waiting list of veterans who wish to attend. Before a veteran is admitted, he must complete a screening session to assess whether he is likely and able to benefit from the treatment offered at the SIPU. Clinical and social work staff complete these screenings and make recommendations for inclusion in or exclusion from the program.

Veterans are considered appropriate if they have verifiable combat exposure, indicate the presence of the symptoms necessary to be diagnosed with PTSD, and are judged as competent by VA standards. Veterans are considered inappropriate for the program if they are unable to intellectually comprehend the information discussed in the program, are physically unable to participate in activities required for the program, are actively suicidal, are actively psychotic, or are actively using alcohol or drugs.

Veterans are sometimes discharged before completing the program due to behavior that is considered inappropriate or dangerous. A veteran may be asked to leave by the treatment team if he has attempted or threatened, physically or verbally, to harm a staff person or another patient. A veteran is also asked to leave if he tests
positive for alcohol or drug use during his admission. Veterans who indicate the presence of suicidal intent or show active signs of psychosis are transferred to the acute psychiatric ward at the hospital for appropriate treatment. A veteran may also be transferred to the acute psychiatric ward if he becomes physically assaultive.

**The Present Study**

The present study utilized a group treatment approach designed to fit within the pre-existing voluntary residential treatment program for combat veterans with PTSD at the BCVAMC. The R-track included a stay of enough time and a cohort component necessary to institute a group process related to addressing depressive symptoms. The study examined whether the inclusion of a BA group treatment for depression was associated with additional benefit to the veterans, in terms of reducing depressive symptoms. It was hypothesized that veterans receiving the BA treatment would report a reduction in depressive symptoms and that this reduction would be greater than the reduction in depressive symptoms reported by veterans receiving only the standard inpatient treatment. It was hypothesized that the treatment would facilitate further reduction in PTSD-related symptoms in this population beyond those realized by participants only receiving the standard treatment. Potential factors hypothesized to be associated with changes in the symptoms were also examined.
CHAPTER II

METHODS

The Design

A 2 x 4 mixed-groups quasi-experimental design was used for this study. The between subjects variable was group assignment. Veterans received either the standard treatment plus BA therapy group (BA group) or the standard treatment only (comparison group). The repeated measure was assessment time, with data being collected shortly after admission into the Specialized Inpatient PTSD Unit (SIPU) (pretreatment), within a week prior to discharge (posttreatment), 1 month after discharge (1-month follow-up), and 2 months after discharge (2-month follow-up). Entire group cohorts were randomly selected to either receive the standard treatment plus BA group therapy or standard treatment only. Seven separate cohorts were included in the study. Three of the cohorts received the BA treatment. Four of the cohorts served as the comparison group.

Participants

Participants in this study were veterans who had been accepted into the “Rehabilitation Track” of the SIPU at the Battle Creek VAMC (see Appendices A and B for Western Michigan University Human Subjects Institutional Review Board and Battle Creek VAMC Research and Development approval letters, respectively).
Requirements for acceptance into the SIPU included having been exposed to combat during the veteran's military service and having a diagnosis of posttraumatic stress disorder. Veterans must also have been literate in English, between the ages of 18 and 75 years, and judged as competent by VA standards. Veterans were considered inappropriate for the program if they were unable to intellectually comprehend the information discussed in the program, physically unable to participate in activities required for the program, actively suicidal, actively psychotic, actively using alcohol or drugs, or considered unable to benefit from the SIPU by screening staff. All veterans accepted into the program were offered the opportunity to participate in the study. Veterans participating in the study completed a 28-day inpatient program for the treatment of PTSD.

Sixty-two veterans agreed to participate in the study. Seventeen veterans dropped out of the study before the posttreatment assessment. Of those 45 veterans who completed both pretreatment and posttreatment assessment, 24 were in the three cohorts assigned to receive the BA group, while 21 were in the four cohorts assigned to serve as the comparison group.

Nursing staff asked veterans if they were interested in participating in the study during the admissions process (see Appendix C for the recruitment script used by ward nurses and Appendix D for the informed consent meeting scripts). Individuals willing to participate were scheduled to attend the first assessment session after signing the informed consent forms. Separate consent forms were used for the veterans assigned to the BA group (see Appendix E) and the comparison group (see
Appendix F). All 24 of the veterans in the BA group attended at least six group sessions. Two veterans who did not consent to the study also participated in the BA group. These veterans were allowed to participate in the BA group process, but they did not complete assessments, had no other data collected on them, and were not considered study subjects. The provision that veterans would be allowed to participate in the group process, even if they declined to participate in the study, was required by the BCVAMC Research and Development Committee.

Procedures

Location

Assessment and treatment sessions were conducted at the BCVAMC in a group therapy room in building 12. Assessments were done in the testing laboratory in building 39 and in psychology staff offices in buildings 10 and 12 at the BCVAMC.

Therapists and Independent Assessors

Two therapists provided BA group treatment. The therapist for the first two BA group cohorts was a psychology intern. He had completed all requirements for graduation from a clinical psychology doctoral program except his internship and dissertation. The second therapist facilitated treatment for the third BA group cohort and was a staff psychologist with a doctorate in clinical psychology. Two staff served as independent assessors (IAs). The primary IA was a psychology technician with a BA degree in psychology and who had more than 20 years of experience proctoring
psychological tests. The backup IA was a psychology technician who had completed all requirements for graduation from a clinical psychology doctoral program except his dissertation.

Two masters level social workers and three clinical psychologists completed the Revised Hamilton Rating Scale for Depression, Clinician Rating Form (RHRSD, Warren, 1996). They were staff therapists in the SIPU program. These clinical staff completed the RHRSD for veterans for whom they had been assigned as the primary therapist in the SIPU.

General Measures

Participants were asked to complete a demographic questionnaire (Appendix G) developed for use with this study. The demographic questionnaire asked general questions related to the veteran’s personal background, military service, and treatment history.

The Millon Clinical Multiaxial Inventory–Third Edition (MCMI-III; Millon, Davis, Millon, 1997) is a 175-item self-report inventory that takes 20 to 30 minutes to complete. The inventory assesses for psychopathology and personality disorders consistent with DSM-IV diagnostic criteria. Participants respond to statements with either true or false. It was used in the present investigation to evaluate comorbidity and Axis II disorders that might complicate the primary disorders under study.

The MCMI-III results include 11 subscales grouped under Clinical Personality Patterns, 3 subscales under Severe Personality Pathology, 7 subscales under Clinical
Syndromes, 3 subscales under Severe Clinical Syndromes, and 4 subscales under Modifying Indices. Generally, base rate scores of 75 or above on a subscale suggest that the personality trait associated with that subscale is clinically significant for the person. Base rate scores of 85 or above on a subscale are indicative of the presence of pathology associated with that subscale severe enough to be considered a personality disorder.

Reliability for the MCMI-III was good. Internal consistency among the subscales was high with Cronbach’s alphas ranging from .66 to .95. The majority of alphas were in the .80 to .90 range. Five- to 14-day test–retest reliabilities for the subscales were strong, with correlations ranging from .82 to .96. Validity measures for the inventory were also good. Assessments of the presence of diagnoses by the inventory were compared with assessments made by clinicians. The proportions of patients identified with primary diagnoses consistent with clinician ratings ranged from .30 for the masochistic subscale to .81 for the dependent subscale. Most of the proportions were above .60. The various subscales were also found to be significantly correlated with collateral subscales on similar personality inventories, such as the second edition of the Minnesota Multiphasic Personality Inventory (MMPI-2, Butcher, Dahlstrom, Graham, Tellegen, & Kaemmer, 1989) and Symptom Checklist-90-Revised (SCL-90-R, Derogatis, 1994).
Outcome Measures for Depression

The Beck Depression Inventory—Second Edition (BDI-II; Beck, Steer, & Brown, 1996) is a 21-item self-report inventory that takes 5 to 10 minutes to complete. The inventory assesses for symptoms of depression. Participants rate their level of agreement with each question on a scale from 0 to 3. The cutoff scores are 0 to 13 for minimal, 14 to 19 for mild, 20 to 28 for moderate, and 29 to 63 for severe levels of depression. It was used in the present investigation as the primary self-report measures of depression symptoms.

Reliability for the BDI-II was good. Internal consistency was high with a coefficient alpha of .92 for outpatients and .93 for college students. One-week test-retest reliability was strong with a correlation of .93 for outpatients. Validity measures for the scale were also strong. Convergent validity with the Hamilton Psychiatric Rating Scale for Depression (Hamilton, 1960) was adequate with a correlation coefficient of .71. Divergent validity with the Hamilton Rating Scale for Anxiety (Hamilton, 1959) was also demonstrated with a correlation of .47. A factor analysis of the items in the inventory indicated that the scale consisted of two highly correlated factors \((r = .66)\), a somatic-affective dimension and a cognitive dimension.

The Beck Hopelessness Scale (BHS; Beck & Steer, 1988) is a 20-item self-report scale that takes 5 to 10 minutes to complete. The scale assesses for negative attitudes about the future. Participants respond to statements with either true or false. The cutoff scores are 0 to 3 for the minimal range, 4 to 8 for the mild range, 9 to 14 for the moderate range, and greater than 14 for the severe range of hopelessness. It
was used in the present investigation as a secondary measure of depression and a measure of the veterans' changes in view in regards to the future.

Reliability measures for the BHS are good. Internal consistency was high with Kuder-Richardson (KR-20) coefficients ranging from .82 to .93 across seven different clinical samples. One-week test–retest reliability was adequate with correlations of .66 and .69 for two separate samples of subjects. Validity measures for the scale were also strong. Concurrent validity with clinical ratings was adequate with correlations of .74 and .62 for subjects taken from a general practice sample and an attempted suicide sample, respectively. The BDI (Beck & Steer, 1987) and BHS were found to have correlation coefficients between .46 and .76 across seven different populations.

The Revised Hamilton Rating Scale for Depression–Clinician Rating Form (RHRSD; Warren, 1996) is a 22-item scale that is completed by the clinician working with the client and takes 10 to 15 minutes to finish. The first question is composed of 8 statements to which the clinician answers yes or no. The remaining 21 questions consist of a list of statements from which the clinician chooses the statement most consistent with the client's current state of functioning. The first question provides a general screening of the presence or absence of depression. The remaining questions identify more qualitatively the client's state of functioning in relation to several symptoms associated with a diagnosis of major depression. The cutoff for the total scores are 0 to 10 for not depressed, 11 to 16 for minor depression, 17 to 25 for major depression, and 26 or greater for severe depression. The scale also indicates the presence and severity of major depressive episodes, identifies the presence of
melancholic features, and provides an estimate of the likelihood that the client's symptoms will respond to tricyclic antidepressants. It was used in the present investigation as the primary clinician rating of major depressive symptoms.

Reliability for the RHRSD is excellent. The internal consistency of the Clinician Rating Form is good, with a Cronbach's alpha of .79. Hedlund and Vieweg (1979) report convergent validity with other measures of depression. These authors found convergent validity with the Beck Depression Inventory (Beck & Steer, 1987) was good with an average correlation of .67 across 23 studies. The authors also found that convergent validity with the depression subscale on the Minnesota Multiphasic Personality Inventory (MMPI, Hathaway & McKinley, 1943) was adequate with an average correlation of .48 across four studies.

**Outcome Measures for PTSD**

The Posttraumatic Stress Diagnostic Scale (PDS; Foa, 1995) is a 49-item self-report measure of the presence and severity of PTSD according to *DSM-IV* (APA, 1994) diagnostic criteria. The scale takes about 10 to 15 minutes to complete. The PDS provides a rating of the severity of each of the symptoms. The sum of these ratings indicates the overall severity of PTSD. It was used in the present investigation to determine the presence of a diagnosis of PTSD and to assess the severity of the PTSD symptoms.

The PDS has good test–retest reliability with a kappa of .74, 87.3% agreement in diagnosis over two administrations, and a Pearson correlation coefficient
of .83 for the Symptom Severity Score. The test's Symptom Severity Score has demonstrated good internal consistency with a Cronbach alpha of .92. The PDS has also demonstrated adequate validity with 79.4% diagnostic agreement with the Structured Clinical Interview for DSM-IV (SCID; First, Spitzer, Gibbon, & Williams, 1997) (kappa of .59), a sensitivity of 82% in identifying individuals with PTSD, and a specificity of 76.7% in identifying individuals without PTSD.

The Mississippi Scale for Combat-Related PTSD (Mississippi; Keane, Caddell, & Taylor, 1988) is a 35-item self-report inventory that takes 15 to 20 minutes to complete. Questions are answered on a 5-point Likert-type scale. The scale was designed to measure the intensity of symptoms related to PTSD that have resulted from experiencing combat. Total scores range from 35 to 175. A cutoff of 107 is usually used to identify individuals who will likely meet diagnostic criteria for PTSD. It was used in the present investigation as a corroborative measure of PTSD. This scale is also a more specific measure of the number and severity of symptoms associated with combat exposure.

The Mississippi scale has demonstrated excellent internal consistency with a Cronbach alpha of .94 and good 1-week test–retest reliability with a Pearson product–moment correlation of .97. The Mississippi scale has also demonstrated good validity with a sensitivity of 93% in identifying individuals with PTSD, and a specificity of 89% in identifying individuals without PTSD.
Additional Questionnaires

The Comprehensive Quality of Life Scale—Adult Fifth Edition (ComQol; Cummins, 1997) is a 35-item self-report inventory that takes 15 to 20 minutes to complete. The inventory assesses seven domains related to a person's quality of life. The seven domains are material well-being, health, productivity, intimacy, safety, place in community, and emotional well-being. Each of the domains is evaluated in terms of subjective and objective information. This allows for both a measure of the person's perception of his or her quality of life and a culturally-relevant assessment of the person's quality of life. The ComQol has adequate internal consistency with Cronbach's alphas of .54 for the objective subscale and .64 for the subjective subscale across the seven domains. The author reported that the test has exhibited good content and construct validity across several studies with various subject populations. This scale was used in the present investigation to assess for changes in objective and subjective measures of the quality of the veterans' lives 1 month after completing treatment. The scale was also used to examine the veterans' ratings of their quality of life in comparison with a normative sample.

The Concerns About Change Scale (CAC; Vitousek, DeViva, Slay, & Manke, 1995) is a 115-item self-report inventory that takes 10 to 20 minutes to complete. The scale assesses 17 areas related to a participant's concern about modifying dysfunctional behavior. The scale has been modified for this project to include a subscale addressing the financial effects that may be realized with the removal of problematic behaviors for which some of the participants will be receiving, or
attempting to receive, disability payments. This scale was used in the present investigation to assess for possible factors that may interfere with veterans realizing meaningful therapeutic change.

The Client Satisfaction Questionnaire (CSQ; Larsen, Attkisson, Hargreaves, & Nguyen, 1979) is an 8-item self-report inventory that takes 3 to 8 minutes to complete. Questions are answered on a 4-point Likert-type scale. The scale was designed to assess client satisfaction with services received in health and human service systems. The questionnaire's internal consistency is very good, with coefficient alphas of .90 to .94 for clients given the measure at two different times during therapy. The scale was also found to have good construct validity. Low scores from the scale were significantly correlated to dropout and missed appointment rates. Scores from the scale also correlated with client self-rating of improvement from therapy and therapist estimates of client satisfaction. This scale was used in the present investigation to examine the veterans' response to the BA group process in terms of satisfaction with the intervention and perceived utility of the group.

Tests Completed at the Assessment Times

Pretreatment Assessment

During the first assessment session, the veterans were asked to complete the MCMI-III, BDI-II, BHS, PDS, Mississippi, ComQol, and CAC. The veterans were also asked to complete the demographic questionnaire.
**Posttreatment Assessment**

During this session, the veterans were asked to complete the BDI-II, BHS, PDS, Mississippi, and CAC. After completing these measures, the veterans were scheduled for a 1-month follow-up assessment.

**1-month Follow-up Assessment**

During this session, the veterans were asked to complete the BDI-II, BHS, PDS, Mississippi, and ComQol. After completing these measures, the veterans were scheduled for a 2-month follow-up assessment.

**2-Month Follow-up Assessment**

During this session, the veterans were asked to complete the BDI-II, BHS, PDS, and Mississippi. After finishing these measures, the veterans had completed the study.

**Additional Assessments**

The RHRSD was completed by the primary therapists shortly after the veterans were admitted into the SIPU and within 1 week before the veterans were discharged from the SIPU. The veterans were scheduled for appointments with their primary therapists on the same days they had been scheduled for their 1-month and 2-month follow-up assessments. The primary therapists completed the RHRSD during each these appointments.
The BA group therapist administered the BDI-II to all participants at the start of every-other BA group session, beginning with session 2. This was done to assess the participants' depressive symptoms during treatment. The group therapist also administered the CSQ at the end of the final group session.

Data Management

After testing was complete, data from the study were stored in locked cabinets in buildings 39 and 12. The master list of names of subjects and consent forms were stored in locked cabinets in building 13. After completion of scoring and data entry, a file for each subject was created and the files were stored in building 12 in a locked cabinet. Research files were maintained in a secure manner by the psychology service at the BCVAMC.

