THE TREATMENT OF GULF WAR SYNDROME WITH COGNITIVE BEHAVIORAL THERAPY: A CASE COMPARISON STUDY

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ABSTRACT

Since the late 1990s, researchers have been focused on finding effective treatments for military veterans with Gulf War Syndrome (GWS), a multisymptom (cognitive and physical) illness whose roots have still remained largely unexplained. With the possibility that such war-related syndromes may affect as many as 45-60% of returning soldiers, researchers have recommended that future research on GWS prioritize qualitative work, which has been scarce, to deepen the understanding of this illness in the veteran population -- including their attributions, fears, and concerns -- so that more refined, suitable treatments may be developed to meet their needs. The following paper examines a prior treatment study which evaluated the efficacy of manualized cognitive-behavioral therapy (CBT) to improve physical health and reduce psychological stress in military veterans with GWS. The current analysis is comprised of a cross-case comparison of two soldiers and considers the various factors that may have contributed to the success or failure of this particular CBT treatment for this population. In the original treatment trial, patients were given weekly individual outpatient therapy sessions over a three-month period and were monitored periodically for physical, cognitive, and emotional changes. Two cases were selected for analysis from the original study based on their opposing outcomes: Soldier 2 was successful in achieving a substantial increase in physical functioning, while Soldier 1 was not. Although the CBT treatment yielded positive changes in both patients' level of self-awareness, and significant improvements in GWS-related psychological and physical stress in Soldier 2's case, the results indicate that additional factors, such as individual personality traits, states of cognitive functioning,

and comorbidity need to be more closely examined and considered when designing treatments for veterans with Gulf War Syndrome.

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CHAPTER I

Case Context and Method

A. Rationale for Selecting These Particular Clients for Study

Two veterans (Soldiers 1 and 2) were chosen from a larger study (see section C below) based on their outcomes. Soldier 2 was selected because he was successful in achieving a substantial decrease in his presenting physical symptomatology, and Soldier 1, because she was unsuccessful in achieving such a decrease. Change in somatic symptoms was measured by a modified version of the Patient Health Questionnaire (Modified-PHQ), with 21 summed answers; a decrease of five points indicated improvement according to Kroenke et al. (2002). The contrast in outcomes between Soldiers 1 and 2 was designed to highlight factors that can facilitate or impede success in the individual case.

B. The Methodological Strategies Employed for Enhancing the Rigor of the Study

In order to ensure quality control for this study, the therapists used partially "blind" self-measure questionnaires, weekly supervision, and audiorecordings for later analysis by a third party evaluator. Specifically, the therapists met for weekly group supervision with the Principal Investigator, an experienced CBT therapist. Supervision included the therapists' presentation of their cases (including session recordings), group

discussions, and assistance with difficult issues. In addition, the supervisor used modeling and role-play to help the therapists practice challenging cognitions for later use in sessions. Finally, the therapists frequently held informal discussions and provided peer feedback about topics like homework compliance.

Although the therapists reviewed their patients' intake questionnaires in order to better understand and treat their problems, they did not conduct the initial or post treatment evaluations on their own patients. This procedure was followed to prevent bias from the rapport formed between patient and therapist.

C. The Clinical Setting in Which the Cases Took Place

The patients were enrolled in a randomized clinical trial (December 2005-January 2007) evaluating the efficacy of manualized Cognitive Behavioral Therapy to improve functioning in veterans who met Centers for Disease Control criteria for Gulf War Syndrome and who were identified by a physician as potentially benefiting from a stress-management program. They were seen for weekly individual outpatient therapy for approximately three months at the War Related Illness and Injury Study Center (WRIISC) located in the VA Medical Center in East Orange, New Jersey.

D. Sources of Data Available Concerning the Client

In addition to responses on the intake questionnaires (see Appendix B), the treatment team had access to the patients' electronic VA medical records, which included prior treatment reports for those who had received some mental health treatment.

E. Confidentiality

Participants were identified by a research subject number assigned to them by WRIISC administrative staff. The link between the research subject number and personal

health information (PHI) is stored on a secure VA server and can be accessed only by WRIISC administrative staff. This number is used as the identifier for all data collection forms except those which contain other PHI (address, phone numbers, etc).

Electronic data are stored on a secure VA server. Paper data from assessments is stored in a locked cabinet located in a locked office on the 11th floor of the East Orange VAMC. Consent forms are stored in a separate locked cabinet. Subject notes use codes and are stored in a secure location. Digital audiorecordings of sessions are also stored on a secure VA server. The use of locked file cabinets in locked rooms is consistent with the protocol for maintaining clinical patient confidentiality at the East Orange VAMC.

All research-related materials of this study are stored at the East Orange VAMC for a minimum of 7 years, per VA requirements. They will then be destroyed using a combination of shredding (using a VA-approved cross-cut shredder) and destruction of electronic media in collaboration with the VA office of Information Resource Management (IRM) using the current procedure approved by the VA Privacy Officer and VA Information Security Officer.

Participants in the current analysis signed consent forms for the original study which informed them that their participation was confidential, their questionnaires and audiorecordings would be kept in a secure locked location, their names would not be linked with their personal information, and their names and photos would later be used in medical journals and meetings only if they gave specific consent. Identifying information has been omitted from the current study.

CHAPTER II

The Clients

Both soldiers were treated after the identification of multiple Gulf War Syndrome symptoms. According to telephone assessments and self-report screening measures, each patient had symptoms consistent with DSM-IV diagnostic criteria for PTSD, anxiety, depression, and somatization (as measured by the PCL-C for the PTSD and Scales of the PHQ for the other three disorders).

Soldier 1

At the start of her treatment, Soldier 1 was 44 years old and suffering from clinically significant depression, PTSD, and somatization in addition to Multiple Sclerosis. She stated that she had been sexually abused in the past by a military superior as well as an ex-girlfriend, and reported PTSD-related difficulties due to these events. When she began therapy, she was living alone, had recently lost custody of her two adopted children, and was in a supportive relationship with a present girlfriend. Soldier 1 felt “happy” in this relationship but noted intimacy problems with her partner due to her sexual abuse history.

Soldier 2

When he began treatment, Soldier 2 was 48 years old and suffering from depression, anxiety, and somatization. He reported chronic pain from numerous medical problems, including damaged lumbar discs and arthritis. A former substance abuser, he had undergone prior therapy and cited six years of abstinence. At enrollment, he was living part-time with his girlfriend while secretly pursuing a relationship with another woman. Soldier 2 reported relationship difficulties with friends and family stemming from anger management issues.

CHAPTER III

Guiding Conception with Research and Clinical Experience Support

Gulf War Syndrome and *Cognitive Behavioral Therapy*

From 1990 to 1991, approximately 700,000 U.S. troops were deployed to the Persian Gulf as part of the Gulf War (Donta et al., 2003; Lashof & Cassells, 1998). Upon return, a number of veterans reported fatigue, numbness, and cognitive difficulties -- signs of what would later be identified as a war-related "syndrome" and known as "Gulf War Illness" (GWI) or "Gulf War Syndrome" (GWS).[1] This increase in distress and physical symptoms presented itself more in Gulf veterans than non-Gulf War veterans, and was not limited to American soldiers (Iversen, Chalder, & Wessely, 2007). In order to be diagnosed with Gulf War Syndrome, patients had to present with two of the following symptoms lasting more than six months: fatigue, musculoskeletal pain, cognitive symptoms (Donta et al., 2003).

Faced with complaints that significantly overlapped with other medically unexplainable syndromes, like Multiple Chemical Sensitivity (MCS), Fibromyalgia (FM), and Chronic Fatigue Syndrome (CFS), medical personnel in the military were divided in their opinions: Was this a "mental disorder"? Or rather a "physical disorder

[1] Although researchers use various names for the illness, this study will refer to it as "Gulf War Syndrome" (Institute of Medicine, 2001).

with a biological explanation" (Donta et al., 2003)? Numerous tests were undertaken to find a biological cause as fears spread that chemical agents used in the Gulf region were responsible -- but no evidence could be found to substantiate these claims.

In the late 1990s, a shift occurred from searching for GWS's etiological causes to focusing on potential treatments for veterans (Lashof & Cassells, 1998; Iversen et al., 2007). Looking to therapies used for other multisymptom illnesses (FM, CFS), Donta and colleagues (2003) conducted a comparison study of cognitive behavioral therapy (CBT), graded physical exercise, and a combination of both with symptomatic Gulf War veterans. Those patients who received CBT showed modest improvements in cognitive symptoms and mental health functioning; those who exercised showed modest improvements in fatigue, cognitive symptoms, distress, and mental health functioning; and those who received both showed improvements in fatigue and cognitive symptoms. Neither CBT nor exercise seemed to reduce pain.

The Donta et al. (2003) study was criticized by some researchers who believed that more preliminary work should have been done regarding the suitability of such a model for veterans (Iversen et al., 2007). For instance, CBT theorists typically emphasize the fear avoidance model as an explanation of decreased functioning in FM and CFS: patients avoid "feared triggering factors," like physical and mental exertion due to intolerance for the acute discomfort associated with this effort and/or erroneous beliefs that such activity results in progression of the illness (Vlaeyan & Linton, 2000). For temporary relief, exercise therapy and CBT appear to be effective treatments for breaking this cycle, thereby leading to greater long-term relief (Hotopf, 2003; Powell, Bentall, Nye, & Edwards, 2004). In the case of Gulf War veterans, however, physical functioning

was only slightly improved (Donta et al., 2003), thus raising the question: what kind of therapy is appropriate for this particular group?

A second potential approach to treatment of GWS can be found in the complex trauma literature, where a consistent relationship has been observed between exposure to traumatic events, Posttraumatic Stress Disorder, and medically unexplained physical symptoms: "Traumatic experiences and recurrent stress are highly comorbid with physical and psychologic illness" (Goldenburg & Sandhu, 2002). Such an association highlights the need for improving our understanding about how individuals specifically deal with stress, physiologically and psychologically (Boscarino, 2004; Ouimette et al., 2004), rather than solely focusing on symptom severity ratings (Goldenburg & Sandhu, 2002). Some researchers propose that certain multisymptom illnesses could be "a somatized form of PTSD" (Cohen et al., 2002), suggesting that treatment of post-traumatic anxiety could also alleviate the physical symptoms associated with GWS. Others point to data suggesting a unique pathway for the development of GWS (Ismail & Lewis, 2006).