Treatment Description

Standard Treatment

The SIPU is a ward on the grounds of the BCVAMC that houses a specialized treatment program developed for addressing PTSD. The treatment program was described above (see Appendix H for the weekly program schedule for the comparison group).
Standard Treatment Plus Behavioral Activation

In addition to the standard treatment, group cohorts who were selected to receive the behavioral activation treatment attended eight group sessions. The sessions occurred twice a week and each session lasted 60 to 90 minutes. The treatment was an adaptation of the behavioral activation treatment developed by Jacobson and his colleagues (Jacobson, 1997). The behavioral activation procedure used for this study was modified from individual to group format and adapted to fit into a residential treatment program (see Appendix I for the weekly program schedule for the BA group).

A manual was used by the therapist for facilitating the group. Each group member received a handout packet that included an outline of each session, descriptions of topics covered, and homework assignments. The general format for each of the group sessions included an opening, review of homework, discussion of two to three psychoeducational topics, assessment of groups members’ understanding of the topics, identification of examples from group members related to topics discussed, homework assignment, and closing (see Appendix J for an outline of the BA group format).

The first and last sessions were slightly different. In the first session, group members and the therapist introduced themselves, ground rules were established in the group, the modified group therapy version (Porter, 2000) of the Jacobson (1997) Coping with Depression: A Manual for Self-Help was reviewed, the idea of therapist as a personal trainer was discussed, the functional analysis topic was covered, and
homework was assigned. In the last session, homework was reviewed, a brief overview of all of the topics from previous groups was completed, individual members' progress was discussed, skills learned to be used for relapse prevention were highlighted, the therapist provided feedback regarding the group process, goodbyes were completed, and the CSQ was administered.

All other sessions followed the general format. Psychoeducation was used to inform participants about theoretical explanations of the possible etiology of depression, to develop coping skills, and to increase behavior. Psychoeducational topics discussed included assertiveness, self-defeating behaviors, aversive environments, activity mastery and pleasure, activity monitoring, active versus passive approaches to problems, graded task assignment, behavioral stopping, alternative behaviors and outcomes, self-reinforcement, distraction from problems or unpleasant events, role-playing social situations, and mental rehearsal of activities. Several different resources were used to develop explanations of these topics (Adesso, 1990; Beck, Rush, Shaw, & Emery, 1979; Emery, 1988; Jacobson, 1997; Leahy & Holland, 2000; Yost, Beutler, Corbishley, & Allender, 1986). Examples that were applicable to the veterans were provided for each of the topics. Although therapists were given the freedom to present topics in any order, the order listed above was suggested and was used with each of the three BA group cohorts (see Appendix K for an outline of the BA group sessions).

Homework assignments involved individuals identifying activities considered pleasurable and increasing incrementally the number of activities completed between
each session. Homework assignments also involved applying newly learned skills covered in the session to personal problems (see Appendix L for the therapist rating of homework completion form). The BDI-II was administered at the start of sessions 2, 4, 6, and 8.

Treatment Integrity

Four approaches to maintaining treatment integrity were used. First, the two therapists received training for facilitating the behavioral activation group treatment. Second, one retraining session was provided after 3 months. Third, a treatment manual was given to therapists outlining the course of treatment. Therapists were strongly encouraged to review the treatment manual on an ongoing basis and use it during the session. Finally, self-rating sheets were completed by the therapists immediately after each session (see Appendix M for therapist self-rating sheets for each session). During the course of the study, the therapists spontaneously began using these self-rating sheets as reminders before and during the sessions. The rating scale was structured from 0 (did not do the assigned task) to 4 (did every last bit of the task). Twelve to 16 tasks were rated for each of the sessions. The overall average self-ratings were 3.44 for the first group, 3.42 for the second group, and 3.63 for the third group. Compliance with the treatment regimen was, therefore, between 85% and 91% according to therapist self-ratings.
CHAPTER III

RESULTS

Hypotheses

It was hypothesized that subjects receiving the behavioral activation treatment would show a decrease in symptoms of depression, would experience a decrease in PTSD symptoms, and that several factors would predict treatment effectiveness. Among the factors thought to predict treatment effectiveness were included "service connection," "therapist ratings of homework completion," and "syndrome severity."

Plan for Data Analyses

The study utilized a 2 x 4 mixed design. The between groups factor was group assignment (BA group and comparison group). The within groups factor was the time of assessment (pretreatment, posttreatment, 1-month follow-up, and 2-month follow-up). To test the first and second hypotheses a two-factor repeated measures analysis of variance were completed with the BDI-II, BHS, RHRSD, PDS, and Mississippi Scale as dependent measures. Follow-up analyses for significant $F$ tests included one-way repeated measures ANOVAs. Paired $t$ tests with Bonferroni adjustments of alpha levels (Pallant, 2001) to control for inflated type 1 error were used to test simple main effects when main effects were significant.
CARRY FORWARD ANALYSES WERE COMPLETED TO ADDRESS MISSING DATA DUE TO VETERANS DROPPING OUT OF THE STUDY OVER ASSESSMENT TIMES. THIS ANALYSIS CONSISTED OF CARRYING FORWARD THE LAST DATA POINT FOR EACH OF THE SUBJECTS WHO DID NOT COMPLETE 1-MONTH OR 2-MONTH FOLLOW-UP TESTING TO THE SUBSEQUENT ASSESSMENT TIMES. VETERANS WHO DID NOT COMPLETE BOTH PRETREATMENT AND POSTTREATMENT ASSESSMENTS WERE NOT INCLUDED IN THIS ANALYSIS. A TWO-FACTOR REPEATED MEASURES ANOVA WAS COMPLETED WITH THE BDI-II, BHS, RHRSD, PDS, AND MISSISSIPPI AFTER THE CARRY FORWARD PROCEDURE WAS APPLIED. FOLLOW-UP ANALYSES FOR SIGNIFICANT F TESTS INCLUDED ONE-WAY REPEATED MEASURES ANOVAS TO ASSESS FOR SIGNIFICANT MAIN EFFECTS AND INTERACTIONS. PAIRED T TESTS WITH BONFERRONI ADJUSTMENTS OF ALPHA LEVELS WERE USED TO TEST FOR SIGNIFICANT SIMPLE MAIN EFFECTS.

THE THIRD HYPOTHESIS WAS EXAMINED THROUGH MULTIPLE REGRESSION ANALYSES. A DIFFERENCE SCORE WAS COMPUTED BETWEEN PRETREATMENT AND 2-MONTH FOLLOW-UP FOR BOTH THE PDS SYMPTOM SEVERITY SCORE AND THE MISSISSIPPI TOTAL SCORE TO REPRESENT TWO MEASURES OF CHANGES IN PTSD SYMPTOMS OVER THE COURSE OF THE STUDY. A DIFFERENCE SCORE WAS COMPUTED BETWEEN PRETREATMENT AND 2-MONTH FOLLOW-UP FOR BOTH THE BDI-II TOTAL SCORE AND RHRSD TOTAL SCORE TO REPRESENT TWO MEASURES OF CHANGE IN DEPRESSIVE SYMPTOMS OVER THE COURSE OF THE STUDY. VARIABLES THAT WERE SIGNIFICANTLY CORRELATED USING THE PEARSON PRODUCT-MOMENT CORRELATION WITH CHANGE SCORES ON THE VARIOUS PSYCHOLOGICAL TESTS AMONG THE FOUR ASSESSMENT TIMES WERE USED AS PREDICTOR VARIABLES. PREDICTOR VARIABLES INCLUDED IN THE MULTIPLE REGRESSION FROM THE CAC CONSISTED OF SCORES ON A SUBSCALE ASSOCIATED WITH THE "BELIEF THAT ONE IS UNABLE TO
change” and a subscale associated with “fear of the process required for change.”
Predictor variables from the MCMI-III included base-rate scores for “desirability” and
a difference score calculated by subtracting base rates of the desirability scale from
base rates of the debasement scales. Predictor variables from the demographic
questionnaire included a difference score calculated by subtracting percentage of
current PTSD service connection from desired PTSD percentage of service
connection and a “current total service connection” score. The final predictor variable
was “therapist ratings of homework completion” for veterans in the BA group.

Clinical significance was examined using RHRSD total scores collapsed into
four categories (not depressed, minor depression, major depression, severe
depression) and then two categories (no to mild depression and major to severe
depression). The Friedman test was used to explore for significant changes in levels of
depression over the four assessment times for the BA and comparison group
separately. Significant differences identified by the Friedman tests were followed up
with Wilcoxon Signed Rank Tests to determine where the significant differences
existed. Chi-square tests were used to assess for significant differences in changes in
depression diagnosis between the BA group and comparison group for each of the
four assessment times.
Preliminary Analyses

Drop Out Analyses

Sixty-two veterans agreed to participate in the study. Thirty veterans were assigned to the BA group and 32 veterans were assigned to the comparison group. Seventeen of these veterans did not complete both pretreatment and posttreatment assessments. Of these 17, 1 veteran assigned to the BA group and 2 veterans assigned to the comparison group did not finish the pretreatment assessment. The remaining 14 veterans completed pretreatment assessment, but did not complete posttreatment assessment (5 had been assigned to the BA group and 9 had been assigned to the comparison group). Fifteen of the remaining 45 veterans did not complete the 1-month follow-up assessment (10 veterans from the comparison group and 5 veterans from the BA group) and 10 more did not complete the 2-month follow-up (4 veterans from the comparison group and 6 veterans from the BA group). Veterans completing assessments in the comparison group included 21 at pretreatment and posttreatment, 11 at the 1-month follow-up, and 7 at the 2-month follow-up. Those veterans in the BA group who completed the assessments included 24 at pretreatment and posttreatment, 19 at the 1-month follow-up, and 13 at the 2-month follow-up (see Figure 1).

A Friedman test was conducted to evaluate the differences in mean ranks of veteran’s dropping out of the study from the BA group at pretreatment (mean rank =
Figure 1. Number of Veterans at Each Assessment Time for the Two Groups.

3.02), posttreatment (mean rank = 2.68), 1-month follow-up (mean rank = 2.35), and 2-month follow-up (mean rank = 1.95) and for the comparison group at pretreatment (mean rank = 3.30), posttreatment (mean rank = 2.73), 1-month follow-up (mean rank = 2.11), and 2-month follow-up (mean rank = 1.86). The test was significant for the treatment group $x^2(3, N = 30) = 31.87, p < .0005$ and for the comparison group $x^2(3, N = 32) = 48.72, p < .0005$. Follow-up comparisons were conducted using Wilcoxon Signed Ranks tests. There was a significant drop out of subjects from pretreatment to posttreatment ($p = .025$), posttreatment to 1-month follow-up ($p = .025$), and 1-month follow-up to 2-month follow-up ($p = .014$) for the BA group. There was a significant drop out of subjects from pretreatment to posttreatment ($p = .003$), posttreatment to 1-month follow-up ($p = .002$), and 1-month follow-up to 2-month follow-up ($p = .046$) for the comparison group.
A chi-square test was conducted to assess whether the difference between the BA group and comparison group in the number of subjects that dropped out at each assessment time was statistically significant. The results of these tests were not significant for pretreatment $x^2(1, N = 62) = 0$, $p = 1.0$, posttreatment $x^2(1, N = 62) = .967$, $p = .33$, or 2-month follow-up $x^2(1, N = 62) = 2.36$, $p = .13$. The test was significant for the 1-month follow-up assessment $x^2(1, N = 62) = 4.10$, $p = .04$ with significantly more subjects dropping out of the comparison group (10) than BA group (5).

Demographics

The participants in this study were all male combat veterans. The veterans were primarily Caucasian with 2 to 3 years of military service (see Table 1 for demographic data). The majority of veterans were receiving medications for depression and anxiety symptoms. All of the veterans were diagnosed with PTSD and the majority of the veterans were rated to have at least minor depression by therapists using the RHRSD.

Service connection is a term used in the VA system to describe the degree of service-related disability encountered by veterans. Funds are provided by the Department of Veteran Affairs for injuries or illnesses acquired by veterans while they are in the service. These funds are called “service connection” and can range from 0% to 100%. Service connection funds can be collected for both physical and psychiatric conditions. In theory, the higher the percentage of service connection, the more
<table>
<thead>
<tr>
<th></th>
<th>Comparison Group</th>
<th>BA Group</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>40 – 45</td>
<td>0 (0%)</td>
<td>2 (8.3%)</td>
</tr>
<tr>
<td>46 – 50</td>
<td>6 (28.6%)</td>
<td>3 (12.5%)</td>
</tr>
<tr>
<td>51 – 55</td>
<td>12 (57.1%)</td>
<td>16 (66.7%)</td>
</tr>
<tr>
<td>56 – 60</td>
<td>3 (14.3%)</td>
<td>3 (12.5%)</td>
</tr>
<tr>
<td><strong>Race</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>African American</td>
<td>6 (28.6%)</td>
<td>9 (37.5%)</td>
</tr>
<tr>
<td>Native American</td>
<td>1 (4.8%)</td>
<td>2 (8.3%)</td>
</tr>
<tr>
<td>Hispanic</td>
<td>0 (0%)</td>
<td>2 (8.3%)</td>
</tr>
<tr>
<td>Caucasian</td>
<td>14 (66.7%)</td>
<td>11 (45.8%)</td>
</tr>
<tr>
<td><strong>Marital Status</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single</td>
<td>4 (19%)</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>Married</td>
<td>6 (28.6%)</td>
<td>10 (41.7%)</td>
</tr>
<tr>
<td>Separated</td>
<td>5 (23.8%)</td>
<td>2 (8.3%)</td>
</tr>
<tr>
<td>Divorced</td>
<td>6 (28.6%)</td>
<td>12 (50%)</td>
</tr>
<tr>
<td><strong>Education</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less than 12 Years</td>
<td>9 (42.9%)</td>
<td>5 (20.8%)</td>
</tr>
<tr>
<td>12 years</td>
<td>5 (23.8%)</td>
<td>7 (29.2%)</td>
</tr>
<tr>
<td>13 to 16 years</td>
<td>7 (33.3%)</td>
<td>11 (45.8%)</td>
</tr>
<tr>
<td>More than 16 years</td>
<td>0 (0%)</td>
<td>1 (4.2%)</td>
</tr>
<tr>
<td><strong>Years Military Service</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 to 3 years</td>
<td>12 (57.1%)</td>
<td>16 (66.7%)</td>
</tr>
<tr>
<td>4 to 5 years</td>
<td>5 (23.8%)</td>
<td>5 (20.8%)</td>
</tr>
<tr>
<td>6 to 7 years</td>
<td>4 (19.1%)</td>
<td>3 (12.5%)</td>
</tr>
<tr>
<td><strong>Months in Combat</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less than 12 months</td>
<td>10 (47.6%)</td>
<td>6 (25%)</td>
</tr>
<tr>
<td>12 months</td>
<td>6 (28.6%)</td>
<td>10 (41.7%)</td>
</tr>
<tr>
<td>More than 12 months</td>
<td>5 (23.8%)</td>
<td>8 (33.3%)</td>
</tr>
<tr>
<td><strong>Injured in Combat</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>8 (38.1%)</td>
<td>12 (50%)</td>
</tr>
<tr>
<td>Yes</td>
<td>13 (61.9%)</td>
<td>12 (50%)</td>
</tr>
</tbody>
</table>
Table 1—Continued

<table>
<thead>
<tr>
<th></th>
<th>Comparison Group</th>
<th>BA Group</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Received Inpatient Treatment for Depression</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>11 (52.4%)</td>
<td>8 (33.3%)</td>
</tr>
<tr>
<td>Yes</td>
<td>10 (47.6%)</td>
<td>16 (66.7%)</td>
</tr>
<tr>
<td><strong>Prescribed Antidepressants</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>1 (4.8%)</td>
<td>1 (4.2%)</td>
</tr>
<tr>
<td>Yes</td>
<td>20 (95.2%)</td>
<td>23 (95.8%)</td>
</tr>
<tr>
<td><strong>Prescribed Anxiolytics</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>5 (23.8%)</td>
<td>7 (29.2%)</td>
</tr>
<tr>
<td>Yes</td>
<td>16 (76.2%)</td>
<td>17 (70.8%)</td>
</tr>
<tr>
<td><strong>Therapist Ratings of Depression Pretreatment with RHRSD</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not Depressed</td>
<td>1 (4.8%)</td>
<td>4 (16.7%)</td>
</tr>
<tr>
<td>Minor Depression</td>
<td>11 (52.4%)</td>
<td>7 (29.2%)</td>
</tr>
<tr>
<td>Major Depression</td>
<td>6 (28.6%)</td>
<td>12 (50%)</td>
</tr>
<tr>
<td>Severe Depression</td>
<td>2 (9.5%)</td>
<td>1 (4.2%)</td>
</tr>
</tbody>
</table>

debilitating the condition. Table 2 lists percentage of PTSD “current service connection” and percentage of “wanted service connection” by veterans in the study.