Today, the scientific and political debate over "Gulf War Syndrome" continues. Iversen et al. (2007) report that "many of those affected continue to be unwell and disabled some 15 years after returning from combat" with no clear explanation for lack of symptom improvement (DVA, 2006). With the possibility that such war-related syndromes may affect as many as 45-60% of returning soldiers (United States Department of Veterans Affairs [DVA], 2006), researchers have recommended that future research on GWS prioritize qualitative work, which has been scarce, to deepen the understanding of this illness in the veteran population (Hotopf, 2003; Iversen et al., 2007)

-- including veterans' attributions, fears, and concerns (Hotopf et al., 2004) -- so that more refined, suitable treatments may be developed to meet their needs (Iversen et al., 2007).

In the present WRIISC study, the therapists used a manualized CBT treatment comprised of two previously validated CBT manuals: the first manual utilized primary care patients with multisymptom illness and showed significantly reduced medical visitation and improved physical functioning (Hellman, Budd, Borysenko, McClelland, & Benson, 1990). This manual was updated into the book "Personal Health Improvement Program" or "PHIP" (Locke, Budd, & Ford, 1995); the second manual was specifically developed for veterans with Gulf War Syndrome (Guarino et al., 2001) and therapy studies with it resulted in increased physical functioning. The latter appears to be the sole CBT manual to date validated on military subjects. Nevertheless, critics state that it "may not get close enough to the specific anxieties of veterans" (Hotopf, 2003) and should be altered to better show the importance of symptom-related stress (Engel, 2001). Considering these points, the WRIISC research team chose to combine elements of both the Hellman (Hellman et al., 1990) and Guarino (Guarino et al., 2001) manuals in order to effectively reduce GWS-related psychological and physical distress. Components included the following standard elements of CBT:

- didactic or educational material about the causes of GWS and an explanation of how thinking can cause stress ("ABC" model);
- assessment of psychological distress and behavioral problems that may be targets of therapeutic intervention (e.g., symptom-related anxiety);

- assessment of "thinking errors" that lead to psychological distress and trigger behavioral problems (e.g., catastrophizing);
- cognitive restructuring to teach disputing skills or how to correct thinking errors;
- cognitive and behavioral homework assignments (e.g., written self-disclosure); and
- didactic homework assignments (e.g., listening to previous treatment session).

Common Factors and CBT

Although therapeutic alliance studies have mostly involved psychodynamic therapy due to its emphasis on the patient-therapist relationship, many researchers believe there is no reason why the quality of the alliance would be less important in other treatment modalities (Horvath & Symonds, 1991; DeRubeis & Feeley, 1990). Historically, CBT has seen its specialized cognitive and behavioral techniques as the crucial factor in successful treatment outcomes, discarding the notion that "the central focus and agent of change in psychotherapy should be the relationship between practitioner and patient" and instead emphasizing " 'empirical investigation' and empirically grounded clinical interventions" (Richardson & Richards, 2006).

Even though cognitive behavioral therapy has typically understressed the importance of the patient-therapist relationship as reflected in the minimal research on CBT and therapeutic alliance, recent studies have shown controversial results (Andrusyna, Tang, DeRubeis, & Luborsky, 2001), including the suggestion that there is an association between relationship and outcome in CBT. In an article on CBT-based self-help materials, Richardson and Richards (2006) concluded that there may be more

than techniques to explain all of CBT's effects. Having found lower efficacy in a self-administered CBT treatment than therapist-delivered treatment, the authors call for an examination of both common and specific factors in CBT. They propose that the absence of a therapeutic relationship may well have contributed to the study's poor results. In their opinion, by not examining the role of alliance, CBT proponents may be neglecting a key element of its effectiveness.

How is "therapeutic alliance" defined in CBT terms? In contrast to Bordin's widely accepted model of a single factor construct of alliance (with three subcomponents) across treatment modalities, Andrusyna et al. (2001) believe that "the therapeutic alliance construct may be more complex" in CBT and, therefore, should be considered when preparing to deliver interventions. In their CBT-specific study, they found that alliance consists of a 2-factor structure in which (1) the patient-therapist relationship appears to be related but independent from (2) the patient's agreement about goals and confidence in the therapist/treatment; moreover, they believe that the latter items should be measured separately from the therapist-client relationship. In general, CBT therapists have tended to believe that the alliance is developed and strengthened through collaboration and technical interventions (David, Lynn, & Ellis, 2009; Garfield, 1995).

More recently, researchers have begun to analyze and debate another potentially important technical factor in CBT: homework compliance (Hughes & Kendall, 2007). Thus far, research results are mixed: in 2000, a meta-analysis found a medium-sized significant relationship between homework compliance and positive outcome in CBT with adults (Kazantzis, Deane, & Ronan, 2000); in contrast, a project examining adults

with anxiety disorders implied a weak relationship between homework compliance and CBT treatment outcome (Hughes & Kendall, 2007).

In CBT, therapy is typically seen as proceeding in the order of assessment, formulation, and course of therapy. Therapy monitoring resulting in mid-course corrections is generally not viewed as a significant element in the treatment. The therapist attempts to stay on task. Only in necessary cases, such as a patient with active PTSD in which the illness interferes with the patient's immediate functioning and well-being, might the therapist deviate from the manual at hand.

CHAPTER IV

Assessment of the Clients' Problems, Goals, Strengths, and History

Procedures

In the parent study, clients underwent a multi-leveled screening process to determine their eligibility, including a review of their medical history and medical visitation frequency. If the applicants passed the screening, they were asked to complete a packet of self-report questionnaires and participate in a telephone assessment. This initial assessment documented pre-treatment levels of symptom reporting, physical functioning, mood symptoms, coping ability, and patient satisfaction (see Table 3).

Following their enrollment, Soldiers 1 and 2 were seen by a research therapist for ten individual therapy sessions. They completed a series of symptom-related questionnaires (see below) at two additional time points: 12 weeks and one year post-enrollment (except for the Demographic Survey, which was only given at enrollment). The initial assessments were used to determine eligibility and identify key emotional problems.

Self-Report Measures.

The assessment measures (see Appendix B) included an initial Demographic Survey and four quantitative, self-report questionnaires that measure physical and

psychological problems: the Patient Health Questionnaire (PHQ), the Veterans Short Form–36 Health Status Questionnaire (SF-36V), the PTSD Checklist (PCL-C), and the Catastrophizing Scale. Soldier 1's and Soldier 2's results on these four scales at enrollment, 12 weeks after enrollment, and 12 months after enrollment are presented in Table 1. In addition, a descriptive, coping skills questionnaire (Brief COPE - Carver, 1997) was administered at the same time points; and the results of these are presented in Table 2.

Patient Health Questionnaire (PHQ; Kroenke, Spitzer, & Williams, 2002). The PHQ is a self-administered questionnaire yielding algorithmic diagnoses of psychiatric illness. It was specifically developed and validated for use in primary care settings. The PHQ is a 3-page instrument designed to assess eight psychiatric diagnoses using DSM-IV criteria: major depression; panic disorder; other anxiety disorder; bulimia nervosa; other depressive disorder; alcohol abuse or dependence; somatoform disorder; and binge eating disorder. Aside from providing a psychiatric diagnosis, these ratings also yield a continuous measure of syndromal severity. This paper focuses primarily on the Patient Health Questionnaire-15 (PHQ-15) module -- a physical symptom reporting section which contains 15 items or symptoms that account for over 90% of physical complaints reported by outpatients in primary care. Patients rate each of these symptoms as: “not bothered”; “bothered a little”; or “bothered a lot.”

Veterans Short Form–36 Health Status Questionnaire (SF-36V; Ware & Sherbourne, 1992). The SF-36V was adapted from the Medical Outcomes Study Short Form-36. The original scale was designed to assess physical and emotional functioning in medically ill populations (McHorney, Ware, Lu, & Sherbourne, 1994). The health status

of veterans, however, is often below that of civilians and so the SF-36V was revised to improve precision at the lower end of the assessment scale (Kazis et al., 2002). This was achieved by changing the ratings used to assess Role Limitations (RP and RE) from a dichotomous (Yes/No) format to a 5-point ordinal scale. The revised measure consists of the same eight subscales with scores ranging from 0 to 100 (higher scores denote higher levels of function or less pain). Two of the subscales, physical functioning (PF) and physical role limitation (RP), were used as outcome variables in secondary analyses of illness behavior.

PTSD Checklist (PCL-C; Weathers & Litz, 1993). The PCL-C is a 17-item checklist developed to assess the severity of post-traumatic stress. A validation study demonstrated high levels of test-retest reliability (.96) and adequate levels of construct validity in veterans. The test can be used to algorithmically diagnose PTSD with a sensitivity of .82 and a specificity of .83.

Catastrophizing Scale. In order to assess dysfunctional thinking patterns that are believed to predict decreased functioning, a modified version of the Helplessness subscale of the Pain Catastrophizing Scale (PCS; Sullivan, Bishop, & Pivik, 1995) is included. The Helplessness subscale of the PCS has demonstrated good internal reliability (alpha range .75 to .86; Osman, Barrios, Kopper, Hauptmann, Jones, & O'Neill, 1997; Sullivan et al., 1995) and is associated with affective responses to pain as well as pain-related disability (Sullivan, Lynch, & Clark, 2005). Minor modification of the scale consisted of broadening the instructions to refer to any health symptom rather than just pain. In addition, in questions that included the word "pain" the word "it" was

exchanged (e.g., “I worry all the time about whether *the pain* will end” is changed to “…whether *it* will end”).

Brief COPE (Carver, 1997). The Brief COPE is a 28-item questionnaire designed to assess 14 cognitive and behavioral coping strategies (Self-distraction, Active coping, Denial, Substance use, Use of emotional support, Use of instrumental support, Behavioral disengagement, Venting, Positive reframing, Planning, Humor, Acceptance, Religion, Self-blame). Internal reliability of subscales ranged from .75 to .82. Participants respond to each question using a four-item response scale (1 = I haven't been doing this at all; 2 = I've been doing this a little bit; 3 = I've been doing this a medium amount; 4 = I've been doing this a lot). The Brief COPE is derived from the COPE inventory (Carver, Scheier, & Weintraub, 1989) and has been used in research with trauma survivors and breast cancer patients among others.

Diagnosis.

As the soldiers were not formally diagnosed by the WRIISC study team, the author made a DSM-IV diagnosis for both patients by listening to audiorecordings of their 10 therapy sessions and by reviewing their medical records at the VAMC in East Orange. The results of these diagnoses can be found in Table 3.

Assessment Results for Soldier 1

History, Self-Report Measures, and Diagnosis.