Veterans in the study were administered the MCMI-III to assess for level of psychological pathology. Millon et al. (1997) report that base rates above 75 on clinical scales is indicative of the presence of clinically significant personality traits, while scores above 85 are indicative of the prominence of significant personality traits. Twelve out of 24 base rates scores for the various clinical scales were greater than 75 for the comparison group, while 13 of the clinical scales were above 75 for the BA group (see Table 3 for MCMI-III base rates).
Table 2

Frequency and Percentage of Service Connection Between Groups

<table>
<thead>
<tr>
<th></th>
<th>Comparison Group</th>
<th>BA Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current PTSD Service Connection</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0%</td>
<td>16 (76.2%)</td>
<td>14 (58.3%)</td>
</tr>
<tr>
<td>10-30%</td>
<td>2 (9.5%)</td>
<td>3 (12.5%)</td>
</tr>
<tr>
<td>40-60%</td>
<td>2 (9.5%)</td>
<td>7 (29.2%)</td>
</tr>
<tr>
<td>70%</td>
<td>1 (4.8%)</td>
<td>0 (0%)</td>
</tr>
</tbody>
</table>

| PTSD Service Connection Wanted |                  |         |
| 0%                               | 6 (28.6%)        | 5 (20.8%) |
| 10-30%                           | 0 (0%)           | 1 (4.2%) |
| 50-70%                           | 2 (9.5%)         | 2 (8.3%) |
| 100%                             | 13 (61.9%)       | 16 (66.7%) |

Five of the base rate scores for clinical scales were above 85 for the comparison group, while three of the clinical scales were above 85 for the BA group. Base rate scores above 75 on the debasement scale are suggestive of the tendency to devalue oneself. Independent $t$ tests were completed to assess for significant differences in mean base rates between the two groups for all of the scales. No significant differences in mean base rate scores between groups were found for any of the scales.

The Comprehensive Quality of Life Scale – Adult Fifth Edition (ComQol) (Cummins, 1997) was administered to veterans at the pretreatment and 1-month follow-up assessment times. Table 4 displays the results from these two assessment
Table 3
Mean Base Rate MCMI-III Scores Between Groups

<table>
<thead>
<tr>
<th>Scale</th>
<th>Comparison Group</th>
<th>BA Group</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Modifying Indices</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Disclosure</td>
<td>84.62</td>
<td>89.71</td>
</tr>
<tr>
<td>Desirability</td>
<td>29.86</td>
<td>34.83</td>
</tr>
<tr>
<td>Debasement</td>
<td>86.24</td>
<td>87.96</td>
</tr>
<tr>
<td><strong>Clinical Personality Patterns</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Schizoid</td>
<td>86.57</td>
<td>81.75</td>
</tr>
<tr>
<td>Avoidant</td>
<td>85.38</td>
<td>82.29</td>
</tr>
<tr>
<td>Depressive</td>
<td>83.52</td>
<td>78.42</td>
</tr>
<tr>
<td>Dependent</td>
<td>69.76</td>
<td>69.71</td>
</tr>
<tr>
<td>Histrionic</td>
<td>13.67</td>
<td>14.33</td>
</tr>
<tr>
<td>Narcissistic</td>
<td>27.48</td>
<td>34.79</td>
</tr>
<tr>
<td>Antisocial</td>
<td>71.24</td>
<td>68.75</td>
</tr>
<tr>
<td>Sadistic</td>
<td>65.52</td>
<td>65.79</td>
</tr>
<tr>
<td>Compulsive</td>
<td>24.67</td>
<td>26.50</td>
</tr>
<tr>
<td>Passive-Aggressive</td>
<td>77.76</td>
<td>83.54</td>
</tr>
<tr>
<td>Masochistic</td>
<td>75.71</td>
<td>78.12</td>
</tr>
<tr>
<td><strong>Severe Personality Pathology</strong></td>
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<tr>
<td>Schizotypal</td>
<td>80.14</td>
<td>74.83</td>
</tr>
<tr>
<td>Borderline</td>
<td>74.19</td>
<td>75.79</td>
</tr>
<tr>
<td>Paranoid</td>
<td>67.38</td>
<td>80.08</td>
</tr>
<tr>
<td><strong>Clinical Syndromes</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anxiety</td>
<td>98.71</td>
<td>97.33</td>
</tr>
<tr>
<td>Somatoform</td>
<td>76.76</td>
<td>77.29</td>
</tr>
<tr>
<td>Bipolar: Manic</td>
<td>57.57</td>
<td>63.54</td>
</tr>
<tr>
<td>Dysthymia</td>
<td>91.38</td>
<td>93.67</td>
</tr>
<tr>
<td>Alcohol Dependence</td>
<td>78.10</td>
<td>78.37</td>
</tr>
<tr>
<td>Drug Dependence</td>
<td>71.81</td>
<td>71.92</td>
</tr>
<tr>
<td>PTSD</td>
<td>92.81</td>
<td>87.33</td>
</tr>
<tr>
<td><strong>Severe Clinical Syndromes</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Thought Disorder</td>
<td>74.43</td>
<td>71.62</td>
</tr>
<tr>
<td>Major Depression</td>
<td>83.38</td>
<td>84.50</td>
</tr>
<tr>
<td>Delusional Disorder</td>
<td>52.95</td>
<td>60.92</td>
</tr>
</tbody>
</table>

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## Table 4

ComQol Means for the Two Groups at Two Assessment Times and for a Norm Group

<table>
<thead>
<tr>
<th>Subscales</th>
<th>Comparison Group</th>
<th>BA Group</th>
<th>Norm Group</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pre</td>
<td>1-Month</td>
<td>Pre</td>
</tr>
<tr>
<td><strong>Objective Scales</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Material</td>
<td>6.81</td>
<td>6.82</td>
<td>7.54</td>
</tr>
<tr>
<td>Health</td>
<td>6.38</td>
<td>5.91</td>
<td>5.83</td>
</tr>
<tr>
<td>Productivity</td>
<td>6.71</td>
<td>7.00</td>
<td>6.54</td>
</tr>
<tr>
<td>Intimacy</td>
<td>8.00</td>
<td>7.27</td>
<td>7.25</td>
</tr>
<tr>
<td>Safety</td>
<td>6.62</td>
<td>7.00</td>
<td>6.96</td>
</tr>
<tr>
<td>Community</td>
<td>6.00</td>
<td>5.00</td>
<td>5.96</td>
</tr>
<tr>
<td>Emotional</td>
<td>6.86</td>
<td>6.27</td>
<td>7.46</td>
</tr>
<tr>
<td>Total Objective</td>
<td>47.38</td>
<td>45.27</td>
<td>47.54</td>
</tr>
<tr>
<td><strong>Subjective Importance x Satisfaction Scales</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Material</td>
<td>2.90</td>
<td>-1.64</td>
<td>3.58</td>
</tr>
<tr>
<td>Health</td>
<td>-2.57</td>
<td>-3.36</td>
<td>-1.00</td>
</tr>
<tr>
<td>Productivity</td>
<td>-2.10</td>
<td>-1.82</td>
<td>-1.62</td>
</tr>
<tr>
<td>Intimacy</td>
<td>.76</td>
<td>.18</td>
<td>-2.67</td>
</tr>
<tr>
<td>Safety</td>
<td>-2.76</td>
<td>-3.36</td>
<td>-1.04</td>
</tr>
<tr>
<td>Community</td>
<td>-.86</td>
<td>-.64</td>
<td>-.83</td>
</tr>
<tr>
<td>Emotional</td>
<td>-2.90</td>
<td>-2.55</td>
<td>-3.58</td>
</tr>
<tr>
<td>Total Subjective</td>
<td>-7.53</td>
<td>-13.19</td>
<td>-7.16</td>
</tr>
</tbody>
</table>

*Note.* Pre = Pretreatment, 1-Month = 1-Month Follow-up, Norm Group = Random Group of 794 Adults Tested by Cummins (1997).

Times compared with a normative sample consisting of a random sample of 794 adults with a mean age of 51 years (Cummins, 1997).

Paired *t* tests were conducted on each of the scales for both groups. No significant differences were found from pretreatment to 1-month follow-up for the comparison or BA groups on any of the scales except for the “total objective” score.
for the comparison group, \( p = .014 \). The overall objective score for the veterans in the comparison group decreased significantly from pretreatment to 1-month follow-up. Independent samples \( t \) tests were conducted to examine for significant differences between groups at each assessment time. There were no significant differences between the comparison and BA group at pretreatment. A significant difference was found between the comparison and BA group at the 1-month follow-up for the subjective material well-being subscale, \( p = .02 \). Veterans in the BA group indicated that they believed they were better off financially at the 1-month follow-up than the comparison group. No other significant differences were found between the two groups on the subjective scales at the 1-month follow-up.

Primary Analyses

Treatment Outcome With the BDI-II

Figure 2 presents the mean scores for the BDI-II for the BA and comparison groups across the four assessment times and the dropout groups at pretreatment. A one-way analysis of variance (ANOVA) was conducted to determine if there was a significant difference between the mean BDI-II scores for the comparison group (\( M = 37.38 \)), BA group (\( M = 38.29 \)), veterans assigned to the comparison group who dropped out before posttreatment assessment (\( M = 34.56 \)), and veterans assigned to the BA group who dropped out before posttreatment assessment (\( M = 41.80 \)). The ANOVA was not significant, \( F(3, 55) = .72, p = .55 \), indicating that the BDI-II means for the groups did not differ significantly at pretreatment.
A two-factor repeated measures analysis of variance was completed to examine the differences between groups in change in BDI-II scores over the four assessment times. The time main effect was not significant, $F(3, 54) = 1.36, p = .27, n^2 = .07$. The time x group interaction effect was not significant, $F(3, 54) = 1.03, p = .39, n^2 = .05$. The univariate test associated with the between-groups main effect was also not significant, $F(1, 18) = .76, p = .40, n^2 = .04$. The eta squared statistic ($n^2$) indicated a moderate effect size for the time main effect and a small effect size for the interaction and between groups main effect (Cohen, 1988).

Despite the lack of statistical significance using this test and due to the loss of power from subject drop out, the graphs of means scores were visually inspected and paired $t$ tests were completed to assess for significant within groups changes over
time. Bonferroni adjustments were made for the alpha levels. For the comparison group, a significant difference was found from 1-month follow-up ($M = 38.57$, $SD = 8.62$) to 2-month follow-up ($M = 42.57$, $SD = 9.78$), $t(6) = -4.58$, $p = .004$. Veterans in the comparison condition scored significantly higher on the BDI-II at the 2-month follow-up than at the 1-month follow-up. For the BA group, a significant difference found was from pretreatment ($M = 38.29$, $SD = 9.25$) to posttreatment ($M = 31.54$, $SD = 15.19$), $t(23) = 3.31$, $p = .003$. Veterans in the treatment condition scored significantly lower on the BDI-II at posttreatment than at pretreatment.

Four independent sample $t$ tests were completed to assess for significant differences between the BA group and comparison group for each of the four assessment times. No significant differences were found (see Table 5 for BDI-II means, standard deviations, and $t$ test results).

Carry forward analyses were also completed with the BDI-II to address loss of power due to drop out. Figure 3 presents the mean scores for the BDI-II for the BA and comparison groups over the four assessment times after the last data point was carried forward.

A two-factor repeated measures analysis of variance was conducted to examine the differences between groups in change in BDI-II scores over the four assessment times after carry forward adjustments were completed. Due to the lack of sphericity, the time main effect and time x group interaction effect were tested using the multivariate criterion of Wilks' lambda. The time main effect was not significant, Wilks' lambda = .87, $F(3, 41) = 1.97$, $p = .13$, $n^2 = .13$. The time x group interaction
Table 5

BDI-II Score Means, Standard Deviations, and Independent Samples t Tests Across the Four Assessment Times

<table>
<thead>
<tr>
<th></th>
<th>BA Group</th>
<th>Comparison Group</th>
<th>t(df) and p</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N  M  SD</td>
<td>N  M  SD</td>
<td></td>
</tr>
<tr>
<td>Pretreatment</td>
<td>24 38.29 9.25</td>
<td>21 37.38 7.75</td>
<td>t(43) = -.36, p = .72</td>
</tr>
<tr>
<td>Posttreatment</td>
<td>24 31.54 15.19</td>
<td>21 37.81 8.26</td>
<td>t(43) = 1.68, p = .10</td>
</tr>
<tr>
<td>1-month</td>
<td>19 36.68 15.36</td>
<td>11 39.00 7.22</td>
<td>t(28) = .47, p = .64</td>
</tr>
<tr>
<td>2-month</td>
<td>13 34.15 16.24</td>
<td>7 42.57 9.78</td>
<td>t(18) = 1.25, p = .23</td>
</tr>
</tbody>
</table>

Note. N = Number of Veterans, M = Mean Scores, SD = Standard Deviation, df = Degrees of Freedom.

Figure 3. Carry Forward BDI-II Total Score Means for the Two Groups Over the Four Assessment Times.

effect was significant, Wilks’ lambda = .80, F(3, 41) = 3.37, p = .03, n² = .20. The univariate test associated with the between groups main effect was not significant,
$F(1, 43) = 1.09, p = .30, n^2 = .02$. The eta squared statistic indicated a moderate effect size for the time main effect, a large effect size for the interaction, and a small effect size for the between groups main effect.

Three paired $t$ tests were completed to follow up the significant interaction. Differences in mean BDI-II scores between the two groups were significantly different between pretreatment and posttreatment, $t(43) = -2.48, p = .017$, but not between posttreatment and 1-month follow-up, $t(43) = 1.55, p = .13$ or 1-month follow-up and 2-month follow-up, $t(43) = -1.54, p = .13$.

Treatment Outcome With the BHS

Figure 4 presents the mean scores for the Beck Hopelessness Scale (BHS) for the BA and comparison groups across the four assessment times and dropout groups at pretreatment. A one-way analysis of variance (ANOVA) was conducted to determine if there was a significant difference between the mean BHS scores for the comparison group ($M = 13.76$), BA group ($M = 12.25$), veterans assigned to the comparison group who dropped out before posttreatment assessment ($M = 11.86$), and veterans assigned to the BA group who dropped out before posttreatment assessment ($M = 14.60$). The ANOVA was not significant, $F(3, 53) = .48, p = .69$, indicating that the BHS means for the groups did not differ significantly at pretreatment.

A two-factor repeated measures analysis of variance was completed to examine the differences between groups in change in BHS scores over the four
Figure 4. BHS Total Score Means for the Different Groups Over the Four Assessment Times.

assessment times. Due to the lack of sphericity, the time main effect and time x group interaction effect were tested using the multivariate criterion of Wilks' lambda. The time main effect was not significant, Wilks' lambda = .76, $F(3, 16) = 1.68, p = .21, n^2 = .24$. The time x group interaction effect was not significant, Wilks' lambda = .74, $F(3, 16) = 1.91, p = .17, n^2 = .26$. The univariate test associated with the between groups main effect was not significant, $F(1, 18) = 2.14, p = .16, n^2 = .11$. The eta squared statistic indicated a large effect size for the time main effect and the interaction and a moderate effect size for the between groups main effect.

Despite the lack of statistical significance using this test and due to the loss of power from subject drop out, the graphs of means scores were visually inspected and paired $t$ tests were completed to assess for significant within groups changes over
time. Paired *t* tests were completed to assess for significant within groups mean changes. No significant differences were found for either the comparison or BA groups.

Four independent sample *t* tests were completed to assess for significant differences between the BA group and comparison group for each of the four assessment times. A significant difference was found between the comparison group and the BA group, *t*(18) = 2.30, *p* = .03 at the 2-month follow-up. Mean BHS scores were significantly higher for the comparison group than the BA group at the 2-month follow-up (see Table 6 for BHS means, standard deviations, and *t* test results).

**Table 6**

<table>
<thead>
<tr>
<th></th>
<th>BA Group</th>
<th></th>
<th>Comparison Group</th>
<th></th>
<th><em>t</em>(df) and <em>p</em></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><em>N</em></td>
<td><em>M</em></td>
<td><em>SD</em></td>
<td><em>N</em></td>
<td><em>M</em></td>
</tr>
<tr>
<td>Pretreatment</td>
<td>24</td>
<td>12.25</td>
<td>5.76</td>
<td>21</td>
<td>13.76</td>
</tr>
<tr>
<td>Posttreatment</td>
<td>24</td>
<td>13.46</td>
<td>5.34</td>
<td>21</td>
<td>13.95</td>
</tr>
<tr>
<td>1-month</td>
<td>19</td>
<td>14.79</td>
<td>4.26</td>
<td>11</td>
<td>16.00</td>
</tr>
<tr>
<td>2-month</td>
<td>13</td>
<td>12.92</td>
<td>6.33</td>
<td>7</td>
<td>17.57</td>
</tr>
</tbody>
</table>


Carry forward analyses were also completed with the BHS to address loss of power due to drop out. Figure 5 presents the mean scores for the BHS for the BA
and comparison groups over the four assessment times after the last data point has been carried forward.

Figure 5. Carry Forward BHS Total Score Means for the Two Groups Over the Four Assessment Times.

A two-factor repeated measures analysis of variance was conducted to examine the differences between groups in change in BHS scores over the four assessment times after carry forward adjustments were completed. Due to the lack of sphericity, the time main effect and time x group interaction effect were tested using the multivariate criterion of Wilks’ lambda. The time main effect was not significant, Wilks’ lambda = .84, $F(3, 41) = 2.67, p = .06, n^2 = .16$. The time x group interaction effect was not significant, Wilks’ lambda = .93, $F(3, 41) = 1.02, p = .39, n^2 = .07$.

The univariate test associated with the between groups main effect was not significant, $F(1, 43) = .25, p = .62, n^2 = .01$. The eta squared statistic indicated a
large effect size for the time main effect, a moderate effect size for the interaction, and a small effect size for the between groups main effect.

**Treatment Outcome With the RHRSD**

Figure 6 presents the mean scores for the RHRSD for the BA and comparison groups across the four assessment times and the dropout groups at pretreatment. A one-way analysis of variance (ANOVA) was conducted to determine if there was a significant difference between the mean RHRSD scores for the comparison group ($M = 16.55$), BA group ($M = 16.62$), veterans assigned to the comparison group who dropped out before posttreatment assessment ($M = 16.17$), and veterans assigned to the BA group who dropped out before posttreatment assessment ($M = 20.25$). The ANOVA was not significant, $F(3, 50) = .50, p = .68$, indicating that the RHRSD means for the groups did not differ significantly at pretreatment.

A two-factor repeated measures analysis of variance was completed to examine the differences between groups in change in RHRSD scores over the four assessment times. The time main effect was significant, $F(3, 57) = 6.09, p = .001, \eta^2 = .24$. The time x group interaction effect was not significant, $F(3, 57) = .56, p = .65, \eta^2 = .03$. The univariate test associated with the between-groups main effect was also not significant, $F(1, 19) = .48, p = .50, \eta^2 = .02$. The eta squared statistic indicated a large effect size for the time main effect and a small effect size for the interaction and between groups main effect.
Two one-way repeated-measures analysis of variance (repeated measures ANOVA) tests were conducted to examine the significant time main effect for each of the groups (see Table 7 for RHRSD means and standard deviations).

The results for the comparison group were not significant, $F(3, 21) = 1.22$, $p = .33$. The results for the treatment group were significant, $F(3, 36) = 7.16$, $p = .001$. Six paired $t$ tests were completed to follow up the significant repeated measures ANOVA. Bonferroni adjustments of alpha levels were used to control for inflated type 1 error. Differences in mean RHRSD scores across assessment times for the BA group were significantly different between pretreatment and posttreatment, $t(23) = 4.94, p < .0005$, pretreatment and 2-month follow-up, $t(12) = 4.66, p = .001$, posttreatment and 1-month follow-up, $t(18) = -2.22, p = .04$, and 1-month follow-up and 2-month follow-up, $t(12) = 3.36, p = .006$, but not between pretreatment and
Table 7
RHRSD Total Score Means and Standard Deviations
From the Mixed ANOVA Analysis

<table>
<thead>
<tr>
<th></th>
<th>BA Group</th>
<th></th>
<th>Comparison Group</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>M</td>
<td>SD</td>
<td>N</td>
</tr>
<tr>
<td>Pretreatment</td>
<td>13</td>
<td>18.08</td>
<td>6.32</td>
<td>8</td>
</tr>
<tr>
<td>Posttreatment</td>
<td>13</td>
<td>13.08</td>
<td>5.11</td>
<td>8</td>
</tr>
<tr>
<td>1-month</td>
<td>13</td>
<td>15.54</td>
<td>6.01</td>
<td>8</td>
</tr>
<tr>
<td>2-month</td>
<td>13</td>
<td>11.92</td>
<td>4.23</td>
<td>8</td>
</tr>
</tbody>
</table>

Note. $N =$ Number of Veterans, $M =$ Mean Scores, $SD =$ Standard Deviation.

1-month follow-up, $t(18) = 1.38, p = .18$ or posttreatment and 2-month follow-up, $t(12) = -1.05, p = .32$. BA group veterans’ RHRSD scores decreased significantly from pretreatment to posttreatment, pretreatment to 2-month follow-up, and 1-month follow-up to 2-month follow-up. BA group scores increased significantly from posttreatment to 1-month follow-up.

Carry forward analyses were also completed with the RHRSD to address loss of power due to drop out. Figure 7 presents the mean scores for the RHRSD for the BA and comparison groups over the four assessment times after the last data point was carried forward.

A two-factor repeated measures analysis of variance was conducted to examine the differences between groups in change in RHRSD scores over the four assessment times after carry forward adjustments were completed. Due to the lack of sphericity, the time main effect and time x group interaction effect were tested using
Figure 7. Carry Forward RHRSD Total Score Means for the Two Groups Over the Four Assessment Times.

the multivariate criterion of Wilks' lambda. The time main effect was significant, Wilks' lambda = .57, \( F(3, 40) = 9.93, p < .0005, \eta^2 = .43 \). The time x group interaction effect was not significant, Wilks' lambda = .93, \( F(3, 40) = .93, p = .44, \eta^2 = .06 \). The univariate test associated with the between groups main effect was not significant, \( F(1, 42) = .57, p = .45, \eta^2 = .01 \). The eta squared statistic indicated a large effect size for the time main effect, a moderate effect size for the interaction, and small effect size for the between groups main effect.

Two one-way repeated-measures analysis of variance tests were conducted to examine the significant time main effect for each of the groups (see Table 8 for carry forward RHRSD means and standard deviations).
Table 8

Carry Forward RHRSD Total Score Means and Standard Deviations
From the Mixed ANOVA Analysis

<table>
<thead>
<tr>
<th></th>
<th>BA Group</th>
<th></th>
<th>Comparison Group</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N  M  SD</td>
<td>N  M  SD</td>
<td></td>
<td>N  M  SD</td>
</tr>
<tr>
<td>Pretreatment</td>
<td>24 16.62 5.80</td>
<td>20 16.55 5.29</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Posttreatment</td>
<td>24 11.87 4.48</td>
<td>20 13.05 5.22</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1-month</td>
<td>24 13.92 5.17</td>
<td>20 14.40 4.87</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2-month</td>
<td>24 11.96 3.75</td>
<td>20 14.00 5.44</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Note. N = Number of Veterans, M = Mean Scores, SD = Standard Deviation.*

The results for the comparison group were analyzed with the multivariate criterion of Wilks' lambda due to the lack of sphericity. The results were not significant, Wilks's lambda = .75, $F(3, 17) = 1.84$, $p = .18$. The results for the BA group met the assumption of sphericity and were significant, $F(3, 69) = 11.02$, $p < .0005$. Six paired $t$ tests were completed to follow up the significant repeated measures ANOVA. Bonferroni adjustments of alpha levels were used to control for inflated type 1 error. Differences in mean RHRSD scores across assessment times for the BA group were significantly different between pretreatment and posttreatment, $t(23) = 4.94$, $p < .0005$, pretreatment and 2-month follow-up, $t(23) = 4.68$, $p < .0005$, and 1-month follow-up and 2-month follow-up, $t(23) = 2.86$, $p = .009$. Differences between pretreatment and 1-month follow-up, $t(23) = 2.25$, $p = .03$, posttreatment and 1-month follow-up, $t(23) = -2.17$, $p = .04$, and posttreatment and 2-month follow-up, $t(23) = -.10$, $p = .92$ were not significant after applying the Bonferroni

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adjustments of alpha levels. BA group veterans' RHRSD scores decreased significantly from pretreatment to posttreatment, pretreatment to 2-month follow-up, and 1-month follow-up to 2-month follow-up.

**Treatment Outcome With the PDS**

Figure 8 presents the mean scores for the PDS for the BA and comparison groups across the four assessment times and the dropout groups at pretreatment. A one-way analysis of variance (ANOVA) was conducted to determine if there was a significant difference between the mean scores for the comparison group \( M = 43.19 \), BA group \( M = 45.00 \), veterans assigned to the comparison group who dropped out before posttreatment assessment \( M = 40.22 \), and veterans assigned to the BA group who dropped out before posttreatment assessment \( M = 38.60 \). The ANOVA was significant, \( F(3, 55) = 3.55, p = .02 \), indicating that the PDS means for the groups may differ significantly at pretreatment. However, follow-up tests using the Tukey HSD test did not find significant differences among the four groups (see Table 9 for PDS symptoms severity score mean differences, standard errors, and alpha levels among the four groups), indicating that the PDS means for the groups did not differ significantly at pretreatment.

A two-factor repeated measures analysis of variance was completed to examine the differences between groups in change in PDS scores over the four assessment times. The time main effect was not significant, \( F(3, 54) = .27, p = .85 \), \( n^2 = .01 \). The time x group interaction effect was not significant, \( F(3, 54) = 1.72, \)
Figure 8. PDS Symptom Severity Score Means for the Different Groups Over the Four Assessment Times.

Table 9

PDS Symptom Severity Score Mean Differences, Standard Errors, and Alpha Levels Among the Four Groups

<table>
<thead>
<tr>
<th>Groups</th>
<th>Mean Difference</th>
<th>Standard Error</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comparison and BA</td>
<td>-1.81</td>
<td>1.48</td>
<td>.617</td>
</tr>
<tr>
<td>Comparison and Comparison Dropouts</td>
<td>2.97</td>
<td>1.98</td>
<td>.444</td>
</tr>
<tr>
<td>Comparison and BA Dropouts</td>
<td>4.59</td>
<td>2.47</td>
<td>.257</td>
</tr>
<tr>
<td>BA and Comparison Dropouts</td>
<td>4.78</td>
<td>1.94</td>
<td>.077</td>
</tr>
<tr>
<td>BA and BA Dropouts</td>
<td>6.40</td>
<td>2.44</td>
<td>.053</td>
</tr>
<tr>
<td>Comparison Dropouts and BA Dropouts</td>
<td>1.62</td>
<td>2.77</td>
<td>.936</td>
</tr>
</tbody>
</table>

\( p = .17, n^2 = .09 \). The univariate test associated with the between groups main effect was also not significant, \( F(1, 18) = .29, p = .59, n^2 = .02 \). The eta squared statistic
indicated a small effect size for the time main effect and between groups main effect and a moderate effect size for the interaction.

Despite the lack of statistical significance using this test and due to the loss of power from subject drop out, the graphs of means scores were visually inspected and paired t tests were completed to assess for significant within groups mean changes. No significant differences were found for either the comparison or BA groups. Four independent samples t tests were completed to assess for significant differences between the BA group and comparison group for each of the four assessment times. No significant differences were found between the comparison and BA groups at any of the assessment times (see Table 10 for PDS symptom severity score means, standard deviations, and t test results).

Table 10

PDS Symptom Severity Score Means, Standard Deviations, and Independent Samples t Tests Across the Four Assessment Times

<table>
<thead>
<tr>
<th></th>
<th>BA Group</th>
<th></th>
<th>Comparison Group</th>
<th></th>
<th>t(df) and p</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N  M  SD</td>
<td></td>
<td>N  M  SD</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pretreatment</td>
<td>24 45.00 4.31</td>
<td></td>
<td>21 43.19 4.35 (t(43) = -1.40, p = .17)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Posttreatment</td>
<td>24 43.67 5.29</td>
<td></td>
<td>21 42.33 5.03 (t(43) = -.86, p = .39)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1-month</td>
<td>19 43.05 6.27</td>
<td></td>
<td>11 44.00 5.14 (t(28) = .42, p = .67)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2-month</td>
<td>13 41.31 8.26</td>
<td></td>
<td>7 45.86 1.86 (t(18) = 1.90, p = .08)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note. \(N = \) Number of Veterans, \(M = \) Mean Scores, \(SD = \) Standard Deviation, \(df = \) Degrees of Freedom.
Carry forward analyses were also completed with the PDS to address loss of power due to drop out. Figure 9 presents the mean scores for the PDS for the BA and comparison groups over the four assessment times after the last data point has been carried forward.

![Graph](image)

**Figure 9.** Carry Forward PDS Symptom Severity Score Means for the Two Groups Over the Four Assessment Times.

A two-factor repeated measures analysis of variance was conducted to examine the differences between groups in change in PDS symptom severity scores over the four assessment times after carry forward adjustments were completed. Due to the lack of sphericity, the time main effect and time x group interaction effect were tested using the multivariate criterion of Wilks' lambda. The time main effect was not significant, Wilks' lambda = .92, \( F(3, 41) = 1.18, p = .33, \eta^2 = .08 \). The time x group interaction effect was not significant, Wilks' lambda = .89, \( F(3, 41) = 1.70, p = .18, \eta^2 = .11 \). The univariate test associated with the between groups main effect was not
significant, $F(1, 43) = .19, p = .66, n^2 = .004$. The eta squared statistic indicated a moderate effect size for the time main effect and interaction and a small effect size for the between groups main effect.

Treatment Outcome With the Mississippi Scale

Figure 10 presents the mean scores for the Mississippi Scale for the BA and comparison groups across the four assessment times and the dropout groups at pretreatment. A one-way analysis of variance (ANOVA) was conducted to determine if there was a significant difference between the mean scores for the comparison group ($M = 136.05$), BA group ($M = 136.29$), veterans assigned to the comparison group who dropped out before posttreatment assessment ($M = 126.29$), and veterans assigned to the BA group who dropped out before posttreatment assessment ($M = 131.80$). The ANOVA was not significant, $F(3, 53) = 1.18, p = .33$, indicating that the Mississippi means for the groups did not differ significantly at pretreatment.

A two-factor repeated measures analysis of variance was completed to examine the differences between groups in change in Mississippi scores over the four assessment times. The time main effect was not significant, $F(3, 54) = .31, p = .82$, $n^2 = .02$. The time x group interaction effect was not significant, $F(3, 54) = 1.35, p = .27, n^2 = .07$. The univariate test associated with the between groups main effect was also not significant, $F(1, 18) = .01, p = .92, n^2 = .001$. The eta squared statistic
indicated a small effect size for the time main effect and between groups main effect and a moderate effect size for the interaction.

Despite the lack of statistical significance using this test and due to the loss of power from subject drop out, the graphs of means scores were visually inspected and paired \( t \) tests were completed to assess for significant within groups mean changes. No significant differences were found for either the comparison or BA groups. Four independent samples \( t \) tests were completed to assess for significant differences between the BA group and comparison group for each of the four assessment times. No significant differences were found between the comparison and BA groups at any of the assessment times (see Table 11 for Mississippi score means, standard deviations, and \( t \) test results).
Table 11
Mississippi Score Means, Standard Deviations, and Independent Samples
\(t\) Tests Across the Four Assessment Times

<table>
<thead>
<tr>
<th></th>
<th>BA Group</th>
<th>Comparison Group</th>
<th>(t(df)) and (p)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(N)</td>
<td>(M)</td>
<td>SD</td>
</tr>
<tr>
<td>Pretreatment</td>
<td>24</td>
<td>136.29</td>
<td>14.86</td>
</tr>
<tr>
<td>Posttreatment</td>
<td>24</td>
<td>138.71</td>
<td>15.04</td>
</tr>
<tr>
<td>1-month</td>
<td>19</td>
<td>140.37</td>
<td>17.77</td>
</tr>
<tr>
<td>2-month</td>
<td>13</td>
<td>135.38</td>
<td>19.79</td>
</tr>
</tbody>
</table>

Note. \(N\) = Number of Veterans, \(M\) = Mean Scores, SD = Standard Deviation, \(df\) = Degrees of Freedom.

Carry forward analyses were also completed with the Mississippi scores to address loss of power due to drop out. Figure 11 presents the mean scores for the Mississippi for the BA and comparison groups over the four assessment times after the last data point has been carried forward.

A two-factor repeated measures analysis of variance was conducted to examine the differences between groups in change in Mississippi scores over the four assessment times after carry forward adjustments were completed. Due to the lack of sphericity, the time main effect and time x group interaction effect were tested using the multivariate criterion of Wilks' lambda. The time main effect was not significant, Wilks' lambda = .97, \(F(3, 41) = .45, p = .72, \eta^2 = .03\). The time x group interaction effect was not significant, Wilks' lambda = .88, \(F(3, 41) = 1.87, p = .15, \eta^2 = .12\). The univariate test associated with the between groups main effect was not
significant, $F(1, 43) = .08, p = .78, n^2 = .002$. The eta squared statistic indicated a small effect size for the time main effect and between groups main effect and a moderate effect size for the interaction.

### Multiple Regression Analyses

One goal of the study was to attempt to find factors that would predict change in depression and PTSD symptoms. A measure of change in depression and PTSD was calculated by subtracting the 2-month follow-up scores on the BDI-II, RHRSD, PDS symptom severity, and Mississippi scales from the pretreatment scores. Predictor variables included in the multiple regression included a CAC subscale associated with the belief that one is unable to change (unable to change), a CAC
subscale associated with fear of the process required for change (fear of change), MCMII-III base rate scores from the desirability scale (desirability), a difference score calculated by subtracting MCMII-III base rates of the desirability scale from the debasement scales (MCMII difference), a difference score calculated by subtracting percentage of current PTSD service connection from desired PTSD percentage of service connection (SC change), a current total percentage of service connection score (SC), and therapist ratings of homework completion for veterans in the BA group (homework). These variables were included after they were found to have significant correlations with depression and PTSD change scores among the four assessment times across the four psychological tests.

The overall model from the multiple regression completed with the BDI-II change score was not significant, $R^2 = .03, F(7, 5) = .95, p = .54$. This combination of predictor variables accounted for only 3% of the variance in BDI-II change scores. No individual predictor provided a significant unique contribution to the model (see Table 12 for the BDI-II multiple regression Betas, $t$ scores, and significance level for the variables).