At the start of treatment, Soldier 1 -- aged 44, divorced, and with no children -- was having difficulties with PTSD and Major Depressive Disorder brought on by several events: the loss of her adopted children, the loss of her job, the loss of her house, a sexual assault by an ex-girlfriend, and a worsening of her Multiple Sclerosis (diagnosed three

years earlier). In particular, she was experiencing nightmares, flashbacks, hypervigilance, and anxiety. She also complained of memory and concentration problems, and feelings of depression. Initially, she scored 62 on the PCL-C, thereby meeting the clinical cut-off score of 50 which is considered a good predictor for a PTSD diagnosis; and she scored 13, 20, and 14 respectively on the PHQ's somatization, depression, and anxiety screens in which a cut-off point of 15 is a red flag where treatment is likely needed and a cut-off point of 10 or greater is a yellow flag for a possible clinically significant condition (http://www.phqscreeners.com). At the time of intake, she was taking Trazodone for sleep difficulties and Celexa for depression, and denied any suicidal ideation. She showed an awareness of the detrimental effects of her symptoms and appeared eager to get help for them.

Soldier 1's physical health problems were mainly related to her Multiple Sclerosis, for which she regularly attended physical therapy. She had no prior experience with mental health treatment, but had concurrently begun weekly group therapy for Military Sexual Trauma. Soldier 1 had a secret relationship with a married girlfriend (since 2004) and spent a lot of time socially isolated at home, where she could be found writing poetry, playing music, painting, or sewing.

Having had a fairly "normal" childhood, Soldier 1 entered the Air Force in the mid-1970s after completing high school and junior college. During that time, she got married, only to be divorced two years later. Her occupational specialty was as a weapons control system mechanic. According to her medical records, she never faced combat-related activity. While serving, she was raped by her male supervisor, which she refrained from reporting for fear of repercussions. She became pregnant from the rape and

underwent an abortion. Her military performance subsequently declined, leading to an honorable discharge in the early 1980s. For the next twenty years, she held various jobs as a manager and a clerical assistant. In 2003, she stopped working due to her debilitating physical condition.

Strengths.

Soldier 1 brought to therapy a wish for change and an awareness that her thoughts were negatively impacting her physical and emotional health. She agreed to work on her depression and learn new ways to think. She also showed good insight in that she recognized that she set unrealistic goals for herself and could be her "own worst enemy."

Soldier 2

History, Self-Report Measures, and Diagnosis.

When he began treatment, Soldier 2 -- aged 48, divorced, and with no children -- was feeling depressed due to numerous social and physical stressors in his life (Adjustment Disorder NOS): relationship difficulties with his sister and friends, a secret affair, unemployment, denied compensation claims, unstable housing, and "anger" issues. Moreover, he suffered from chronic physical pain related to several herniated lumbar discs and an arthritic left knee. At enrollment, he scored 14.94 on the SF-36V "physical functioning" scale (a score of 45 and below indicates unhealthy functioning) and 20, 25, and 12 respectively on the PHQ's somatization, depression, and anxiety screens (again, a cut-off point of 15 is a red flag where treatment is likely needed and a cut-off point of 10 or greater is a yellow flag for a possible clinically significant condition (http://www.phqscreeners.com). Although Soldier 2 scored 79 out of 85 on the PTSD Checklist (PCL-C), thereby meeting a diagnosis for PTSD, he did not verbally report any

problems with posttraumatic stress. He was not taking any psychiatric medications and denied any suicidal or homicidal ideation. Like Soldier 1, he showed an awareness of the detrimental effects of his symptoms and appeared eager to get help for them.

Soldier 2's physical symptoms involved knee and back pain, bronchitis, sleep apnea, and erectile dysfunction. While in treatment, he attended weekly physical therapy. He had some prior experience with mental health treatment for drug and alcohol abuse. Having not yet obtained disability status, he did "odd jobs" to supplement his income, which often exacerbated his back injury. A self-described "loner," Soldier 2 had one male friend but had begun to distance himself as they were having relationship difficulties. He lived part-time with a girlfriend and reported that he was secretly having an affair with another woman. As he maintained a strong religious faith, Soldier 2 devoted a significant amount of time to volunteering at a local church and coordinating an Alcoholic Anonymous group.

Although Soldier 2 had a history of drug and alcohol use (Alcohol Dependence, sustained full remission; Cocaine Dependence, sustained full remission) beginning in his teens, he held steady jobs as a laborer for much of his early life. He attended some college and then joined the Army National Guard in the 1970s. Later, he worked as a security guard until being fired in 2005 for a previously undisclosed arrest record.

Strengths.

When he came to therapy, Soldier 2 was very motivated to work on his issues. He clearly wanted to make improvements in his thinking and his relationships, and presented as an active, spontaneous communicator. Dedicated to keeping his "commitments," he

was willing to work hard both in and out of sessions. He had a facility for expressing his emotions and appeared most comfortable with concrete, pragmatic tasks.

CHAPTER V

Formulation and Treatment Plan

Cognitive Behavioral Formulation and Treatment Plan: Common Elements for Both Soldiers

As mentioned earlier, both Soldiers 1 and 2 suffered from Gulf War Syndrome with associated symptoms of physical and psychological distress: aching muscles, irritability, memory and concentration problems, persistent headaches, widespread pain, and chronic fatigue. Each soldier had additional diagnoses: Soldier 1, PTSD, Major Depressive Disorder, and R/O Personality Disorder NOS; and Soldier 2, PTSD and Adjustment Disorder NOS (see Table 3). At enrollment, both soldiers endorsed symptoms of somatization, depression, anxiety, PTSD, and catastrophic thinking (see Tables 1 and 2). Within the context of the treatment manual being based in a CBT framework, the *general formulation* for both patients focused on the role of their cognitive thoughts ("thinking errors") in maintaining psychological distress and causing behavioral problems. Specifically, the manual involved assessing physical and emotional stress, identifying and challenging the underlying psychological mechanisms which led to the patients' problems, and providing the patients with new alternative thoughts to reduce their stress.

The *treatment plan* entailed ten 45-minute weekly sessions of individual, manual-based CBT in which the soldiers would be assessed; learn to identify "stuck" thoughts and understand their relationship to physical and psychological problems; and develop new ways of thinking ("cognitive restructuring"), which would be practiced in session and out of session with cognitive, behavioral, and didactic homework. All these strategies had the goal of improving the patient's physical and emotional functioning through the acquisition of new skills and habits.

Although both soldiers wanted to adjust their beliefs and increase their coping skills in regard to medical problems, some of their *treatment goals* varied because of individual issues. As Soldier 1's PTSD-related symptoms began to distract her in therapy, her therapist focused several sessions on stabilization and later exposure (CBT exercise III: Coping with Trauma/War-related Experience – see Treatment Protocol in Appendix A, Session 5, Phase B). In Soldier 2's case, his angry preoccupation with fairness – whether it be "the system" or his friends -- prompted his therapist to spend numerous sessions helping him identify and manage his negative feelings and behavior (CBT Exercise VI: Coping with Injustice – see Treatment Protocol in Appendix A, Session 8, Phase B).

Formulation and Treatment Plan for Soldier 1

Depression.

Soldier 1 suffered mainly from depression, physical pain, and anxiety (see PHQ-15, SF-36V, and PCL-C, Table 1). Her depression was maintained by a number of mechanisms: low self-esteem, problematic relationships with others, and negative thinking. Her feelings of worthlessness seemed to stem from her beliefs that she was:

- unloveable – “I’m not good enough; I must be undeserving”; and
- incompetent – “I’m old, fat, tired, and lazy; I can’t do what I used to; I’m a failure; I’ll never get caught up; I'm getting nowhere; well, yeah, I feel I’m dumb -- open your mouth and you’ll say something stupid again.”

She talked about feeling like “sloppy seconds” at times when her girlfriend was not immediately responsive and available to her, part of which stemmed from the fact that her girlfriend was married and living with the husband. Other similar events led to anger, self-deprecating thoughts (“I must not be good enough or she would have responded to me”), a sense of abandonment, and ultimately, depression. Her sense of low esteem was further maintained by a constant flow of self-critical thoughts, which included blaming herself for getting MS (“it’s my fault I got MS”) and turning anger inward for not speaking up more often (e.g., in the Military Sexual Trauma therapy group she was presently attending).

Although Soldier 1’s self-criticism was triggered by relationship situations, such as difficulties with her current girlfriend, the origins were two-fold: being told that she was “no good” throughout her childhood; and being sexually and emotionally abused by an ex-girlfriend, which reinforced earlier beliefs of worthlessness. Her depression was fueled by her tendency for negative thinking: “No. With all the shit that happened to me, no way. PTSD doesn’t go away.” When she would reflect on her recent losses (adopted children, house, and job), it seemed difficult for her to imagine that she had anything remaining in her life even though, in reality, she did -- “I’ve lost everything.”

Physical pain.

Soldier 1’s physical pain -- headaches, leg numbness, and uncomfortable symptoms

related to her multiple sclerosis -- had several sustaining sources: her depression, anger, and PTSD. For example, when she felt down about herself, she would often get depressed or angry, which then led to a worsening physical state. During several treatment sessions, Soldier 1 described having physical pain in her body during stressful events, such as

- traumatic flashbacks: "I got the band around my head. . . and my legs started going numb, all the way down to my ankle, you know and . . . " (session 2);
- general stress: "When I get this band around my head, it feels like a tight hat; . . . or if I get stressed out sometimes, um, my legs start going numb or something, you know" (session 2); and
- recalling her recent rape experience with her ex-girlfriend: "My head's startin' to hurt; I get stressed and stunned even now. I tightened, I tighten up. I get a lump in my throat and I remember that bitch hit me so hard on my face that I really did see stars" (session 8).

Overall, she was locked into a vicious circle in which physical pain (MS) brought on emotional stress, and emotional stress (from flashbacks, depression, and stress) exacerbated her physical pain.

Anxiety.

As Soldier 1's treatment progressed, it became clear that her self-critical thoughts, flashbacks, and avoidance behavior were maintaining her *anxiety* – anxiety that she would again be physically hurt, "go crazy," and be abandoned. She reported several triggers for her fears: physical contact with her current girlfriend, social invitations, and her debilitating physical condition from MS.

Due to her negative experiences in both childhood and adulthood, Soldier 1 had developed a deep sense of mistrust in others and a vulnerability to being hurt ("Well, I just feel like I'm setting myself up – if I'm vulnerable, I'm setting myself up to get hurt by people or things"). Although she believed she was protecting herself from fearful thoughts and feelings, her tendency to "jump around" or "run away" actually caused their persistence.