The overall model from the multiple regression completed with the RHRSD change score was significant, $R^2 = .87, F(7, 5) = 12.89, p = .006$. This combination of predictor variables accounted for 87% of the variance in RHRSD change scores. Two individual predictor variables provided significant unique contributions to explaining the RHRSD change score (see Table 13 for the RHRSD multiple regression Betas, $t$ scores, and significance levels for the variables). Veterans who
Table 12

BDI-II Change Score Multiple Regression Results for Seven Predictor Variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>Beta</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unable to Change</td>
<td>-.17</td>
<td>-.34</td>
<td>.75</td>
</tr>
<tr>
<td>Fear of Change</td>
<td>-.26</td>
<td>-.51</td>
<td>.63</td>
</tr>
<tr>
<td>Desirability</td>
<td>1.44</td>
<td>1.67</td>
<td>.16</td>
</tr>
<tr>
<td>MCMI Difference</td>
<td>1.40</td>
<td>1.58</td>
<td>.17</td>
</tr>
<tr>
<td>SC Change</td>
<td>-.84</td>
<td>-1.30</td>
<td>.25</td>
</tr>
<tr>
<td>SC</td>
<td>-.77</td>
<td>-1.17</td>
<td>.29</td>
</tr>
<tr>
<td>Homework</td>
<td>.32</td>
<td>1.00</td>
<td>.36</td>
</tr>
</tbody>
</table>

Table 13

RHRSD Change Score Multiple Regression Results for Seven Predictor Variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>Beta</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unable to Change</td>
<td>.27</td>
<td>1.54</td>
<td>.18</td>
</tr>
<tr>
<td>Fear of Change</td>
<td>-.54</td>
<td>-3.04</td>
<td>.03</td>
</tr>
<tr>
<td>Desirability</td>
<td>.06</td>
<td>.20</td>
<td>.85</td>
</tr>
<tr>
<td>MCMI Difference</td>
<td>.31</td>
<td>1.01</td>
<td>.36</td>
</tr>
<tr>
<td>SC Change</td>
<td>-.39</td>
<td>-1.71</td>
<td>.15</td>
</tr>
<tr>
<td>SC</td>
<td>-.07</td>
<td>-.33</td>
<td>.76</td>
</tr>
<tr>
<td>Homework</td>
<td>.67</td>
<td>5.96</td>
<td>.002</td>
</tr>
</tbody>
</table>

Veterans who had greater change in RHRSD scores had been rated higher in their homework completion by therapists. Veterans who had greater change in RHRSD scores had lower scores on the CAC fear of the process of change subscale. These findings are
significant when controlling for the variance explained by the other variables in the model.

The overall model from the multiple regression completed with the PDS change score was not significant, $R^2 = .23$, $F(7, 5) = 1.51$, $p = .34$. This combination of predictor variables accounted for 23% of the variance in PDS change scores. No individual predictor provided a significant unique contribution to the model (see Table 14 for the PDS multiple regression Betas, $t$ scores, and significance levels for the variables).

<table>
<thead>
<tr>
<th>Variable</th>
<th>Beta</th>
<th>$t$</th>
<th>$p$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unable to Change</td>
<td>-.11</td>
<td>-.26</td>
<td>.80</td>
</tr>
<tr>
<td>Fear of Change</td>
<td>-.17</td>
<td>-.40</td>
<td>.70</td>
</tr>
<tr>
<td>Desirability</td>
<td>1.53</td>
<td>2.06</td>
<td>.09</td>
</tr>
<tr>
<td>MCMI Difference</td>
<td>1.30</td>
<td>1.70</td>
<td>.15</td>
</tr>
<tr>
<td>SC Change</td>
<td>-.86</td>
<td>-1.53</td>
<td>.19</td>
</tr>
<tr>
<td>SC</td>
<td>-.96</td>
<td>-1.69</td>
<td>.15</td>
</tr>
<tr>
<td>Homework</td>
<td>.25</td>
<td>.90</td>
<td>.41</td>
</tr>
</tbody>
</table>

The overall model from the multiple regression completed with the Mississippi change score was not significant, $R^2 = .25$, $F(7, 5) = 1.59$, $p = .32$. This combination of predictor variables accounted for 25% of the variance in Mississippi change scores. No individual predictor provided a significant unique contribution to the model (see
Table 15 for the Mississippi multiple regression Betas, t scores, and significance levels for the variables).

Table 15
Mississippi Change Score Multiple Regression Results for Seven Predictor Variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>Beta</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unable to Change</td>
<td>-.78</td>
<td>-1.87</td>
<td>.12</td>
</tr>
<tr>
<td>Fear of Change</td>
<td>.45</td>
<td>1.05</td>
<td>.34</td>
</tr>
<tr>
<td>Desirability</td>
<td>.92</td>
<td>1.26</td>
<td>.26</td>
</tr>
<tr>
<td>MCMI Difference</td>
<td>.93</td>
<td>1.24</td>
<td>.27</td>
</tr>
<tr>
<td>SC Change</td>
<td>-.48</td>
<td>-.88</td>
<td>.42</td>
</tr>
<tr>
<td>SC</td>
<td>-.51</td>
<td>-.91</td>
<td>.41</td>
</tr>
<tr>
<td>Homework</td>
<td>.62</td>
<td>2.29</td>
<td>.07</td>
</tr>
</tbody>
</table>

Clinical Significance

The RHRSD is a clinician administered rating form that is designed to assess symptoms associated with depression. Clinical significance was examined using RHRSD total scores collapsed into four categories. The categories included scores from 0 to 10 (not depressed), 11 to 16 (minor depression), 17 to 25 (major depression), and 26 or above (severe depression) (Warren, 1996). A Friedman test was conducted to evaluate the significant changes in mean ranks from the four RHRSD diagnostic categories for the BA group at pretreatment (mean rank = 3.04), posttreatment (mean rank = 2.15), 1-month follow-up (mean rank = 2.92), and 2-month follow-up (mean rank = 1.88) and for the comparison group at pretreatment.
(mean rank = 3.19), posttreatment (mean rank = 2.06), 1-month follow-up (mean
rank = 2.50), and 2-month follow-up (mean rank = 2.25). The test was significant for
the BA group $x^2(3, N = 13) = 11.41, p = .01$, but not for the comparison group $x^2(3,
N = 8) = 5.58, p = .13$.

Follow-up comparisons were conducted using Wilcoxon Signed Ranks tests.
There was a significant change in the number of subjects among the four diagnostic
categories in the BA group from pretreatment to posttreatment ($p = .001$),
posttreatment to 1-month follow-up ($p = .046$), and 1-month follow-up to 2-month
follow-up ($p = .011$) (see Table 16 for the number and percentage of veterans in each
diagnostic category).

Table 16

<table>
<thead>
<tr>
<th>Depression Category</th>
<th>Comparison Group $N$ (%)</th>
<th>BA Group $N$ (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pre</td>
<td>Post</td>
</tr>
<tr>
<td>Not</td>
<td>1</td>
<td>9</td>
</tr>
<tr>
<td>Minor</td>
<td>11</td>
<td>5</td>
</tr>
<tr>
<td>Major</td>
<td>6</td>
<td>3</td>
</tr>
<tr>
<td>Severe</td>
<td>2</td>
<td>0</td>
</tr>
</tbody>
</table>

Note. $N = \text{Number of Veterans}, \% = \text{Percentage of Veterans}, \text{Pre} = \text{Pretreatment},
\text{Post} = \text{Posttreatment}, \text{1-Month} = \text{1-Month Follow-up}, \text{2-Month} = \text{2-Month Follow-up}.$

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A chi-square test was conducted to assess whether the difference between the BA group and comparison group in the number of subjects in each diagnostic category at each assessment time was statistically significant. The results of these tests were not significant for pretreatment $\chi^2(3, N = 44) = 4.70, p = .19$, posttreatment $\chi^2(2, N = 44) = 2.96, p = .23$, 1-month follow-up $\chi^2(3, N = 33) = 1.68, p = .64$, or 2-month follow-up assessment $\chi^2(2, N = 21) = .98, p = .61$.

RHRSD groups were collapsed further and the Wilcoxon Signed Ranks test was used to assess for significant change. The number of veterans in the comparison group with no to minor depression increased from pretreatment (60%) to posttreatment (70%) and 2-month follow-up (75%), with a decrease at 1-month follow-up (50%). These changes over assessment times were not statistically significant (all $p$'s > .05). The number of veterans in the BA group with no to minor depression increased significantly from pretreatment (46%) to posttreatment (88%), $p = .002$, and from 1-month follow-up (63%) to 2-month follow-up (85%), $p = .046$. There was also a significant decrease in the number of subjects in the BA group with no to minor depression from posttreatment (88%) to 1-month follow-up (63%), $p = .046$. 

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Additional Analyses

Client Satisfaction With Treatment

The veterans who participated in the BA group completed the Client Satisfaction Questionnaire (CSQ) (see Table 17 for frequencies of responses to the questionnaire). The responses from the veterans were generally positive or very positive. One veteran responded negatively to two of the questions. This might be attributed to the reverse scoring on the questionnaire since the negative response is not consistent across most of the questions. The majority of the veterans rated the quality of the group as excellent (67%), believed they received the type of group they wanted (67%), would recommend the group to a friend with a similar problem (83%), were satisfied with the amount of help received (63%), believed the group helped with the problem (54%), were overall very satisfied with the group (63%), and would use the group again (79%). The only item that was not given the highest rating was regarding the extent to which the group met the veterans' needs (33%).

Three different therapeutic BA groups were run for this study. A one-way analysis of variance (ANOVA) was conducted to determine if there was a significant difference between the CSQ total scores for the first group (M = 28.55), second group (M = 28.33), and third group (M = 29.50). The ANOVA was not significant, $F(2, 21) = .36$, $p = .70$, indicating that the members in the three BA groups did not differ significantly in their satisfaction with the group.
Table 17

Number and Percentage of Responses for Each Question on the CSQ

<table>
<thead>
<tr>
<th>Content</th>
<th>Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quality of Group</td>
<td></td>
</tr>
<tr>
<td>Excellent</td>
<td>16 (67%)</td>
</tr>
<tr>
<td>Good</td>
<td>8 (33%)</td>
</tr>
<tr>
<td>Fair</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>Poor</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>Service Wanted</td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>16 (67%)</td>
</tr>
<tr>
<td>Generally</td>
<td>8 (33%)</td>
</tr>
<tr>
<td>Not Really</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>No</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>Met Needs</td>
<td></td>
</tr>
<tr>
<td>Almost All</td>
<td>8 (33%)</td>
</tr>
<tr>
<td>Most</td>
<td>14 (59%)</td>
</tr>
<tr>
<td>A Few</td>
<td>2 (8%)</td>
</tr>
<tr>
<td>None</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>Recommend to Friend</td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>20 (83%)</td>
</tr>
<tr>
<td>Probably</td>
<td>4 (17%)</td>
</tr>
<tr>
<td>Probably Not</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>No</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>Amount of Help</td>
<td></td>
</tr>
<tr>
<td>Very Satisfied</td>
<td>15 (63%)</td>
</tr>
<tr>
<td>Satisfied</td>
<td>8 (33%)</td>
</tr>
<tr>
<td>Indifferent</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>Dissatisfied</td>
<td>1 (4%)</td>
</tr>
<tr>
<td>Helped with Problem</td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>13 (54%)</td>
</tr>
<tr>
<td>Somewhat</td>
<td>11 (46%)</td>
</tr>
<tr>
<td>Not Really</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>Made Worse</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>Overall Satisfaction</td>
<td></td>
</tr>
<tr>
<td>Very</td>
<td>15 (63%)</td>
</tr>
<tr>
<td>Mostly</td>
<td>8 (33%)</td>
</tr>
<tr>
<td>Indifferent</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>Dissatisfied</td>
<td>1 (4%)</td>
</tr>
<tr>
<td>Use Group Again</td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>19 (79%)</td>
</tr>
<tr>
<td>Maybe</td>
<td>5 (21%)</td>
</tr>
<tr>
<td>Probably Not</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>No</td>
<td>0 (0%)</td>
</tr>
</tbody>
</table>

*Note.* Responses and content listed have been shortened from actual responses and content on questionnaire.

**BA Group Cohort Equivalence**

Three separate group cohorts were provided the BA treatment. One-way analysis of variances (ANOVA) were conducted on the BDI-II, RHRSD, PDS, and Mississippi scales at the pretreatment, posttreatment, and 1-month follow-up to
determine if there were significant differences between the three group cohorts. One of the group cohorts had only one veteran who completed the 2-month follow-up, so independent samples $t$ tests were conducted on the four scales at this assessment time on the other two cohorts. No significant differences were found (see Table 18 for results of ANOVAs and $t$ tests).

**Table 18**

Results From One-Way ANOVAs for the Four Tests at Pretreatment, Posttreatment, and 1-Month Follow-up for the Three Group Cohorts and $t$ Tests at the 2-Month Follow-up for Two of the Group Cohorts

<table>
<thead>
<tr>
<th>Test</th>
<th>Pretreatment</th>
<th>Posttreatment</th>
<th>1-Month</th>
<th>2-Month</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$F$</td>
<td>$p$</td>
<td>$F$</td>
<td>$p$</td>
</tr>
<tr>
<td>BDI-II</td>
<td>.64</td>
<td>.54</td>
<td>2.11</td>
<td>.54</td>
</tr>
<tr>
<td>RHRSD</td>
<td>2.18</td>
<td>.14</td>
<td>1.51</td>
<td>.24</td>
</tr>
<tr>
<td>PDS</td>
<td>1.31</td>
<td>.29</td>
<td>.37</td>
<td>.70</td>
</tr>
<tr>
<td>Mississippi</td>
<td>.85</td>
<td>.44</td>
<td>1.34</td>
<td>.28</td>
</tr>
</tbody>
</table>

*Note.* 1-Month = 1-month follow-up, 2-Month = 2-month follow-up. Degrees of Freedom at Pretreatment (2, 21), Posttreatment (2, 21), 1-Month Follow-up (2, 16), and 2-Month Follow-up (10).

**Therapist Equivalence**

Two of the groups were facilitated by a psychology intern and one of the groups was facilitated by a staff psychologist. To assess for significant differences among veterans’ BDI-II, RHRSD, PDS, and Mississippi scores between the two therapists, independent samples $t$ tests were conducted for each of the four
assessment times. No significant differences were found (see Table 19 for results of $t$ tests to assess for significant differences in test scores across the assessment times between the two therapists).

Table 19

Results From $t$ Tests Between the Two Group Therapists for the Four Tests at the Four Assessment Times

<table>
<thead>
<tr>
<th>Test</th>
<th>Pretreatment</th>
<th>Posttreatment</th>
<th>1-Month</th>
<th>2-Month</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$t$</td>
<td>$p$</td>
<td>$t$</td>
<td>$p$</td>
</tr>
<tr>
<td>BDI-II</td>
<td>.99</td>
<td>.33</td>
<td>1.87</td>
<td>.07</td>
</tr>
<tr>
<td>RHRSD</td>
<td>-.29</td>
<td>.77</td>
<td>0</td>
<td>1.00</td>
</tr>
<tr>
<td>PDS</td>
<td>1.55</td>
<td>.13</td>
<td>.43</td>
<td>.67</td>
</tr>
<tr>
<td>Mississippi</td>
<td>.15</td>
<td>.88</td>
<td>.88</td>
<td>.39</td>
</tr>
</tbody>
</table>

*Note.* 1-Month = 1-month follow-up, 2-Month = 2-month follow-up. Degrees of Freedom at Pretreatment (22), Posttreatment (22), 1-Month Follow-up (17), and 2-Month Follow-up (11).

Process Measures

The BDI-II was used as a process measure during the BA group treatment and was administered to the veterans during sessions 2, 4, 6, and 8. A two-factor repeated measures analysis of variance was completed to examine the differences between the three group cohorts in change in BDI-II scores over the four assessment times. The time main effect was significant, $F(3, 48) = 10.16, p < .0005$. The time x group interaction effect was not significant, $F(6, 48) = 1.67, p = .15$. The
univariate test associated with the between-groups main effect was also not significant, \( F(2, 16) = 3.17, p = .07. \)

Three one-way repeated-measures analysis of variance tests were conducted to examine the significant time main effect for each of the group cohorts. The results for the first group cohort, \( F(3, 21) = 1.56, p = .23 \), and second group cohort were not significant, \( F(3, 9) = 3.16, p = .08 \). The results for the third group cohort were significant, \( F(3, 18) = 6.54, p = .003 \).

Six paired \( t \) tests were completed to follow up the significant results for the third group cohort. Bonferroni adjustments of alpha levels were used to control for inflated type 1 error. Differences in mean BDI-II scores across assessment times for the third group cohort were significantly different between session 2 and session 4, \( t(6) = 5.40, p = .002 \), and session 2 and session 6, \( t(6) = 3.89, p = .008 \). Differences between session 2 and session 8, \( t(6) = 3.15, p = .02 \), session 4 and session 6, \( t(6) = -1.34, p = .23 \), session 4 and session 8, \( t(6) = .65, p = .54 \), and session 6 and session 8, \( t(6) = 1.67, p = .14 \) were not significant after applying the Bonferroni adjustments of alpha levels. The third group cohort's BDI-II scores decreased significantly from the second session to the fourth session and from the second session to the sixth session.
CHAPTER IV

DISCUSSION

Purpose of the Study

The purpose of this study was to examine the effectiveness of the BA group treatment in reducing psychological symptoms associated with depression and PTSD for an inpatient population of combat veterans. The study also explored for the presence of variables that may be predictive of changes in symptoms as measured by psychological assessments of depression and PTSD. Finally, the study examined the clinical significance of the observed outcomes.

Population Characteristics

Consistent with previous research examining comorbid PTSD and depression (Blanchard et al., 1998; Southwick et al., 1991), the veterans in this study evidenced many symptoms related to elevated psychological, personal, and social dysfunction and distress. Veterans’ scores on the MCMI-III exceeded scores associated with significant problematic personality characteristics on half of the scales, including scales associated with PTSD and depression. Veterans’ ratings of objective and subjective measures of quality of life on the ComQol were consistently low, with very noticeable differences from a norm group on subjective perception of quality of life. All of the veterans met diagnostic criteria for PTSD using the PDS. A majority of the

78
veterans (89%) were assessed by clinicians with the RHRSD as having at least minor depression. Almost all of the veterans were taking medication for depression (96%) and a majority were taking medications for anxiety (73%). A majority of the veterans (76%) were seeking disability compensation for PSTD.

Treatment Outcomes for Depression

Results from self-report depression inventories showed no or very mild changes and remained elevated throughout all four assessments. BDI-II scores for veterans in the BA group reduced significantly from pretreatment to posttreatment. BDI-II scores for the comparison group evidenced a small increase from pretreatment to posttreatment, which was not significant. Despite this difference in results, the mean BDI-II scores for the two groups did not differ significantly at posttreatment. Both groups also continued to score within the severe depression range on the BDI-II (Beck et al., 1996) at the posttreatment assessment. Although the BA group did not show any other statistically significant changes in BDI-II scores, the comparison group continued to evidence an increase in depression symptoms, which reached statistical significance from the one-month follow-up to the two-month follow-up. The carry forward analysis of the BDI-II indicated that the change in scores between pretreatment to posttreatment was significantly different between the two groups, with the treatment group reporting a greater reduction of symptoms between the two assessment times than the comparison group. No significant differences across assessment times or between the two groups were found using the BHS, except at the
two-month follow-up. The comparison group scored significantly higher than the BA group at the two-month follow-up on the BHS.

The effectiveness of the BA group for this population, as assessed by the BDI-II, is not as promising as results from the Porter (2000) BA group treatment study with outpatients. One potential explanation for these differences is that the BA group in the present study included 8 group sessions over a 4-week period as opposed to 10 sessions once a week in the Porter study. The reduction of time in therapy may have resulted in less change among subjects. The shorter period of time encompassing the whole process of treatment may also have led to reduced change.

Another potential explanation is that the subjects in the present study were inpatients as opposed to the Porter examination of treatment effectiveness for outpatient subjects. The subjects in the present study were all also diagnosed with, and were seeking treatment primarily for, chronic PTSD in addition to having symptoms associated with depression. The Porter study worked with subjects who were seeking treatment for depression. Comorbid diagnoses were not reported in the Porter study. Therefore, as suggested by previous research (Blanchard et al., 1998; Southwick et al., 1991), the current population may have been more psychologically impaired than the Porter subjects.

Results from the clinician-administered scale (RHRSD) were more promising. Symptoms of depression decreased significantly from pretreatment to posttreatment, pretreatment to two-month follow-up, and one-month follow-up to two-month follow-up for the BA group. While a similar pattern of symptom change across
assessment times was seen with the comparison group, none of the changes were statistically significantly. The differences between the two groups at each of the assessment times were also not statistically significant. For the BA group, the mean score decreased from the major depression range to the minor depression range and almost reached the not depressed range by the two-month follow-up. The comparison group mean remained in the minor depression range throughout the four assessment times.

Overall, these results indicate that those subjects receiving the BA treatment had a statistically significant reduction in self-reported depressive symptoms from the pretreatment to posttreatment assessment times, while the comparison group did not. Clinician ratings of depression indicated additional statistically significant changes in symptoms of depression for BA group participants from the one-month follow up to the two-month follow-up. Changes on the BDI and RHRSD for the comparison group did not show statistically significant change. In fact, the comparison group evidenced a trend towards experiencing more symptoms of depression measured with self-report inventories across the four assessment times, although the only statistically significant change was an increase in symptoms measured by the BHS from one-month to two-month follow-up.

Treatment Outcomes for PTSD

No statistically significant changes in symptoms across assessment times were found for either the PDS or Mississippi scale. There were also no statistically
significant differences in scores on the PDS or Mississippi between the groups at any of the assessment times. These results did not seem to be related to decreased power due to subject drop out, since no significant results were found using the carry forward analyses. One potential point of consideration is that the psychological tests used to assess PTSD were both self-report. No clinician-administered assessments were used. Another consideration is the fact that this population is reporting PTSD symptoms associated with traumas that usually happened almost 30 years ago, indicating the presence of very chronic and potentially change-resistant psychological problems. This failure of treatment to reduce self-reported PTSD symptoms is consistent with previous research (Fontana & Rosenheck, 1997; Johnson et al., 1996; Ruzek et al., 2001; Shalev, 1997).

Treatment Outcome Considerations

Changes in outcome scores for the BA group were not differentially affected by differences in the three BA group cohorts. Changes in outcome scores for the BA group were also not differentially affected by who the therapist was for the group. The group cohorts and therapists were statistically equivalent as assessed by outcome scores.

Results from the MCMII-III on the desirability and debasement modifying indices suggest that the veterans in this study may have a tendency to exaggerate current symptoms (Millon et al., 1997). This may provide an explanation for the differences in symptoms when assessed with the self-report tests versus therapist-
administered scale in this study. This explanation needs to be counterbalanced with therapist expectancies of treatment effectiveness. Because all of the veterans received treatment in the residential PTSD program, the therapists may have been more likely to report positive change as a function of knowing the veterans received treatment. The "true" measure of treatment effect may lie somewhere between these two.

A potentially interesting observation from the data is that scores for veterans in the comparison group on the BDI-II, BHS, and PDS tended to consistently increase over the four assessment times, while scores for the BA group did not (see Figures 2, 4, and 8). Although the differences between the groups were not statistically significant, a potential hypothesis for these trends is that the BA therapeutic group may have mildly moderated symptoms or reporting of symptoms. These trends are also seen when the carry forward procedure was applied (see Figures 3, 5, and 9). Similar results using a "second generation" type of treatment were also found by Fontana and Rosenheck (1997) and Johnson and his colleagues (Johnson & Lubin, 1997; Johnson et al., 1997). These researchers suggest that veterans may benefit from a change in focus of treatment from trauma-specific symptoms to social-functioning problems. The BA treatment would seem to be a good example of intervention aimed to address social-functioning problems.

Another pattern that emerges upon examination of group means is a decrease in symptoms from pretreatment to posttreatment, an increase in symptoms from posttreatment to one-month follow-up, and a decrease in symptoms from one-month follow-up to two-month follow-up for the BA group on the BDI-II and RHRSD. This
pattern is also seen for the comparison group on the RHRSD. This "depression relapse" at the one-month follow-up was not reported in previous studies (Jacobson et al., 1996; Porter, 2000), but these studies completed three- and six-month follow-ups, respectively, rather than a one-month follow-up. One of the therapists from the PTSD residential program (W. Bloem, personal communication, October 2, 2002) shared that this is consistent with clinical observations of this patient population. A potential hypothesis discussed was that veterans with chronic psychological complaints going from a structured living situation while in treatment to an unstructured situation upon discharge have difficulty readjusting. Another hypothesis was that the treatment in the program involves the recall of traumatic experiences, resulting in an increase in clinical symptoms once the subjects are no longer in what they consider a safe or controlled environment.

Variables Predicting Treatment Outcomes

The multiple regression analysis was completed to assess for variables that may predict response to treatment. The combination of predictor variables making up the model accounted for 87% of the variance in depression change scores on the RHRSD. Two variables provided unique contributions to explaining change in RHRSD scores. The largest contribution was from therapist ratings of homework completion for veterans in the BA group. More work by veterans on assignments outside the therapy session was associated with greater reductions in RHRSD scores. The other variable that provided a unique contribution to the model was the fear of
the process of change subscale on the CAC. Higher scores, indicating greater fear of the process of change, were associated with smaller reductions in RHRSD scores.

The results for the overall models for the BDI-II, PDS, and Mississippi Scale were not significant and accounted for 3%, 23%, and 25% of the variance in depression and PTSD change scores, respectively.

The effort patients put into completing assignments outside of the therapy sessions in treatment may be indicators of motivation for, and commitment to engaging in behaviors that may help relieve some of the difficulties they face (Beck et al., 1979). The results from this study indicate that the amount of effort veterans put into homework assignments will be predictive of a reduction of therapist ratings of depression. Encouraging homework assignments may be an important therapeutic tool in helping veterans become more engaged in the therapeutic process.

The fear of the process of change subscale on the CAC included questions about change being too painful to bear, change making one’s life more difficult, change causing suffering, change making one feel worse than he already does, change requiring too much effort, and change involving facing tasks that would be too unpleasant. The results of this study indicate that veterans who are more afraid of the processes associated with the changes needed to experience relief from psychological distress will not experience as much reduction in depressive symptoms as those not afraid of these processes. These findings suggest that therapists may enhance therapeutic response by educating veterans about the processes necessary to initiate change and using techniques to help reduce fears about the change process.
Clinical Significance

Clinical significance in this study was assessed by examining changes in RHRSD scores after the scores were collapsed into four different levels of depression identified by Warren (1996). For this study, there was a statistically significant increase in the number of members from the BA group who fell into the “not depressed to minor depression” range of scores from pretreatment to posttreatment. As discussed earlier, there was a significant “relapse in depression” from posttreatment to one-month follow-up for the BA group, followed by another significant reduction in veterans falling into these categories from one-month follow-up to two-month follow-up. While less than 50% of the veterans in the BA group were rated by therapists as having no to minor depression at pretreatment, 63% to 88% of this group where rated as having no to minor depression at each of the three remaining assessment times. No significant changes were seen across times for the comparison group, although 50% or more of the members in this group fell in the no to minor depression range at each assessment time.

Client Satisfaction

Veterans participating in the BA group treatment were very satisfied with the group. With the exception of two individual item responses on the CSQ, all responses were within the satisfied to very satisfied range. The group was so well received that the staff implemented the group as a regular part of the schedule for the program after the study was completed. Another anecdotal indication of the satisfaction with the
group was that a few of the veterans who were in the program while the BA group was going, but declined to participate in the study, asked to participate in the group after talking with veterans participating in the study who had attended a few of the groups.

Limitations of the Study

A major limitation in this study was the lack of experimental control. The study was conducted in a clinical setting within a Veterans Affairs Medical Center, which restricted the ability to implement more stringent experimental procedures such as random assignment to groups, taping of groups for treatment integrity checks, reducing patient dropout over follow-up assessments, or standardization of concurrent treatment. The reduction in variance between subjects by more discriminating selection may have helped more clearly identify differences between the two groups. The significant drop out of patients at the follow-up assessments also resulted in decreased power and decreased ability to identify maintenance of treatment effect.

The use of a standard treatment comparison group may also have been a limitation for this study. Since both comparison and BA groups were receiving some type of treatment, the differences in treatment effect were probably diminished. In addition, the fact that a concurrent treatment was occurring with the BA group contributes a confounding variable to identifying outcome associated with the BA treatment. However, a stated purpose for this study was the examination of the
effectiveness of BA treatment for an inpatient population often found to experience comorbid depression, so this confounding variable was likely unavoidable. Perhaps a larger number of subjects would have helped to identify more clearly the effect attributable to the BA treatment.

All of the veterans were diagnosed with chronic PTSD to the level of being considered appropriate for inpatient or residential treatment. This appeared to result in a limitation associated with the assessments used to assess PTSD. A ceiling effect was observed in that most of the veterans reported the maximum, or near maximum, number of symptoms associated with PTSD. Assessment devices that help differentiate PTSD levels among people with chronic PTSD may have been more useful in identifying change in PTSD associated with not only the BA treatment, but also the treatment offered in the program.

Finally, a limitation in this study was the failure to identify potential confounding effects of variables associated with secondary gain. The majority of subjects in the study were interested in, or were seeking, increases in compensation for problems associated with PTSD. The CAC was used to try to distinguish between veterans who may have been seeking treatment for personal change and those who may have been seeking treatment for secondary gain. Subjects interested primarily in secondary gain would be hypothesized to report less personal change on outcome measures. The CAC did not effectively differentiate these groups. Psychological tests that are more successful in identifying patients with secondary gain issues that serve
as the primary motivators for seeking treatment may be helpful in further parceling out variance in this group and identifying treatment effect.

Future Research

In the current study, the BA group consisted of eight group sessions over 4 weeks. This was not consistent with the number of, or time between, sessions in the Porter (2000) group study or Jacobson et al. (1996) individual therapy study of the BA treatment. Since the results found in this study were limited, a study with more treatment groups spread over a longer time period may provide additional insight into the effectiveness of BA treatment with this population.

As discussed earlier, research using more sensitive assessment devices may be valuable. Tests that are more sensitive to PTSD change in an already diagnosable population may provide a better understanding of treatment effects. Inventories that help to differentiate various groups in relation to secondary gain issues may increase understanding of the therapeutic benefits. The use of therapist-administered assessments of PTSD may be helpful in more clearly identifying change when working with this population. Many of these tests do not yet exist, or were not identified during the development of this project, so research developing such assessment tools would also be helpful.

Finally, the Battle Creek Medical Center also has an outpatient program specifically for veterans with PTSD. The outpatient program generally utilizes the same staff as the inpatient program. The BA group could be provided to outpatient
veterans and the relative effectiveness of the treatment between an outpatient and residential population could be explored. Likewise, changes in session numbers and length of treatments would be more easily explored in an outpatient setting and may provide additional information in regards to the most efficient and effective provision of the BA treatment.
Appendix A

Western Michigan University Human Subjects Institutional Review Board Approval Letter
Date: 15 December 2000

To: C. Richard Spates, Principal Investigator
   Theodore Wright, Student Investigator for dissertation

From: Michael S. Pritchard, Interim Chair

Re: HSIRB Project Number 00-10-27

This letter will serve as confirmation that your research project entitled “Depression and Combat-Related PTSD” has been approved under the full category of review by the Human Subjects Institutional Review Board. The conditions and duration of this approval are specified in the Policies of Western Michigan University. You may now begin to implement the research as described in the application.

Please note that you may only conduct this research exactly in the form it was approved. You must seek specific board approval for any changes in this project. You must also seek reapproval if the project extends beyond the termination date noted below. In addition if there are any unanticipated adverse reactions or unanticipated events associated with the conduct of this research, you should immediately suspend the project and contact the Chair of the HSIRB for consultation.

The Board wishes you success in the pursuit of your research goals.

Approval Termination: 15 December 2001
Appendix B

Battle Creek Veteran Affairs Medical Center Research and Development Approval Letter
Memorandum

Date: JAN 28 2001

From: Medical Center Director (515/142)

Subj: Protocol Recommendation and Approval

To: Theodore Wright, M.A. (116B)

1. Your protocol, "Depression and Combat-Related PTSD", has been reviewed and recommended for approval by the Research and Development Committee and Clinical Executive Board. This protocol has received my approval and you may commence your study at Battle Creek VA Medical Center.

2. Any changes you may wish to make to the protocol must receive approval upon review by the Research and Development Committee before initiation. In addition, any publications or presentations resulting from this protocol must receive my approval prior to submission. You should submit such a presentation or publication to Ellie Pettee or Cheryl Thrum to initiate a review.

3. Please submit monthly a list of all patients enrolled to Cheryl Thrum, Chairperson, Subcommittee on Human Studies (118). Signed Consent Forms should be submitted to her as they are obtained. In addition, please submit a quarterly report to Ellie Pettee to include the number of subjects enrolled, any subjects who have withdrawn, any complaints or adverse events involving subjects, findings so far (and/or a conclusion of the study), any changes or amendments since the last review, any publications or presentations since the last review and the expected date of completion. Due dates for this quarterly report for your study are: March 31, June 30, September 30 and December 31, 2001.

4. If you have any questions regarding this protocol, please contact Elinor J. Pettee, RNC, MSN, Coordinator for Research and Development at Ext. 6426 or Suzanne Thorne-Odem, RN, MS, Chairperson, Research and Development Committee at Ext. 3414.

Michael J. Wheeler

VA FORM 210S Automated

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Appendix C

Recruitment Scripts
BA Group Recruitment Script

[Introduce yourself if necessary] I would like to talk briefly about a research study being conducted here on the ward with members of the R-track.

The study is for combat veterans who are struggling with symptoms often related to traumas such as problems with anger or depression, fear of or efforts to avoid situations or people that remind him of traumas, intrusive memories or thoughts regarding traumas, nightmares or flashbacks related to traumas, feelings of numbness or isolation, being constantly “on edge” or unable to relax, or problems with sleep or concentration. This study is a treatment study, so participants will be attending a group designed to reduce some of the problems a combat veteran may be experiencing. It includes filling out several questionnaires, in addition to receiving treatment. The study includes 4 sessions in which questionnaires are completed and up to 8 group treatment sessions that will last one and a half to two hours.

If you are interested in participating or would like to learn more about the study, please tell me and I will contact Ted Wright. He will meet with you on the ward to answer questions and have you sign a consent form if you decide to continue.
Comparison Group Recruitment Script

[Introduce yourself if necessary] I would like to talk briefly about a research study being conducted here on the ward with members of the R-track.

The study is for combat veterans who are struggling with symptoms often related to traumas such as problems with anger or depression, fear of or efforts to avoid situations or people that remind him of traumas, intrusive memories or thoughts regarding traumas, nightmares or flashbacks related to traumas, feelings of numbness or isolation, being constantly “on edge” or unable to relax, or problems with sleep or concentration. Participants in this study will be attending up 4 sessions in which he would complete several questionnaires.