Formulation and Treatment Plan for Soldier 2

Anger.

Soldier 2 suffered from several problems including anger, stress, and physical pain (see Brief COPE, Table 2, the "Venting" item; PHQ-15 and SF-36V, Table 1). Soldier 2's anger was often triggered by his disappointment in others. He became upset when his closest friend "bailed" on him by leaving him at the store ("He wants to do things his way all the time"). He showed similar frustration when he discussed how "the system" had failed him – first, the U.S. government denied him services for his back injury because he had no "paper trail"; and secondly, Social Security turned him down twice ("They should take care of the American people first."). Other examples included his feeling unappreciated and unsupported by his peers at his Alcoholics Anonymous (AA) group and his feeling let down by his lawyer whom he deemed unprofessional ("Maybe I got the wrong lawyer there.").

The main mechanisms underlying his anger involved a sense of entitlement as well as a mistrust of others. He expected people and systems to work perfectly and fairly, including a show of appreciation for his "good deeds." By setting such unrealistic demands, he set himself up to get angry. Additionally, he mistrusted others and was set

off by moments in which he felt exploited or abandoned. This emerged in his reactions to perceived desertion by his wife and friend as well as his AA peers' failure to assist him in meetings.

Stress.

Several issues maintained Soldier 2's stress: his multiple medical problems, his affair with another woman, and his negative interactions with others. The stress related to medical problems stemmed from his worries about being unemployed and his fear that he could ultimately become paralyzed (see Catastrophizing Scale, Table 1). He had witnessed his mother suffer from severe arthritis and feared a similar fate for himself. Although the affair gave him an outlet for some of his stress, it also added to it. His guilty thoughts ("I shouldn't be doing this") and feelings caused him to feel anger towards himself, thereby feeding his belief that he was morally bad ("I'm a dishonest person") and increasing his stress.

As for his social interactions, Soldier 2's constant disappointment in others led to constant anger and stress. Whether it was his best friend, his sister, his AA peer, or "the system," he fundamentally believed that people "should" be a certain way and "should" do things his way. Not surprisingly, others could not meet his high expectations and his relationships would worsen. One instance was his falling out with a male friend whom Soldier 2 wished had been a "good friend." Soldier 2's stress also had roots in his fundamental mistrust of others. Having been cheated on by his wife, he was quick to assume that people were out to cheat him or take advantage of him. If he felt unacknowledged and criticized for his "kind acts," he would become angry, which would lead to increased stress. Examples include:

- his fight and subsequent departure from a female friend's party after she yelled at him for turning the food on the grill: "I said 'well, here you take it and I'm not even cooking. A matter of fact, I'm leaving' and I left";
- his feeling disrespected by his AA peers as they did not help him run meetings; and
- his feeling of being used by his sister who, having previously cashed in all the family's insurance policies for herself, continued to ask Soldier 2 for money.

Physical pain.

Soldier 2's physical pain, especially his lower back and knees, had several sources. Aside from his family's predisposition for arthritis and his initial back injury in the 1970s, his anger played a central role in perpetuating his poor physical condition. Throughout his treatment, he expressed anger at "the system" for denying him disability and compensation for his initial back injury. When he ran into bureaucratic roadblocks while trying to obtain said benefits, his anger escalated to such a point that he developed additional body pain. For Soldier 2, physical impairment meant unemployment, which lowered his self-esteem and further fueled his anger. He had been proud of his work history and now that was gone. He viewed his pain as a kind of punishment, often thinking, "Why is this happening to *me*?" and feeling depressed. Like Soldier 1, he lived in a vicious circle in which physical pain created emotional stress for him and emotional stress aggravated his physical symptoms. As his treatment progressed and he began to learn alternative ways to cope with frustration, he reported improvements in his physical state (see session 5 below).

CHAPTER VI

Course of Therapy

Therapy with Soldier 1

Session 1: introduction/establishing the relationship.

Soldier 1's therapist was a 28-year-old female clinical psychologist with one and a half years of experience in providing CBT treatment to veterans, although it was unknown whether any of that experience involved patients with physical health problems.

Soldier 1's treatment began with her identifying a time when she experienced distress in association with her physical condition (multiple sclerosis). She immediately recounted some examples: being unable to feel the strings of her guitar, having to depend on public transportation, and being unable to walk as far as she used to. Her therapist proceeded to focus on the patient's depressive feelings in relation to her debilitating bodily state ("So there's some depression there – 'I'm not able to do these things' ") and asked her for specific cognitions about herself. Soldier 1 replied, "I feel like I'm lazy. . . I'm getting' old and fat."

As they began to explore her thoughts and feelings, her therapist periodically used humor and supportive comments to help build the therapeutic alliance. The patient seemed fairly responsive to these interactions. Her therapist drew connections between

the patient's negative thoughts and her depression as well as between her depression and her bodily pain, which seemed difficult for the patient to grasp.

The therapist then suggested focusing on the depression first. As the patient's tendency for catastrophizing and global negativity became more apparent, her therapist introduced the idea of using an "alternative thought" in stressful moments. For instance, she could think "yeah, this stinks, but at least I'm walking." She explained to Soldier 1 that if she changed how she thought about situations and herself, she could ameliorate her depression. She further challenged Soldier 1 to come up with her own alternative thoughts: "What might be a thought that. . . may not ruin the whole day for you in that situation?" which Soldier 1 was able to do with encouragement.

As the session progressed, the issue of self-criticism also emerged ("I talked to you often enough I *should* remember this stuff. . . I'm always hard on myself."). Once again, the therapist pointed out the depressive effect this thinking has on the patient and explained how she could make improvements in her life by altering those thoughts towards something more balanced, like "I wish I would've remembered [your name] but I didn't . . . I'm embarrassed but I can stand it."

Soldier 1 often laughed nervously when her therapist offered alternative thoughts, reporting how odd it felt to hear this new way of thinking.

As the session drew to a close, the therapist described how Soldier 1's two issues of self-criticism and physical problems are "mixing" together, and suggested they work on the former to alleviate the latter. She assigned homework to Soldier 1 to "refuse" to be critical with herself for forgetfulness and to use new thoughts, showing her the cognitive-behavioral "ABC" chart (activating events, beliefs, and emotional/behavioral

consequence) and explaining that it will improve her awareness of her automatic stress-producing thoughts. Soldier 1 agreed to work on her depression and write a "stress log, " i.e., a list of her symptoms and stressful life events (see Appendix A, Session 1, Phase C).

Sessions 2-3: psychoeducation.

In sessions 2 and 3, Soldier 1's therapist focused on continuing psychoeducation about the CBT model and identifying the patient's emotionally distressing events and self-defeating behaviors.

Session 2. As session 2 began, Soldier 1 complained about the difficulty of the homework exercise, especially generating disputing beliefs ("I had to sit there and think about it"). Her therapist praised Soldier 1 her for having done the assignment, reiterated the idea that this new way of thinking takes significant practice, and corrected her work.

Soldier 1 reported depressive thoughts ("I don't feel I have anything to look forward to") and social isolation, and stated that her PTSD affects her the most. She often ignored the therapist's questions, such as when she was asked "What are you telling yourself?" in regards to not being so busy now. She described blaming herself for getting MS and losing her children, and reported a long history of verbal and physical abuse.

As Soldier 1 began to discuss her experience of traumatic flashbacks, her therapist suggested that they work on it together through exposure work so that it could become more manageable for the patient. Having deviated somewhat from the protocol, the therapist focused them on one topic "so that we're not all over the place." Soldier 1 brought up her experience in the Military Sexual Trauma (MST) group she was attending -- not speaking because she felt "afraid" and feeling self-critical. As she was avoiding her angry reactions to the group, her therapist helped her to explore and express them, at

which point Soldier 1 said that she is "angry a lot. . . about this and that and this. . ." Together they discussed her rigid thinking that she "should have" said something in the group and that she gives others "breaks" but not herself.

Towards the end of the session, the therapist guided the patient through a visual exercise of the MST group to reduce her anxiety and asked her to practice it at home in addition to the ABC homework. Specifically, Soldier 1 was instructed to imagine being asked to speak about her traumatic experiences in a group session; the therapist told to her to raise her hand when she felt most anxious and then to bring her anxiety level down by "putting a lid on it" (i.e., not allow herself to feel fear).

Before leaving, Soldier 1 reported feeling physical pain when emotionally stressed and gave the example of a recent traumatic flashback. Her therapist responded empathically, suggesting they discuss it in the next session.

Session 3. With some prompting, Soldier 1 began session 3 by talking about a distressing experience in her MST group. Soldier 1 felt embarrassed when someone mentioned the "Scarlet Letter," and Soldier 1 reported feeling guilty because she is in an adulterous relationship with a married woman. As Soldier 1 spoke more about her girlfriend, her thoughts became more tangential causing the therapist to repeatedly ask how her thoughts were related.

Soldier 1 eventually stated that she gets depressed when her girlfriend goes home at night and worries about being abandoned. After describing her tendency to avoid painful feelings after her girlfriend leaves and with the help of repeated questioning by her therapist, Soldier 1 finally revealed her persistent core belief: "I'm not good enough."

Tearful, she explained that this belief has been reinforced over the years by others berating her.

Following the CBT strategy of challenging irrational thoughts, her therapist pushed her to uncover whether she had any other beliefs about herself. Soldier 1 admitted feeling positive about her work, her musical ability, and her poetry writing. Her therapist complimented her for these examples and reinforced the importance of finding "evidence" to counteract the negative thoughts. The therapist then encouraged Soldier 1 to *practice* using new thoughts when she feels depressed at night, for example:

> Well, this is unfortunate that she [girlfriend] left and I don't like that it happened, but it doesn't mean that I'm not good enough. And maybe I'm not good at some things but I am good at *a lot of other things*.

The patient repeated that this new way of thinking was hard for her to fathom. Towards the end of the session, the therapist reiterated the importance of practice, that they will work on this as a team, and that the therapist will "be confident" for the patient until the patient has reached that point. Soldier 1 agreed to practice this new way of thinking ("I'll give it a shot").

Sessions 4-7: practice.

Sessions 4-7 focused on continuing to provide the patient with an arena to practice this new way of thinking and behaving, as reflected in the above quote about Soldier 1's girlfriend leaving), and to share her concerns with her therapist.

Session 4. In session 4, the therapist began by asking Soldier 1 about her work on "I'm not good enough" thoughts. Soldier 1 responded with a depressed tone of voice, saying that "it didn't" go well and proceeded to berate herself for falling back on her old

“habit” of avoidance. The therapist responded in a supportive way (“Well, I think good. I’m glad that we experimented and we figured out that this particular task might be a little bit too much”), and suggested trying a visualization exercise about her girlfriend’s leaving.

Before they started the visualization exercise, Soldier 1 said it was “too hard” for her to trust others because of her traumatic experiences, causing her to often shut down emotionally. As the therapist helped her further explore her underlying beliefs, Soldier 1 reported that when she shuts down, she then calls herself “dumb” and withdraws. The therapist pointed out her tendency to “do a lot of beating yourself up over things,” summarized her different types of thoughts (anxious and depressive), and explained how her depressive thoughts fuel her fear.

The therapist then went on to reiterate the importance of working on Soldier 1's depressive thoughts first and prepared her for a visualization exercise about her girlfriend, explaining the following:

> Whenever you start to feel that "I'm no good" or you start telling yourself "I’m dumb" or "I’m not good enough; she’s leaving me; I’m, I’m depressed," put your hand out and then work through your thoughts: "I am good enough. I refuse to feel depressed."

With these supportive words, the therapist helped the patient balance decreasing the intensity of her feeling “upset” while getting in touch with her painful emotions (e.g., crying). She encouraged the patient to continue this exercise at home, although the patient reported being unsure she can do so (“I’ll probably chicken out”).

The therapist reiterated how this work will enable Soldier 1 to become more comfortable with her emotions and suggested they practice another visualization together. After going through the example of feeling shy about a Thanksgiving dinner invitation from her neighbors, Soldier 1 showed she could be less critical with herself ("I stopped kicking myself too hard") and could calm herself down using new thoughts, such as, "Well, this is an uncomfortable situation but it's gonna be ok." That being said, Soldier 1 reported feeling a "stress band" around her head both during and *after* the visualization.

Session 5. In Session 5, Soldier 1's therapist inquired about her Thanksgiving visualization homework. The patient stated that, although conflicted, she went to the Holiday party with the aid of her girlfriend. Pushed to explore more, Soldier 1 recounted the event and admitted that she had a positive experience at the party -- including feeling acknowledged by others, something she did not typically expect. She then identified her own problem of having "too much stuff" in her head and reported still feeling the "manipulation" of past abuse and the fear that she will be hurt again. Her therapist explained to her that she has some control over those traumatic memories and challenged her to think differently: "You have the right. . . to stop giving them [the abusers] some power. . . [to say to her abusers that] you don't have a right to be here anymore." At the same time, the therapist acknowledged how difficult this change would be for Soldier 1 and reminded her that it would take practice. As Soldier 1 became more fearful in the session, her therapist helped her face her fears by reminding her that, in reality, she is no longer in danger and that she does have some control over how much she allows her fears to affect her.

Shortly thereafter, Soldier 1 veered away from the topic at hand and spoke at length about her children and her divorce. Noticing her avoidance, the therapist refocused her and remarked on her pattern: she beats herself up, which contributes to her not performing the way she wants; consequently, she feels depressed or angry, which then worsens her physical state. The therapist advised Soldier 1 to take a specific situation, focus on it, go through the "ABC" sequence, and then apply it to other things.

The patient appeared distracted, stating her belief that she is “a total failure.” When questioned about her ability to succeed in anything, Soldier 1 promptly replied “No. With all the shit that happened to me. No way.” Using disputing techniques, the therapist challenged her further until she finally acknowledged that she had some successes in her life (e.g., her children, her educational degrees, and her job accomplishments).

At the end of the session, Soldier 1 showed doubt about being able to confront her thoughts and generate alternative ideas (“It’s like asking me to move a mountain”). The therapist pointed out that this is a typical reaction for Soldier 1 and encouraged her to keep “giving it a shot” even if she made mistakes. Soldier 1 left seeming somewhat unconvinced.

Session 6. Session 6 began with Soldier 1 discussing her homework. She reported having understood some of it but having difficulty with other parts. The therapist encouraged her to continue practicing outside of session.

While Soldier 1 was sharing a recent experience, she veered off topic and described feeling a “wave of fear” that she would be abandoned as in the past. The therapist explained that Soldier 1 transfers her fears from prior experiences onto her

relationship with her girlfriend. The therapist then reminded her that “you can’t ever really predict the future” and empathized (“I think that’s tough”).

As Soldier 1 went on to describe recent thoughts that she is “not good enough,” she reported that she was starting to ask herself new questions: “How can I say *everybody* blows me off? And why can’t I forgive myself for my mistakes?” This is the first time that she actively challenged her thoughts and showed empathy for herself. Her therapist commended her for doing so, but also pointed out her ongoing self-criticism and encouraged her to continue practicing alternative thinking.

After normalizing the difficulty of this new way of thinking, the therapist took the patient through an "ABC" example, asking for more specifics and challenging her irrational belief (“When I’m vulnerable is when I’ll be hurt [by others]”) with questions like,

> Are you *always* hurt when you’re vulnerable?
>
> Has there ever been a time when you were vulnerable and *didn’t* get hurt?
>
> Or has there ever been a time when you were hurt when you *weren’t* vulnerable?

The therapist again pointed out the typical chain of events for Soldier 1: she feels scared, her old memories return, she gets depressed, and she thinks she is “not good enough.” Using psychoeducation, the therapist explained the importance of breaking the chain of events and modifying her thoughts with “healthier” ones in order to reduce her stress. Soldier 1 replied: “That I can handle.”

As the therapist applauded her for surviving the past and being able to “stand” confronting it in the present, Soldier 1 misunderstood, thinking that she would have to

"go through it again." Her therapist reassured her that she would not be "going through it again" and clarified their work -- to create a little bit more power in her so that the fear is less intense and less uncomfortable for her. The patient was reminded that it will feel "contrary" to what she has always done, but that it will become easier each time she says it to herself.

Although Soldier 1 indicated she understood the idea, she voiced doubts that she could do it. In response, the therapist discussed the patient's having learned poetry and encouraged her to apply those same skills to learning new thoughts: "It's like writing poetry in another language." Soldier 1 proceeded to show a little more understanding and self-confidence ("Ooh, I can do that now"), announcing that she would "fix" her thoughts as she had learned to fix her poetry.

Session 7. Session 7 started with a review of the therapy work during which Soldier 1 was asked for feedback on her progress. She reported doing "good and bad" -- "good" because she is less overwhelmed by events, and "bad" because it is re-triggering her nightmares. In agreement, her therapist explained the treatment's process -- "you'll be able to handle some other things a little bit better and it's going to be like that as you continue" -- and encouraged her to keep practicing.

The therapist then complimented Soldier 1 for "doing a great job" with the ABC's, although the patient seemed unable to take in the positive feedback. As Soldier 1 drifted off into talking about the past week, the therapist brought her back to focus on any difficulties she had encountered. The patient recounted a lengthy story about attending a Christmas party, rapidly overlooking the fact that this was an accomplishment for her. Each time her therapist attempted to highlight it and noted her absence of positive

thinking, Soldier 1 ignored her. Finally, Soldier 1 stopped and listened, stating, “I’m not used to that positive ‘yay for you’ thing.” Her therapist reinforced the importance of replacing negative thoughts with more realistic, positive ones. Soldier 1 responded, “Mhmm.” As the therapist asked again about her week, the patient reported feeling like “sloppy seconds” in relation to her girlfriend. Going through the ABC’s with her therapist, she expressed anger and depression, and shared her thought that she “must be undeserving.”

After Soldier 1 demonstrated her understanding of the exercise, her therapist again summed up her problem: “Your maybe first instinct is to get angry but then you start to think all these depressed, depressing thoughts and the depression kicks in.” The therapist reflected Soldier 1's words of “not being good enough” and challenged her to find evidence against her irrational beliefs, which she did. After Soldier 1 shared a painful memory of being stood up at her prom, the therapist gave her a new “mantra”: “[Because] I’m being stood up -- that doesn’t mean that I’m bad. . . I don’t like it but I can stand it. . . I’ll survive.”

As the session progressed, Soldier 1 remained fixated on what she “can’t” handle (e.g., intimacy with her girlfriend) and her feeling of powerlessness, which her therapist challenged. She proceeded to talk about her flashbacks (“It’s like an *explosion.* . . and then the images, like I said, come back just like they happened yesterday") and her fears about future abuse (“I’m going to be preyed upon again or. . . she’s [abuser] gonna come after me and beat the shit out of me again or whatever”). At this point, the therapist noted the significance of these traumatic experiences and their impact on her thinking, and recommended working together to make them more “manageable” for her. Soldier 1 was

then given some psychoeducation about trauma and anxiety, reminded that she has a "safe place" to discuss it, and encouraged to write down her most disturbing memory for homework. She reluctantly agreed to do so ("I'll try").

Sessions 8-9: focusing on the trauma.

Following the treatment protocol's segment on "Coping with Trauma/War-related Experience," Soldier 1's therapist focused sessions 8 and 9 on helping the patient process one of her past traumas – being raped by an ex-girlfriend.

Session 8. Having assigned a writing assignment the week before, the therapist inquired about how it went. Soldier 1 reported it being "hard" as her anxiety would increase and prevent her from continuing. The therapist asked her to read the trauma aloud and requested she raise her hand when her anxiety had peaked.

After Soldier 1 began, the therapist pointed out her "retreat and approach" thought process: "You're thinking about it, but you don't want to think about it, but you think about it, but you don't want to think about it." To help Soldier 1 face her anxiety, the therapist pushed her to get more specific, reminding her that she is now in a safe place. The therapist further explained how the avoidance ("bouncing around") that once helped the patient is no longer working.

As Soldier 1 reflected on how much the trauma still affects her today, she shared two concerns: not knowing *how* to do the work and not knowing "the end result." At that moment, the therapist emphasized the importance of trusting the therapist and their relationship. With encouragement, she instructed Soldier 1 to bring her mind back to the task and be kind with herself. Soldier 1 agreed to share the story of her rape. As the patient's self-blame emerged ("Stupid. I trusted her. . . I believed and. . . I really got

fucked"), the therapist explained that no one can take her trust away – an idea Soldier 1 resisted -- and that she can still have control over her feelings and what her memories mean to her. Soldier 1 seemed to have difficulty taking in her therapist's words, responding that her head was "startin' to hurt." Her therapist wrapped up the session by providing psychoeducation on stress – that one has to feel stress sometimes in order to "get over it" in the long term.