If you are interested in participating or would like to learn more about the study, please tell me and I will contact Ted Wright. He will meet with you on the ward to answer questions and have you sign a consent form if you decide to continue.
Hi, my name is ____________ and I was told you may be interested in participating in a study for R-track members on the ward. This research study is examining symptoms commonly experienced after trauma such as problems with anger or depression, fear of people or situations that remind you of the trauma, intrusive memories or thoughts regarding the trauma, nightmares or flashbacks related to the trauma, feelings of numbness or isolation, being constantly “on edge” or unable to relax, problems with sleep or concentration, or engaging in efforts to avoid situations that remind you of the trauma. The study involves attending up to 4 sessions in which you will be asked to complete several questionnaires. You will also be offered up to 8 group treatment sessions that may help reduce some of the symptoms you may be experiencing. Sessions last between 1 and 2 hours. The treatment does require you attend a group with other members of the R-track and complete some tasks outside of the group while you are on the ward. This may make you uncomfortable, but there will be a trained therapist who will help you through the therapy process. Do you have any specific questions that I could answer for you? Are you still interested in participating? Thank you for your time.
Comparison Group Informed Consent Meeting Script

Hi, my name is ___________ and I was told you may be interested in participating in a study for R-track members on the ward. This research study is examining symptoms commonly experienced after trauma such as problems with anger or depression, fear of people or situations that remind you of the trauma, intrusive memories or thoughts regarding the trauma, nightmares or flashbacks related to the trauma, feelings of numbness or isolation, being constantly “on edge” or unable to relax, problems with sleep or concentration, or engaging in efforts to avoid situations that remind you of the trauma. The study involves attending up to 4 sessions in which you will be asked to complete several questionnaires. Answering some of the questions may make you uncomfortable, but there will be a trained staff to help if you have any problems. Do you have any specific questions that I could answer for you? Are you still interested in participating? Thank you for your time.
Appendix E

Behavioral Activation Group Informed Consent Form
VA RESEARCH CONSENT FORM

Subject Name: ______________________ Date: ______________________
Title of Study: Depression and Combat-Related PTSD
Principal Investigator: William Bloem, Ph.D., VAMC: Battle Creek 516

DESCRIPTION OF RESEARCH BY INVESTIGATOR

NOTE: The consent form should include the following section headings:
1. Purpose of study and how long it will last:
2. Description of the study including procedures to be used;
3. Description of any procedures that may result in discomfort or inconvenience:
4. Expected risks of study:
5. Expected benefits of study:
6. Other treatment available:
7. Use of research results:
8. Special circumstances:
9. Research subjects' rights:

Participation in an Investigation
Battle Creek Veterans Affairs Medical Center & Western Michigan University
Department of Psychology
Depression and Combat-Related PTSD

Battle Creek VAMC Principle Investigator: William Bloem, Ph.D.,
Battle Creek VAMC Student Investigator: Jason DeViva, M.A.
Battle Creek VAMC & Western Michigan University Student Investigator: Theodore P. Wright, M.A.
Western Michigan University Principle Investigator: C. Richard Spates, Ph.D.

1. Purpose:
   I have been invited to participate in a research project entitled “Depression and Combat-Related PTSD.” This research is intended to study how effective a group treatment is in reducing problems people often experience after combat trauma. This research may help to provide an additional treatment for men being treated for combat-related PTSD. The information collected from this study will be used for Theodore Wright’s dissertation project. The study will include 60 patients and will include 8 group treatment sessions and 4 assessment sessions. Overall, participation in the study will require approximately 24 hours of my time.

Participants Initials: ______________________
2. Procedure:
The procedure for this study is that I will be asked to meet with a psychology staff person at the Battle Creek VA Medical Center (BCVAMC) to complete several questionnaires before and after the treatment sessions. The following is a description of the questionnaires to be used.

- The Demographic Questionnaire asks questions about my age, family, race, income, military service, service connection, prior treatments, medications, and driving distance.
- The Millon Clinical Multiaxial Inventory includes questions related to psychological symptoms people sometimes experience.
- The Computerized Diagnostic Interview Schedule includes questions related to psychological symptoms people sometimes experience related to depression.
- The Beck Depression Inventory-II consists of items about feeling depressed and inactive.
- The Beck Hopelessness Scale asks questions about my view of the future.
- The Posttraumatic Stress Diagnosis Scale evaluates the presence and severity of symptoms often experienced after a trauma.
- The Mississippi Scale measures the level or severity of symptoms sometimes related to combat experience.
- The Modified Concerns about Change Scale evaluates the possible consequences a person feels he may experience due to changing behaviors.
- The Quality of Life Scale includes questions regarding how happy a person is with his life.
- The Revised Hamilton Rating Scale for Depression is completed by the therapist and identifies problems a person may have related to feeling sad and depressed.
- Client Satisfaction Questionnaire evaluates how happy a person is with the treatment he has received.

I will also be asked to attend up to 8 group therapy sessions. Sessions will be held 2-3 times a week for 1.5 to 2 hours. During the treatment sessions I will be asked to discuss personal information, talk about my daily activities, and give feedback to other group members about their progress. I will be asked to complete the Beck Depression Inventory every other session. I will also be asked to complete assignments outside the group therapy session. Two of the assessment sessions and all 8 of the treatment sessions will be completed during the time I am admitted to Ward 12. I will be asked to return to the VA to complete 2 more assessment sessions 30 and 60 days after my discharge.
VA RESEARCH CONSENT FORM

Subject Name:_________________________________ Date:______

Title of Study: Depression and Combat-Related PTSD

Principal Investigator: William Bloom, Ph.D. VAMC: Battle Creek 515

3. Procedures that may result in discomfort or inconvenience:
I may experience psychological and emotional discomfort during sessions as I interact with other group members and share personal information about myself. I may become uncomfortable between sessions when I am working on assignments. In addition, I will also be asked to complete the questionnaires, which will take up to 2-3 hours. I will be asked to complete the questionnaires right before starting the group and right after completing the group. I will also be asked to return to the VA and complete some of the questionnaires 30 and 60 days after I am discharged from Ward 12.

4. Expected risks of the study:
One potential risk of my participation in this project is that I may become emotionally upset while participating in the group. However, trained therapists are prepared to terminate the treatment session and provide crisis counseling should I become significantly upset and s/he is prepared to make a referral if I need further counseling. I will also be discussing pertinent issues in a group setting. Although no assurances can be given, all group members will be expected to maintain confidentiality, that is, to not discuss another group member's information outside of the group. If an accidental injury occurs, appropriate emergency measures will be taken; however, no compensation or additional treatment will be made available to me by Western Michigan University except as otherwise stated in this consent form.

5. Expected benefits of the study:
One way in which I may benefit from this study is that symptoms I have experienced since the traumas may be reduced. Different components of the treatment have been shown to be helpful in reducing symptoms experienced by people who have been traumatized. The knowledge gained from this research may also help others who have been traumatized and experience depression. Once the study is completed, I may receive a general summary of the results if I so wish.

6. Other treatment available:
If it is found that this treatment is not appropriate for me, I will be provided with alternative treatment options, including services offered at the BCVAMC. If I continue to have difficulties after the 8th treatment session, my therapist and I will discuss continued treatment options. I will continue to receive inpatient treatment on ward 12 and in the outpatient PTSD clinic for PTSD-related problems. I will be responsible for the cost of therapy if I choose to pursue it outside the BCVAMC. By participating in this study, I will be in the group 2-4 hours a week. If I were not in the group, I would have this 2-4 hours to myself and would not be scheduled for any other class, group, or activity.

PARTICIPANTS INITIALS ________
Subject Name: __________________________________ Date: __________

Title of Study: Depression and Combat-Related PTSD

Principal Investigator: William Bloom, Ph.D. VAMC: Battle Creek 515

7. Use of the research results:

All the information collected from me is confidential, with the exception of information regarding intent to harm oneself or another person or reports of abuse or neglect to children or vulnerable adults. These specific incidents, as well as any other information requiring disclosure in order to protect others from serious harm or the potential for serious harm, require disclosure to the appropriate person and/or authorities. Information relevant to my continued treatment at this hospital may be included in my hospital file, which is guarded from access by anyone outside the VA system and is only available to authorized VA personnel. All other data will be coded and will not contain identifying information. A master list will be kept which includes names and respective codes. Once the data are collected and analyzed, the master list will be destroyed. All forms not included in my medical chart will be retained for a minimum of five years in a locked file at the BCVAMC. The results of this study may be published, but my identity and records will remain confidential. All results used in publication will be reported as group data with no individual identification. My individual results will not be revealed unless required by law.

8. Special circumstances:

Since I am a veteran-subject, I will normally not be required to pay for treatment received as a subject in a VA research program, but may be subject to copayment if I fall within the “discretionary work load” category and meet the means test. I will receive medical care and treatment for injuries suffered as a result of participation in a VA research program in accordance with Federal law. My participation in this research project, and any information documented in my medical records as a result of my participation in this research project, may not necessarily have a beneficial effect on any claim for monetary compensation from the Government, nor does my participation in this research project necessarily entitle me to monetary compensation for any such claim. Staff members and research personnel may share information relevant to my treatment on the Ward and in the study if it becomes necessary, such as if I begin to report suicidal ideation or psychotic symptoms. Information shared between Ward staff and the researchers will be treated as confidential, consistent with Medical Center policies. If I have any questions or concerns regarding my consent to participate in the present study, I may contact the Chairperson of the BCVAMC Subcommittee on Human Studies, Cheryl Thrum at (616) 966-5600, extension 3551. I may also contact the Western Michigan University Chair, Human Subjects Institutional Review Board (387-8293) or the Vice President for Research (387-8298) if questions or problems arise during the course of the study.

PARTICIPANTS INITIALS ____________________________

VA FORM 10-1086 JUN 1990 (revised 9/93)
VA RESEARCH CONSENT FORM

Subject Name:___________________________________

Title of Study: Depression and Combat-Related PTSD

Principal Investigator: William Bloem, Ph.D. VAMC: Battle Creek 515

Date: ___________________ Date: ________________

9. Research subjects' rights:

My signature below indicates that I have read and/or had read to me all of the above. has explained the study to me and answered all of my questions. I have been told of the risks or discomforts and possible benefits of the study. I have been told of other choices of treatment available to me.

I do not have to take part in this study, and my refusal to participate will involve no penalty or loss of rights to which I am entitled. I may refuse to participate or quit at any time during the study without prejudice, penalty, or risk of any loss of service. I would otherwise have and without penalty or loss of right to which I am entitled. The results of this study may be published, but my records will not be revealed unless required by law. If I have any questions or concerns about this study, I may call the BCVAMC and contact Dr. William Bloom at (616)966-5600 extension 5344 or Western Michigan University and contact Dr. C. Richard Spates at (616)387-4329. I can also call Theodore Wright at (616)323-8307.

In case there are medical problems or questions, I have been told I can call Dr. Bloom at extension 5344 during the day or contact him through extension 0 after hours. If any medical problems occur in connection with this study, the VA will provide emergency care. My rights as a research subject have been explained to me and I voluntarily consent to participate in this study. How and why this study is being completed has been explained to me. I will receive a signed copy of this consent form to keep in my personal records. Signature of Subject’s Representative is only required if subject is not competent.

This consent document has been approved for use for one year by the Western Michigan University Human Subjects Institutional Review Board (HSIRB) as indicated by the stamped date and signature of the board chair in the upper right corner of each page. Participants should not sign this document if the corner does not show a stamped date and signature.

Subject’s Signature Date

Signature of Subject’s Representative Subject’s Representative

Signature of Witness Witness (print)

Signature of Investigator

PARTICIPANTS INITIALS

VA FORM 10-1086 JUN 1990 (revised 8/93)
Appendix F

Comparison Group Informed Consent Form
VA RESEARCH CONSENT FORM

Subject Name: ___________________________ Date: __________

Title of Study: Depression and Combat-Related PTSD

Principal Investigator: William Bloem, Ph.D. VAMC: Battle Creek 515

DESCRIPTION OF RESEARCH BY INVESTIGATOR

NOTE: The consent form should include the following section headings:

1. Purpose of study and how long it will last:
2. Description of the study including procedures to be used:
3. Description of any procedures that may result in discomfort or inconvenience:
4. Expected risks of study:
5. Expected benefits of study:
6. Other treatment available:
7. Use of research results:
8. Special circumstances:
9. Research subjects' rights:

Participation in an Investigation
Battle Creek Veterans Affairs Medical Center & Western Michigan University
Department of Psychology
Depression and Combat-Related PTSD

Battle Creek VAMC Principle Investigator: William Bloem, Ph.D.,
Battle Creek VAMC Student Investigator: Jason DeViva, M.A.
Battle Creek VAMC & Western Michigan University Student Investigator: Theodore P. Wright, M.A.
Western Michigan University Principle Investigator: C. Richard Spates, Ph.D.

1. Purpose:
I have been invited to participate in a research project entitled “Depression and Combat-Related PTSD.” This research is intended to examine whether depressive symptoms are reduced from attending a specialized Inpatient PSTD Program for combat veterans. This research may help to identify the need for additional treatment for men being treated for combat-related PTSD. The information collected from this study will be used for Theodore Wright’s dissertation project. The study will include 60 patients and will include 4 assessment sessions.

Participants Initials ___________________________
VA RESEARCH CONSENT FORM

Subject Name: ____________________________ Date: ____________

Title of Study: Depression and Combat-Related PTSD

Principal Investigator: William Bloom, Ph.D. VAMC: Battle Creek 515

(Continuation Page 2 of 5)

2. Procedure:

The procedure for this study is that I will be asked to meet with a psychology staff person at the Battle Creek VA Medical Center (BCVAMC) to complete several questionnaires before and after attending the R-track at the Battle Creek VAMC. The following is a description of the questionnaires to be used.

a. The Demographic Questionnaire asks questions about my age, family, race, income, military service, service connection, prior treatments, medications, and driving distance.

b. The Millon Clinical Multiaxial Inventory includes questions related to psychological symptoms people sometimes experience.

c. The Computerized Diagnostic Interview Schedule includes questions related to psychological symptoms people sometimes experience related to depression.

d. The Beck Depression Inventory-II consists of items about feeling depressed and inactive.

e. The Beck Hopelessness Scale asks questions about my view of the future.

f. The Posttraumatic Stress Diagnosis Scale evaluates the presence and severity of symptoms often experienced after a trauma.

g. The Mississippi Scale measures the level or severity of symptoms sometimes related to combat experience.

h. The Modified Concerns about Change Scale evaluates the possible consequences a person feels he may experience due to changing behaviors.

i. The Quality of Life Scale includes questions regarding how happy a person is with his life.

j. Client Satisfaction Questionnaire evaluates how happy a person is with the treatment he has received.

I will be asked to complete these questionnaires at the beginning and end of my admission into the R-track. I will also be asked to come back 1 and 2 months after my discharge date to complete some or all of the questionnaires again.

3. Procedures that may result in discomfort or inconvenience:

I will be asked to complete the questionnaires, which will take up to 2-3 hours and ask personal questions that may cause some discomfort for me. I will be asked to do this once before starting the R-track and three times after finishing the R-track.

PARTICIPANTS INITIALS ____________

VA FORM 10-1086 JUN 1990 (revised 9/93)

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4. Expected risks of the study:

One potential risk of my participation in this project is that I may become emotionally upset while completing the questionnaires. However, trained staff are prepared to assist me or terminate the assessment session and provide, or refer me for, crisis counseling should I become significantly upset. The staff are prepared to make a referral if I need further counseling. If an accidental injury occurs, appropriate emergency measures will be taken; however, no compensation or additional treatment will be made available to me by Western Michigan University except as otherwise stated in this consent form.

5. Expected benefits of the study:

Although I may not personally benefit from participation in this study, the knowledge gained from this research may help others who have been traumatized and experience depression. Once the study is completed, I may receive a general summary of the results of the project if I so wish.

6. Other treatment available:

I will receive inpatient treatment on ward 12 and in the outpatient PTSD clinic for PTSD-related problems. I will be responsible for the cost of therapy if I choose to pursue it outside the BCVAMC.

7. Use of the research results:

All the information collected from me is confidential, with the exception of information regarding intent to harm oneself or another person or reports of abuse or neglect to children or vulnerable adults. These specific incidents, as well as any other information requiring disclosure in order to protect others from serious harm or the potential for serious harm, require disclosure to the appropriate person and/or authorities. Information relevant to my continued treatment at this hospital may be included in my hospital file, which is guarded from access by anyone outside the VA system and is only available to authorized VA personnel. All other data will be coded and will not contain identifying information. A master list will be kept which includes names and respective codes. Once the data are collected and analyzed, the master list will be destroyed. All forms not included in my medical chart will be retained for a minimum of five years in a locked file at the BCVAMC. The results of this study may be published.

PARTICIPANTS INITIALS ________

VA FORM 10-1086 JUN 1990 (revised 9/93)
but my identity and records will remain confidential. All results used in publication will be reported as group data with no individual identification. My individual results will not be revealed unless required by law.