Session 9. Although Soldier 1 began Session 9 in a state of avoidance -- talking at length about her new pet – she eventually initiated a discussion about the trauma homework ("It's a mess"). Her therapist complimented her for being able to recognize how her mind works and explained that it is the first step of the process: "You gotta recognize the mess before you start putting stuff away." She reminded Soldier 1 of the original goal -- to get her on the right track -- and reassured her, ". . . you are -- you're getting on the right track."

The patient soon changed the subject to termination and showed concern about "being dropped" by the therapist. After offering Soldier 1 several treatment referral options, the therapist instructed her to start her written narrative with the most anxiety provoking parts, explaining the importance of exposure for recovery and healing. The patient reacted by sharing her peers' view that exposure is "crap."

At this point, her therapist gave her some psychoeducation about the process – her anxiety would decrease over time and her memory would have "less power" over her. The therapist further explained that therapy doesn't take the memory away, rather it makes it more manageable. Soldier 1 expressed frustration about dealing with the trauma ("it's either not there. . . or it just drives you nuts") and doubts about managing it. Her

therapist reiterated the importance of changing how Soldier 1 copes when "the water gets rough." Both parties acknowledged her unhelpful habit of "running away."

As the patient reported being "confused" about exposure work, the therapist reiterated that she is already doing it through writing the trauma and exposing herself to the memories. Soldier 1 responded doubtfully ("How can I do this when I'm told I'm stupid or I'm dumb or I'm this or I'm that?"). Her therapist advised her to return to the ABC sheets to confront her self-critical thoughts. As the session came to a close, Soldier 1 reported increased stress and physical pain, and appeared overwhelmed – "I don't think I should've done it all [trauma work, stress work, and physical therapy] at the same time, for God's sake, you know."

Becoming increasingly worked up and tangential, Soldier 1 appeared to be decompensating. Recognizing this, her therapist stepped in and helped ground her:

> No one's asking you to do that. But if your brain goes there, then that's gonna be stressed out about that. And if you stress yourself out about that, then you're getting stressed out over something that's not happening in reality.

The therapist also reflected back the patient's thinking process ("Your brain is, like, carrying you away") and reminded her of the importance of this work

> It's gonna force you to organize your thinking and to stop yourself from zooming off on that tangent -- because you go, you could go pretty fast, pretty far. I mean, within two minutes you just went really fast, really far.

Soldier 1 seemed to understand her therapist's words and began to calm down, giving herself a new mantra: "chill." The session ended with the therapist encouraging her to

practice and reinforcing the thought that, even though it may be uncomfortable for her, "it's bearable."

Session 10: wrapping up.

The final session was fairly tumultuous and largely involved the issue of termination. At the start, Soldier 1 seemed more distantly related than usual. She reported that she was "trying to figure out what to do from here" as she did not want to work with a new therapist. After expressing a wish to continue with her current therapist, she was informed that this would be a possibility albeit the new treatment would be less structured with no time constraint. Soldier 1 then reviewed the benefits of her treatment: reducing self-criticism and facing painful issues from the past.

Shortly thereafter, the therapist brought up the issue of the patient having experienced "stormy" endings and recapped the effects of loss on her -- anger and confusion. When the therapist further suggested helping her learn new ways to cope, Soldier 1 responded with hostility and pessimism. After listening to her therapist explain resistance, she admitted that she sometimes did not "understand the concept at all" due to her history of dysfunctional relationships. Both parties agreed that her questioning of the process indicated that she is "doing something healthy."

Soldier 1 showed pride in her progress ("I've come far enough. I've calmed down. I've, uh, done ok as far as trusting a little bit"), making it clear that a new habit was forming. At one point, the patient expressed anger about the situation with her children in foster care. As her therapist tried to point out the importance of recognizing that she does have some choices and control – and that she does not have to be a "victim" -- Soldier 1 ignored her and essentially shut down.

Recognizing this reaction, her therapist encouraged her to talk about her anger, voiced the therapist's wish that this "ending" be different from those in the patient's past, and reflected that she has already accomplished that by "coming in and saying 'yeah, I'd like to continue.' " Soldier 1 responded that her feeling of hopefulness came from meeting her current girlfriend. Her therapist then shared her wish to work with the patient on finding that " 'you' piece in there" and emphasized that Soldier 1 played an equal role in creating a positive relationship with her girlfriend as well as with her therapist. Soldier 1 stated that this was a new concept for her. As the session came to a close, the therapist expressed her happiness that the patient chose to continue therapy. (Note that the future therapy with this same therapist was planned as open-ended, long-term therapy.)

Therapy with Soldier 2

Session 1: introduction/establishing the relationship.

Soldier 2's therapist was a 28-year-old female clinical psychologist with one and a half years of experience in providing CBT treatment to veterans, although it was unknown whether any of that experience involved patients with physical health problems.

Soldier 2's therapist began the first session with some questions about the patient's prior psychotherapy experiences. Soldier 2 responded that he had had previous treatment for alcohol abuse. His therapist then outlined the goal of the therapy: to focus on stress related to medical problems so that his physical condition improves and life becomes more "manageable" for him. As he had typically responded to situations with depression, anger, and anxiety, he would be learning to connect with healthier emotions like sadness or regret.

The therapist further explained that stress is a natural reaction to certain situations, however, it can sometimes have a chronic and detrimental effect on our lives, including our health. Specifically, the therapist spelled out how one's way of thinking affects one's feelings (i.e., we can make ourselves more upset just by our thoughts), and that Soldier 2's beliefs about himself, the world, and others may have been working against him up to this point.

Asked to report a recent moment when his medical condition caused him stress, Soldier 2 recounted being in a car accident. His therapist used this example to teach him the "ABC's" of cognitive behavioral therapy: list the activating event, describe one's interpretation of that event (thoughts), and identify the resulting emotional reaction to the event. Although supportive at times, his therapist frequently interrupted the patient and spoke in a curt manner. Soldier 2 appeared comfortable and demonstrated understanding for some of what the therapist said, stating "Get me to a point where. . . it's manageable to me." His therapist reaffirmed his comprehension and added ". . . and doesn't exacerbate your medical symptoms." At the end of the session, his therapist emphasized the importance of practice and assigned him homework on cognitive disputing and restructuring related to his anger.

Sessions 2 and 3: psychoeducation.

In sessions 2 and 3, Soldier 2's therapist continued to instruct him on how to examine his beliefs and replace them with alternative thoughts.

Session 2. Session 2 began with the patient spontaneously discussing the homework and the goal of treatment: "You're trying to get me to think more rationally." Motivated and energetic, he actively posed questions about the concept and requested

that he and the therapist go through the ABC worksheet together. Aside from repeatedly asking for his thoughts and feelings, the therapist highlighted his frequent use of "shoulds" (“You used that word ‘should’ again, right?”); challenged him to change the thoughts that cause him stress (“Why would you expect them to be any different?”); and reinforced the idea that the therapy is about “making your thinking more logical” and accepting what he *can* change.

As the therapist went through two examples with Soldier 2 (his friend leaving him at the store and the unresponsiveness of the Medicaid system), the therapist reiterated the importance of practice in disputing one's negative thoughts. In addition, the therapist used “check ins” to assess how much Soldier 2 was retaining (“Remember we discussed what you were going to try to practice telling yourself at that time?. . . What are you gonna tell yourself”?); and the therapist continually corrected him when needed.

Throughout the session, Soldier 2 and his therapist revisited the topic of “new ways of thinking” and the therapist pointed out his own part in stressing himself out (“But the bottom line is that you caused yourself to get angry when he left you because you were expecting him to behave in a way that he wasn’t, he couldn’t behave”). He appeared to be grasping much of the technique. By the end of the session, the pair established a solid rapport and even shared several laughs. The therapist left him with the idea of a new mantra: “less stress.”

Session 3. In Session 3, Soldier 2 reported realizing that he put added stress on himself and, therefore, had changed his interactions with a friend in order to lower his stress. He then vented some anger toward his sister for her financial improprieties and

stated his wish that she acted differently, using his “new language.” Through the help of his therapist, he further expressed remorse and sadness for his sibling.

As Soldier 2 and his therapist discussed the latter emotions being more appropriate, the therapist provided him with some psychoeducation on “troublesome” emotions and explained how they affect him. She gave him numerous examples of alternative thoughts in regards to his sister and his friend, e.g., “ I would prefer it if. . . ”

After Soldier 2 recounted a story in which he felt so stressed by a co-worker that he ultimately punched him, thereby losing his job, the therapist swiftly challenged his thought processes: “Why were you expecting [the co-worker to do X]? Why do you think he should do it your way?” When Soldier 2 explained that he had felt angry because the man had disregarded him, the therapist again gave the patient several new thoughts: “It would nice if …I would prefer it if…”

Similar to Session 2, the therapist helped Soldier 2 to see the negative effects of his anger. The therapist then reinforced his learning by constantly correcting his use of "should" and asking him how he would approach the situation the next time. Soldier 2 demonstrated understanding in his response: “I would just let people be who they are and just concentrate on myself.” In addition, his therapist prepped him for future stressful situations -- like riding the bus -- by working together with him to generate new thoughts and instructing him to check in with himself when he noticed his becoming angry.

As the session came to a close, the therapist complimented him on his hard work and assigned him to pick another stressful event for his ABC’s homework. While saying goodbye, Soldier 2 thanked his therapist and reported feeling “much better when I come out of here.”

Sessions 4-9: practice.

Session 4. Session 4 was a brief session as Soldier 2 arrived late. He reported being upset because an AA peer had brought a drunk to one of the meetings. As he reverted to his old habit of saying "should," the therapist challenged him to reflect on his thinking: “Why *should* they have known better? Who says?” The therapist also reminded him of how his “demands” cause him stress. Although Soldier 2 showed some understanding for the technique, he struggled when asked what he would do the next time, answering “expect the unexpected.”

The therapist continually inquired about feelings as Soldier 2 seemed to be neither listening nor understanding. The therapist instructed him that, in the future, it would be important for him to ask himself, “What am I demanding from this person?” and to remember that, although we cannot affect another’s behavior, we can affect how we think about things.

Towards the end of the session, Soldier 2's therapist requested a second example for them to work on. The patient mentioned the lawsuit against his male friend, which led to a discussion about Soldier 2's physical pain and his fears of becoming paralyzed. Helping him decrease his catastrophic thinking, the therapist painted a picture that it “could be worse. . . that it is bearable” and emphasized the need for him to practice telling this to himself.

Session 5. In Session 5, Soldier 2 shared a recent experience of helping a woman on a bus with her “irrational thoughts.” As in the previous session, he did not fully understand the concepts he was being taught. He then gave several examples in which he had used his new thoughts to keep himself from becoming stressed (his male friend; a trip

to the hospital with another friend), and reflected on the change in his behavior (e.g., he spoke with the hospital manager instead of getting angry). The therapist complimented him on his new behavior.

A short while later, Soldier 2 told the story of how he injured his back in the military, and he expressed anger at the government for denying him compensation. As he had difficulty generating alternative thoughts, the therapist stepped in and suggested the following: "I can't *demand* it [be]cause. . . I can't change the system." The therapist further reminded him that "it's not realistic" to think the system would act more professionally. Listening closely, Soldier 2 frequently repeated her words.

Soon thereafter, he brought up a negative interaction with his lawyer regarding his unemployment status ("The lawyer told me the wrong thing."). As in the earlier example, the therapist helped him replace his thoughts with healthier ones and enthusiastically reinforced him for his learning ("You're catching on so well.").

At one point, the therapist addressed the issue of his physical pain, which he reported as being stressful. With further questioning by the therapist, he stated that, although he wished he were pain-free, the situation was "bearable."

Towards the end of the session, Soldier 2 commented on the lack of support he was getting in the AA meetings and his frustration over having to single-handedly keep the group going. That being said, the patient discussed his wish to continue running the group, something for which his therapist applauded him.

Session 6. In session 6, Soldier 2 reported feeling less stress than usual because he was using his CBT tools. He told a story about his male friend being mad at him for the lawsuit and expressed feeling guilty about it. Although he had difficulty elaborating on

his guilt, he noted how his use of "I would have *preferred*. . ." helped lower his anger and stress.

The therapist reinforced his hard work with a compliment: "You're practicing these things *so well*." She then asked him for another stressful example from the past week. Soldier 2 briefly mentioned a positive encounter with a man at AA who had previously "disrespected" him. The therapist remarked that the patient appeared to be doing better and gave him positive feedback on his behavior – "So see, your ability to kind of keep your cool and not get too stressed resulted in a positive thing."

Soldier 2 then went on to talk about his sister, venting anger for her irresponsible behavior with finances. Although his therapist reminded him of his sister's usual modus operandi, he appeared concrete and struggled to explain why he cannot "demand" a certain behavior from her.

Focusing Soldier 2 on upcoming stressors for the week (Social Security and his lawyer), the therapist helped him generate new thoughts, periodically correcting him with a playful tone. The therapist then proceeded to review his progress in therapy and gave him encouraging words, which he seemed happy to hear. Towards the end of the session, the therapist inquired about his back causing stress. Soldier 2 reported wishing that he could work without pain but that he was not stressed by it ("It is bearable."). The pair acknowledged the positive change in his overall thinking.

Finally, they discussed termination. Soldier 2 showed surprise and disappointment that there were only four remaining sessions. After he shared that he would miss the therapist, the therapist responded awkwardly ("Oh. Well, I hope you take [some of] the

things we talked about") and avoided addressing his emotions. Abruptly changing the topic, she asked whether he needed more ABC worksheets and said goodbye.

Session 7. The tape for Session 8 did not record properly and thus this session was not available for review and analysis.

Session 8. Soldier 2 began session 8 with a recent example of feeling criticized and angry at a female friend's party. Although he remembered several alternative phrases -- like "I would have preferred. . ." -- he needed assistance from his therapist for some additional thoughts ("I would prefer it if she'd been more appreciative but I can't *demand* it"; "Humans all make mistakes.").

Feeling down as he discussed his lack of friends, Soldier 2 remarked "It's not really good to help people all the time." When asked by the therapist what he would do the next time he was with his female friend, the patient appeared to miss the point, stating "I would approach her and tell her how I feel." Although the therapist empathized and helped him express his anger ("They should realize that you're doing nice things for them."), the therapist also reminded him about reality ("Humans aren't built perfect."). Still, he had trouble retaining some of the new thoughts ("I'm lost on that one.").

The therapist then switched to the topic of pain, which the patient briefly discussed, reporting it as "really uncomfortable." After changing the topic to a friend of his not calling, Soldier 2 returned to the topic of his physical pain and admitted to feeling stress from it. He further lamented his poor financial straits and his disappointment over having so few friends since he stopped drinking. The therapist summed up and normalized how his pain makes him feel that he cannot work which, in turn, means that he has more time to think about his loneliness. In addition, she addressed his loss of

social support since becoming sober and encouraged him to think about other ways to meet people.

Soon thereafter, Soldier 2 shared the story of his wife cheating on him in the past and then discussed his own current affair. As he spoke about the latter, he reported its effect on releasing some of his stress; at the same time, however, he seemed confused about the effect of the affair on his anger. After he was assigned homework on this topic, Soldier 2 mentioned that there were only two remaining therapy sessions. As in Session 6, his therapist coolly acknowledged it and quickly brought the session to an end.

Session 9. Early on in Session 9, Soldier 2 and his therapist discussed factors contributing to his recent positive interactions with others and his decrease in stress, such as his being able to walk away from a potential fight at his AA meeting – he remarked "[It's because of] the good work we have done here." He shared his realization that "I caused a lot of stress myself" by "demanding" others behave in a certain way. The therapist responded positively toward the patient for his progress.

Going on to the topic of his physical health, Soldier 2 reported being in more pain now and not looking forward to his upcoming surgery. The therapist reminded him that his pain will decrease in the long-term because of the surgery, which he seemed to accept. When the therapist inquired about his specific thoughts, he answered "Why does this have to happen to *me*?" and expressed sadness about the pain.

Soldier 2 and the therapist then had a lengthy discussion about his affair. He stated that he had not seen his female friend for two weeks because "I have to take care of me first." Asked how he felt about the affair, he reported a sense of guilt, anger, and remorse. The therapist and Soldier 2 both agreed that such feelings were not helping him

make a better decision – but rather causing him stress. Towards the end of the session, the therapist laid out the risks and benefits of the affair, and again emphasized that putting himself down about it was not helping. As the session closed, Soldier 2 stated that he did not anticipate any stress in the upcoming week. The therapist reminded him that stress was not good for his health and encouraged him to tell himself that he was not a "bad, dishonest person" because of the affair.

Session 10. wrapping up.

In the final session, Soldier 2 reported ongoing problems with the welfare office but showed proper understanding and use of disputing thoughts without input from his therapist ("I would *prefer* if the system was more fair. . .").

The therapist reflected on how his new way of thinking was helping him control his anger. In agreement, the patient noted his being better able to identify "when stress is trying to come on" and accepting that "no one is perfect." When asked for examples of how he had changed, Soldier 2 talked about his reactions to "the system" as well as his physical pain -- he reported using better coping skills and feeling less stress now.

Complimenting him for his "great" work, the therapist then inquired about other issues in his life. Soldier 2 stated that he was planning to end his affair and demonstrated some of his new thinking ("There is stress there [and]. . . stress is no good for my health").

At one point, the therapist brought up the topic of his not receiving much in return for his "kind acts." He responded that he had become less angry about it as he realized that such a negative reaction was only adding more stress to his life. Giving the example of his upcoming surgery, Soldier 2 explained that, although it had been postponed, he had

remained calm ("I said 'Ok. No problem.' I lived with it.") and used his alternative thoughts ("People make mistakes."). Towards the end of the session, the patient showed concern about his upcoming surgery and possible stress.

As in session 9, the therapist and Soldier 2 discussed his irrational thoughts, the fact that he would feel better in the long run, and stress-reducing thoughts to keep in mind. As he shared his feelings about his male friend, Soldier 2 and the therapist revisited how he could develop more logical thoughts, looking back at the ABC worksheets if need be. The therapist also encouraged him to apply his new way of thinking to any areas of his life where he might experience stress. The therapy then ended with little mention of their relationship. The therapist simply said, "It was, um, very nice working with you, and Soldier 2 responded, "It was a pleasure." There was no discussion of future therapeutic services.

CHAPTER VII

Therapy Monitoring and Use of Feedback Information

Throughout the treatment, both therapists used their own self-reflection to monitor the therapy and make appropriate adjustments when necessary. This method is exemplified in the case of Soldier 1. When the patient was having increasing flashbacks of her prior sexual trauma, her therapist focused on treating the patient's immediate distress and used the optional "Coping with Trauma/War-related Experience" module (see Treatment Protocol in Appendix A, Session 5, phase B). Addressing this issue was key in reducing distress for the patient and creating a more efficacious treatment outcome. Another time, Soldier 1's therapist took the patient through a visualization exercise to help her face some of her anxieties, encouraging her to rely on it "whenever you're feeling 'I'm not good enough.' " Soldier 2's therapist frequently applied the "Coping with Injustice" module (see Treatment Protocol in Appendix A, Session 8, phase B) to his sessions, recognizing that his problematic beliefs about the world were exacerbating his stress and keeping him stuck.

Supervision and peer feedback also helped the therapists actively monitor and strengthen treatment sessions. As aforementioned, the therapists met for weekly group supervision with the Principal Investigator of the WRIISC research project in which

Soldiers 1 and 2 were seen. In getting assistance with “stuck” points, the therapists roleplayed as a way of practicing cognitive interventions (“the disputing method”), which they later applied to their treatment sessions.

Weekly writing assignments (see Treatment Protocol in Appendix A) served as an additional tool for examining each patient's progress. Aside from teaching the patients new ways of thinking, the logs captured the patients’ thinking patterns and feelings, which helped guide the therapists in carrying out interventions and suggestions for change.

Finally, patient-completed quantitative measures were taken at intake to help each therapist better ascertain her patient's problems and decide where to focus the treatment. Although the same set of questionnaires was collected at two post-treatment points, in retrospect it would have been helpful to administer them throughout the ten sessions so as to have a closer look at the patients’ progress and to better inform the therapy.

CHAPTER VIII

Concluding Evaluation of the Therapy's Process and Outcome

Soldier 1 Outcome

Quantitative indicators

Tables 1 and 2 show the results of the five measures used to monitor Soldier 1's physical and mental condition at enrollment, 12 weeks post-enrollment, and 12 months post-enrollment. In addition, they provide the clinical cut-off scores and Reliable Change Index values (Jacobson & Truax, 1991; Ferguson, Robinson, & Splaine, 2002) for several measures, which were used to evaluate the clinical significance of treatment outcomes on physical and psychological symptomatology.