8. Special circumstances:

Since I am a veteran-subject, I will normally not be required to pay for services received as a subject in a VA research program, but may be subject to copayment if I fall within the “discretionary work load” category and meet the means test. I will receive medical care and treatment for injuries suffered as a result of participation in a VA research program in accordance with Federal law. My participation in this research project, and any information documented in my medical records as a result of my participation in this research project, may not necessarily have a beneficial effect on any claim for monetary compensation from the Government, nor does my participation in this research project necessarily entitle me to monetary compensation for any such claim. If I have any questions or concerns regarding my consent to participate in the present study, I may contact the Chairperson of the BCVAMC Subcommittee on Human Studies, Cheryl Thrum at (616) 966-5600, extension 3551. I may also contact the Western Michigan University Chair, Human Subjects Institutional Review Board (387-8293) or the Vice President for Research (387-8298) if questions or problems arise during the course of the study.

9. Research subjects’ rights:

My signature below indicates that I have read and/or had read to me all of the above. __________________ has explained the study to me and answered all of my questions. I have been told of the risks or discomforts and possible benefits of the study. I have been told about treatments available to me.

I do not have to take part in this study, and my refusal to participate will involve no penalty or loss of rights to which I am entitled. I may refuse to participate or quit at any time during the study without prejudice, penalty, or risk of any loss of service I would otherwise have and without penalty or loss of VA or other benefits to which I am entitled. The results of this study may be published, but my records will not be revealed unless required by law. If I have any questions or concerns about this study, I may call the BCVAMC and contact Dr. William Bloem at (616)966-5600 extension 5344 or Western Michigan University and contact Dr. C. Richard Spates at (616)387-4329. I can also call Theodore Wright at (616)323-8307.

PARTICIPANTS INITIALS __________________
VA RESEARCH CONSENT FORM

Subject Name:__________________________________ Date:__________

Title of Study:_____ Depression and Combat-Related PTSD____

Principal Investigator: William Bloem, Ph.D. ___ VAMC: Battle Creek ___

(Continuation Page __ of __)

In case there are medical problems or questions, I have been told I can call Dr. Bloem at extension 5344 during the day or contact him through extension 0 after hours. If any medical problems occur in connection with this study, the VA will provide emergency care. My rights as a research subject have been explained to me and I voluntarily consent to participate in this study. How and why this study is being completed has been explained to me. I will receive a signed copy of this consent form to keep in my personal records. Signature of Subject’s Representative is only required if subject is not competent.

This consent document has been approved for use for one year by the Western Michigan University Human Subjects Institutional Review Board (HSIRB) as indicated by the stamped date and signature of the board chair in the upper right corner of each page. Participants should not sign this document if the corner does not show a stamped date and signature.

Subject’s Signature:________________________ Date:__________

Signature of Subject’s Representative:________________________ Subject’s Representative:__________

Signature of Witness:________________________ Witness (print):________________________

Signature of Investigator:________________________

PARTICIPANTS INITIALS:________________________

VA FORM 10-1086 JUN 1990 (revised 9/93)

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Appendix G

Demographic Questionnaire
DEMOGRAPHIC QUESTIONNAIRE

Please answer the following questions.

Age __________

Race (please circle appropriate answer)

- African American
- Native American
- Hispanic
- Pacific Islander
- Asian American
- Alaska Native
- Caucasian
- International/Non-U.S. Resident (please specify nationality) __________
- Multiracial (please specify) __________
- Other: (please specify) __________

Marital Status (please circle appropriate answer)

- Single
- Married
- Separated
- Divorced
- Engaged
- Living With Partner

Do you have children? (Please circle appropriate answer)

- No
- Yes

Education (please indicate the last year of school completed) __________

Years of military service -- 19____ to 19____

Branch of service (please circle appropriate answer)

- Marines
- Army
- Navy
- Air Force
- Other (Please identify) __________

Military Operating Specialty (please list your MOS upon discharge) __________

Highest Rank Achieved __________

Months in a combat situation __________

Were you injured in combat? (please circle appropriate answer)

- Yes
- No

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Demographic Questionnaire—Continued

Are you service connected? (please circle appropriate answer)
   Yes  →  If yes, what is your percentage? ______________________
   What are your service connected for? ______________________
   No

Are you seeking service connection for PTSD-related disability? (please circle appropriate answer)
   Yes  No

If you are service connected for PTSD, are you currently seeking to increase your percentage of service connection? (please circle appropriate answer)
   Yes  If yes, from ____% to ____%
   No

Have you received INPATIENT treatment for PTSD in the past? (please circle appropriate answer)
   Yes  If yes, how many times have you been treated as an inpatient? ____
   No

Have you received OUTPATIENT treatment for PTSD in the past? (please circle appropriate answer)
   Yes  If yes, for how long were you seen as an outpatient? _________
   No

Have you received INPATIENT treatment for depression in the past? (please circle appropriate answer)
   Yes  If yes, how many times have you been treated as an inpatient? ________
   No

Have you received OUTPATIENT treatment for depression in the past? (please circle appropriate answer)
   Yes  If yes, for how long were you seen as an outpatient? __________
Demographic Questionnaire—Continued

Have you taken medication for PTSD or depression in the past? (please circle appropriate answer)
Yes Please check for PTSD____ and/or for depression____
For how long? ________________________ months.
No

How many hours does it take you to get to the VA when you drive? (please circle appropriate answer)
Less than half an hour  Less than 1 hour  Less than 2 hours
Less than 3 hours  Over 3 hours
Appendix H

Weekly Program Schedule for the Comparison Group
# BATTLE CREEK, MICHIGAN VA MEDICAL CENTER

**SPECIALIZED INPATIENT PTSD UNIT RESIDENTIAL PROGRAM**

## REHABILITATION (R) TRACK

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Appendix I

Weekly Program Schedule for the Behavioral Activation Group
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Appendix J

Behavioral Activation Group Format
Behavioral Activation Group Format

1. Opening
   - Greeting & Any Questions
   - Format of Meeting

2. Review Homework
   - Hand in Homework Checklist
   - Review Homework with Group
   - Questions or Difficulties

3. Psychoeducational Topic
   - Present Topic

4. Group Discussion of Topic
   - Facilitate Discussion

5. Group Discussion of Individual Behaviors
   - Facilitate Discussion

6. Closing
   - Homework
   - Questions & Comments
Appendix K

Behavioral Activation Group Outline
Behavioral Activation Group Outline

Session 1

1. Group Introduction
2. Review Group Format
   a. Ground Rules
   b. Therapist as a Personal Trainer
3. Read Self-Help Manual as Group
4. Begin Functional Analysis with Group
   a. Identifying Problematic Precipitating Factors and Current Coping Techniques
5. Discuss New/Different Coping Options
6. Closing
   a. Homework

Session 2

1. Opening
   a. Discuss Agenda
2. Homework Review
3. Present Topics
   a. Self-Defeating Behavior, Aversive Environments, Assertiveness, and Communication Skills
4. Discuss Topics
5. Identify Individual Self-Defeating Behaviors/Bad Environments
   a. Develop Options for These Behaviors/Environments
6. Closing
   a. Homework
Behavioral Activation Group Outline—Continued

Sessions 3–7

1. Opening
   a. Discuss Agenda
2. Homework Review
3. Two Psychoeducational Topics Presented in Each Session
   a. Activity Mastery and Pleasure, Activity Monitoring, Active Versus Passive Approach to Problems, Graded Task Assignment, Behavioral Stopping, Alternative Behaviors and Outcomes, Self-Reinforcement, Distraction from Problems or Unpleasant Events, Role-Playing Social Situations, and Mental Rehearsal of Activities
4. Discuss Topic
5. Identify Individual Behaviors Relevant to Topic
   a. Develop New Options for These Behaviors
6. Closing
   a. Homework

Session 8

1. Opening
   a. Discuss Agenda
2. Homework Review
3. Review Treatment Topics
4. Discuss Individual Progress
5. Identify Skills Learned to be Used for Relapse Prevention
6. Closing
   a. Goodbyes
Appendix L

Therapist Rating of Homework Completion Form
THERAPIST RATING OF HOMEWORK COMPLETION

Patient’s Last 4: _____________ Date: _____________

Therapist’s Name: ________________________

Homework from Session # (in which session was the homework assigned): ______

Please use the following scale to rate how completely you believe the client did the homework assignment. Circle the most appropriate number.

0 = Nothing done. The subject did not hand any written responses and did not indicate he tried the homework.

1 = Very little done. The subject handed in a sheet with minimal written product and did not indicate that he tried. OR The subject had no written product, but stated that he tried (or did) the assignment.

2 = Made an effort. The subject handed in some written product that is adequate for the assignment given.

3 = Notable effort. The subject handed in written product that shows good understanding of the information presented.

4 = Excellent effort. The subject handed in written product that is COMPLETELY done. Nothing more could have been done with this assignment.
Appendix M

Therapist Self-Rating Sheets for All Eight Sessions
THERAPIST SELF-RATING SHEET
SESSION 1

Therapist’s Name: ____________________ Date: ____________________

Please rate how well you did each of these tasks for this session on a scale with:

0 = Horrible job or completely forgot about it
1 = Bad job or barely touched on it
2 = Average job or covered it adequately
3 = Good job or covered most of the material
4 = Excellent job or covered every last bit of information

_____ I introduced myself and had group members introduce themselves.
_____ I discussed the format for the group sessions
_____ I reviewed the ground rules and got feedback from group members
_____ I explained how the therapist acts like a “personal trainer”
_____ I reviewed the agenda for the meeting
_____ I got the group to read the Self-help Manual
_____ I presented the concept of functional analysis
_____ I got the group to give examples of problems with which they are struggling
_____ I covered new/different coping skills
_____ I got the group to participate in discussion of new/different coping skills
_____ I reviewed the homework assignments and answered questions

_____ OVERALL, I connected with the group and felt they were interested in the group

_____ OVERALL, I felt the group generally understood the information covered in the group

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<td>I briefly reviewed the ground rules</td>
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<td>I reviewed the agenda for the meeting</td>
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<td>I collected homework assignments and discussed their homework with them</td>
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<td>I GAVE THE BDI-II and collected them</td>
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<td>I discussed assertive, passive, aggressive, and passive-aggressive behaviors with the group</td>
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<td>I discussed ingredients to assertive communication</td>
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<td>I got the group to give examples of problems they have had with being assertive</td>
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<td>I covered self-defeating behaviors</td>
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<td>I got the group to participate in discussion of self-defeating behaviors</td>
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<td>I covered aversive environments</td>
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<td>I got the group to participate in discussion of aversive environments</td>
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<td>I gave the next homework assignment</td>
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<td>I reviewed the Pleasurable Activities Scales and made copies for the members</td>
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<td>OVERALL, I connected with the group and felt they were interested in the group</td>
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<td>OVERALL, I felt the group generally understood the information covered in the group</td>
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THERAPIST SELF-RATING SHEET
SESSION 3

Therapist’s Name: ____________________ Date: ____________________

Please rate how well you did each of these tasks for this session on a scale with:

0 = Horrible job or completely forgot about it
1 = Bad job or barely touched on it
2 = Average job or covered it adequately
3 = Good job or covered most of the material
4 = Excellent job or covered every last bit of information

____ I picked out the appropriate inserts and gave group members handouts on the topics chosen for the group

____ I greeted the group and asked for questions

____ I gave members a copy of their Pleasurable Activities Scale for future reference

____ I briefly remind group of the ground rules

____ I reviewed the agenda for the meeting

____ I collected homework assignments and discussed their homework with them

____ I discussed (Activity Pleasure & Mastery) OR ____________________________

____ I assessed understanding & got the group to discuss the topic and give personal examples/ideas.

____ I discussed (Activity Monitoring) OR ____________________________

____ I assessed understanding & got the group to discuss the topic and give personal examples/ideas.

____ I gave the next homework assignment

____ OVERALL, I connected with group members and felt they were interested in the group

____ OVERALL, I felt the group generally understood the information covered in the group

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THERAPIST SELF-RATING SHEET
SESSION 4

Therapist’s Name: ____________________ Date: __________________

Please rate how well you did each of these tasks for this session on a scale with:

0 = Horrible job or completely forgot about it
1 = Bad job or barely touched on it
2 = Average job or covered it adequately
3 = Good job or covered most of the material
4 = Excellent job or covered every last bit of information

_____ I picked out the appropriate inserts and gave group members handouts on the topics chosen for the group

_____ I greeted the group and asked for questions

_____ I reviewed the agenda for the meeting

_____ I GAVE THE BDI-II and collected them

_____ I collected homework assignments and discussed their homework with them

_____ I discussed (Active Vs. Passive Approaches to Problems) OR ____________

_____ I assessed understanding & got the group to discuss the topic and give personal examples/ideas.

_____ I discussed (Graded Task Assignment) OR ________________________________

_____ I assessed understanding & got the group to discuss the topic and give personal examples/ideas.

_____ I was able to generate discussion and sharing in the group

_____ I explained the next homework assignment and answered questions

_____ OVERALL, I connected with group members and felt they were interested in the group

_____ OVERALL, I felt the group generally understood the information covered in the group
THERAPIST SELF-RATING SHEET  
SESSION 5

Therapist's Name: ____________________ Date: ______________________

Please rate how well you did each of these tasks for this session on a scale with:

0 = Horrible job or completely forgot about it
1 = Bad job or barely touched on it
2 = Average job or covered it adequately
3 = Good job or covered most of the material
4 = Excellent job or covered every last bit of information

_____ I picked out the appropriate inserts and gave group members handouts on the topics chosen for the group

_____ I greeted the group and asked for questions

_____ I reviewed the agenda for the meeting

_____ I collected homework assignments and discussed their homework with them

_____ I discussed (Behavioral Stopping) OR _________________________________

_____ I assessed understanding & got the group to discuss the topic and give personal examples/ideas.

_____ I discussed (Alternative Behaviors and Outcomes) OR ________________

_____ I assessed understanding & got the group to discuss the topic and give personal examples/ideas.

_____ I was able to generate discussion and sharing in the group

_____ I explained the next homework assignment and answered questions

_____ OVERALL, I connected with group members and felt they were interested in the group

_____ OVERALL, I felt the group generally understood the information covered in the group
THERAPIST SELF-RATING SHEET
SESSION 6

Therapist’s Name: ____________________ Date: _____________________

Please rate how well you did each of these tasks for this session on a scale with:

0 = Horrible job or completely forgot about it
1 = Bad job or barely touched on it
2 = Average job or covered it adequately
3 = Good job or covered most of the material
4 = Excellent job or covered every last bit of information

_____ I picked out the appropriate inserts and gave group members handouts on the topics chosen for the group

_____ I greeted the group and asked for questions

_____ I reviewed the agenda for the meeting

_____ I GAVE THE BDI-II and collected them

_____ I collected homework assignments and discussed their homework with them

_____ I discussed (Giving Yourself Rewards) OR __________________________

_____ I assessed understanding & got the group to discuss the topic and give personal examples/ideas.

_____ I discussed (Distraction from Problems or Events) OR __________________

_____ I assessed understanding & got the group to discuss the topic and give personal examples/ideas.

_____ I was able to generate discussion and sharing in the group

_____ I explained the next homework assignment and answered questions

_____ OVERALL, I connected with group members and felt they were interested in the group

_____ OVERALL, I felt the group generally understood the information covered in the group
THERAPIST SELF-RATING SHEET
SESSION 7

Therapist's Name: ____________________ Date: _____________________

Please rate how well you did each of these tasks for this session on a scale with:

0 = Horrible job or completely forgot about it
1 = Bad job or barely touched on it
2 = Average job or covered it adequately
3 = Good job or covered most of the material
4 = Excellent job or covered every last bit of information

_____ I picked out the appropriate inserts and gave group members handouts on
the topics chosen for the group

_____ I greeted the group and asked for questions

_____ I reviewed the agenda for the meeting

_____ I collected homework assignments and discussed their homework with them

_____ I discussed (Behavioral Rehearsal) OR _____________________________

_____ I assessed understanding & got the group to discuss the topic and give
personal examples/ideas.

_____ I discussed (Mental Rehearsal of Activities) OR _____________________________

_____ I assessed understanding & got the group to discuss the topic and give
personal examples/ideas.

_____ I was able to generate discussion and sharing in the group

_____ I explained the next homework assignment and answered questions

_____ OVERALL, I connected with group members and felt they were interested in
the group

_____ OVERALL, I felt the group generally understood the information covered in
the group

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THERAPIST SELF-RATING SHEET
SESSION 8

Therapist’s Name: ___________________ Date: ______________________

Please rate how well you did each of these tasks for this session on a scale with:

0 = Horrible job or completely forgot about it
1 = Bad job or barely touched on it
2 = Average job or covered it adequately
3 = Good job or covered most of the material
4 = Excellent job or covered every last bit of information

_____ I greeted the group and asked for questions
_____ I reviewed the agenda for the meeting
_____ I GAVE THE BDI-II and collected them
_____ I collected homework assignments and discussed their homework with them
_____ I reviewed treatment topics from the prior 7 groups
_____ I got feedback from group members regarding the most/least helpful topics
_____ I discussed each group member’s progress in the group
_____ I gave praise and encouragement to group members for their effort
_____ I discussed relapse prevention/future problem solving with the group
_____ I encouraged group members to come back for scheduled assessment appointments after 1 and 2 months
_____ I answered questions, provided closure to the group, and said goodbye

_____ I GAVE THE Client Satisfaction Questionnaire (CSQ) and collected them
_____ OVERALL, I connected with group members and felt they were interested in the group

_____ OVERALL, I felt the group generally understood the information covered in the group
BIBLIOGRAPHY


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