In general, these results indicate that Soldier 1 had a small improvement in symptoms at 12 weeks post-enrollment, but an overall worsening of symptoms from enrollment to 12 months post-enrollment in most areas. Specifically, between enrollment and the 12-months time, her physical symptom severity and physical functioning, as seen in her PHQ-15 and SF-36V scores, had either (a) not changed (as on the PHQ-15 and the Bodily Pain scale of the SF-36V); or (b) worsened (as on the Physical Functioning, Physical Role Limitation, and Vitality scales of the SF-36V), with deterioration on the SF-36V Physical Functioning scale achieving a statistically significant RCI value.

Moreover, while on the PTSD checklist Soldier 1 showed a little reduction in her PTSD symptoms after 12 weeks (from 62 to 58), these symptoms actually increased at 12 month follow-up (to 68), an increase that was statistically significant as measured by the RCI and that kept her well within the clinical range for a diagnosis of PTSD.

Finally, Soldier 1 made long-term improvements in reducing her catastrophic thinking about her physical pain (Catastrophizing Scale: 6). Her Brief COPE results point to slight short-term improvements at 12 weeks in coping strategies – such as using more support, reducing substance use, and decreasing self-blame and denial; however, long-term results at 12 months suggest that Soldier 1 was unable to maintain these gains. Specifically, on the Brief COPE:

- use of emotional support: 1 at enrollment, 3 at 12 weeks post-enrollment, and 1 at 12 months post-enrollment;
- substance abuse: 2 at enrollment, 0 at 12 weeks post-enrollment, and 1 at 12 months post-enrollment;
- self-blame: 3 at enrollment, 2 at 12 weeks post-enrollment, and 4 at 12 months post-enrollment; and
- denial: 3 at enrollment, 2 at 12 weeks post-enrollment, and 3 at 12 months post-enrollment).

Qualitative indicators.

There are several qualitative indicators of Soldier 1's poor treatment outcome. At the end of therapy, as shown by the following quotes, she reported ongoing difficulty with most of her initial physical and emotional issues. For example,

- she continued to feel stress in her body ("I'm getting knots in my legs");
- she exhibited powerlessness and hopelessness about recovering from her traumatic experiences ("How the hell can you manage stuff like that [PTSD]?") and making improvements in how she contended with losses ("I don't think it's possible"); and
- she showed persistent avoidance in relation to her PTSD symptoms ("This is my brain. . . it just jumps from here to there, here to there. . . then it goes from generalized to very specific and then it goes back, you know – here this time and that time"), although she was able to acknowledge that this coping mechanism no longer helped her and was negatively impacting her social and sexual relationships.

Soldier 1's main difficulty seemed to stem from her inability to utilize new cognitive thoughts. She had moved into a recognition stage where she was periodically able to see that her old thinking habits kept her "stuck" but she was not yet able to change them. Her therapist referred to this as "transitioning." Furthermore, she expressed having problems understanding the therapy work itself ("Sometimes I don't understand the concept at all") and questioned whether she could learn to do it ("How can I do this work if I've been told I'm stupid?").

Comparison of the quantitative and qualitative indicators.

In terms of comparison, Soldier 1's quantitative and qualitative indicators support each other and confirm Soldier 1's poor treatment outcome. The various assessment measures point to long-term worsening of physical functioning, PTSD-related symptoms, and coping strategies, with only some improvement in reducing catastrophic thinking

about her physical pain. In the last two treatment sessions, Soldier 1's verbal reports reflected most of these results: she continued to struggle with physical discomfort and PTSD-related symptoms. There was no discussion of her change in catastrophic thinking.

How the therapy contributed to the outcome.

Reflecting on her therapy experience, Soldier 1 felt that it "has helped." She remarked on her recent reduction in self-criticism ("I don't go crazy on myself anymore, you know, constantly beating myself up"); increase in socializing; recognizing her avoidance tendencies; and exploring her past ("I've taken a couple things out of the mothballs"). Even though the treatment increased Soldier 1's self-awareness and started to change some of her negative thinking, the improvements were not yet consistent nor permanent. As mentioned above, by the final session, she was still struggling significantly with issues like physical pain, traumatic flashbacks, and hopelessness. And it was agreed by the therapist and Soldier 1 that she would continue both her Military Sexual Trauma group and individual therapy in order to further work on her problems.

Some additional factors, such as personality and cognitive functioning, appeared to play a role in Soldier 1's poor treatment outcome. She had difficulty engaging in the treatment in several ways, which seemed partly related to her basic personality:

- she was passive and vague in her responses, often mumbling minimally -- like "mhmm; yes; no; I don't know";
- she demonstrated inconsistent motivation during and outside of sessions and held a skeptical, hopeless attitude about psychotherapy;

- she was deeply entrenched in negative thinking and very self-critical, both of which sometimes prevented her from focusing and completing the task at hand;
- she often ignored the therapist and when she did interact, she would often initiate arguments;
- she had a tendency for external attributions, blaming her physical pain on the weather and her MS rather than acknowledging her own role in it; and
- she relied on avoidance and resistance as her primary defenses, which often caused her to evade examining her problems and openly discussing her emotions.

In addition, Soldier 1 had bonafide cognitive difficulties, although it is unclear whether they were brought on by her MS or her active PTSD flashbacks ("It's still just as present as if it happened yesterday."). Specifically, she had memory problems, poor concentration, and executive functioning problems, which manifested in her trouble comprehending and recalling CBT concepts, listening to instructions, focusing on goals ("Where was I going with this thought?"), problem solving, and generating new thoughts. Finally, there were some possible therapist-related factors as her therapist was slow to bring Soldier 1 back to task and was inconsistent in redirecting her (for example, when the patient ignored her questions or was illogical).

Soldier 2 Outcome

Quantitative indicators.

As with Soldier 1, Tables 1 and 2 show the results of the five measures used to

monitor Soldier 2's physical and mental condition at enrollment, 12 weeks post-enrollment, and 12 months post-enrollment. They also include the clinical cut-off scores and Reliable Change Index values for several measures, which were used to evaluate the clinical significance of treatment outcomes on physical and psychological symptomatology.

In contrast to Soldier 1, the results for Soldier 2 indicate that he had an overall improvement in symptoms from enrollment to 12 weeks post-enrollment, and that this improvement continued at 12 month post-enrollment in most areas. Specifically, his physical symptom severity and physical functioning, as seen in his PHQ-15 score, went from a 20 -- well above the "red" clinical flag of 15 -- to a 9, which is below the clinical range. In addition his physical symptom severity and physical functioning, as seen in his SF-36V, showed statistically significant improvement on the Physical Functioning and Physical Role Limitation scales.

Moreover, while on the PTSD Checklist Soldier 1 showed a deterioration from enrollment to 12 months post-enrollment, during this time Soldier 2 showed a statistically significant improvement, 79 to 53, bringing him very close to the clinical cut-off score of 50.

Like Soldier 1, Soldier 2 had a positive outcome on reducing his catastrophic thinking about his physical pain, from a 20 to a 15 on the Catastrophizing Scale.

Soldier 2's Brief COPE results were mixed. From enrollment to 12 months post-enrollment, he improved in using more behavioral disengagement, humor, and self-distraction, and less substance abuse. On the other hand, over this time he used less active coping, emotional support, and acceptance; and more denial.

Qualitative indicators.

There were several qualitative indicators of Soldier 2's successful treatment outcome. At the close of treatment, he noted a number of positive changes in his life which he attributed to his therapy work. He was now able to recognize when he was feeling stress and understand how he had contributed to it with his negative thinking ("I realized a lot . . . when things came up. . . I realized that I caused a lot of stress on myself. . . and that I can't demand respect from anybody"). He reported a general decrease in emotional stress due to his using alternative, rational thoughts to control his anger and disappointment towards others ("I've got less stress now than in the beginning"). For example, he discussed a recent encounter with the welfare office regarding his disability status and described how he had successfully reduced his frustration through utilizing new thoughts: "Well, I just said to myself 'the system' - I would prefer if the system was more fair. . . but that's how the system is."

Soldier 2 also talked about his response to a change in his upcoming surgery date and that, unlike in the past, he had managed to control his anger and remain calm. In addition, he had learned to accept that people and the world are "not perfect" and was "reaching out more," all of which was helping him experience better interactions in his personal life, such as receiving help from his AA peers who were "stepping up to the plate" at meetings.

Comparison of the quantitative and qualitative indicators.

Soldier 2's quantitative and qualitative indicators mostly agree with each other and generally point to a successful treatment outcome. He reported that he was dealing

better with his physical pain ("It's not unbearable.") and had become more accepting and less angry when confronted with difficult situations.

In his final treatment sessions, Soldier 2 provided slightly conflictual information about his physical functioning. At first, he stated that his condition was worsening as he required surgery ("I'm kind of like falling apart. . . I already got other pain issues."). Later, however, he said that he was walking better and only "a little uncomfortable. . . but I still manage to do it [work]." He expressed concern about not letting others know about his ability to work "Cause then I won't get my social security. . . and I won't get from my car accident, you know what I mean?" Nevertheless, the quantitative results support his latter account of an ameliorating physical state (PHQ = 20 at enrollment, 10 at 12 weeks post-enrollment, and 9 at 12 months post-enrollment; SF-36V = 14.94 at enrollment, 23.36 at 12 weeks post-enrollment, and 29.67 at 12 months post-enrollment). There was no discussion of Soldier 2's PTSD in the therapy even though the quantitative data showed a high level of posttraumatic stress symptoms at enrollment (PCL-C = 79) and a significant decrease following treatment (PCL-C = 66 at 12 weeks post-enrollment; and 53 at 12 months post-enrollment).

He showed measured improvements in his catastrophic thinking and coping skills at 12 weeks post-enrollment, and used humor throughout the sessions which, although never discussed, was reflected in his Brief COPE scores (enrollment: 3; 12 weeks post enrollment: 5).

How the therapy contributed to the outcome.

The therapy seemed to play an important role in Soldier 2's successful outcome. First he learned to recognize the types of thoughts that contributed to his stress

(especially “should” thoughts) and his role in maintaining them. Moreover, he was responsive to the therapist's encouragement to actively change his thinking and his behavior. Soldier 2 was acquiring a new, healthier repertoire of coping skills, such as greater acceptance of people and systems. And as he did so, he was able to see the positive effects on his stress levels as well as his relationships with others -- he became less angry and combative, and his friends and peers became more supportive and open. Lastly, although he still reported some physical pain, he was learning how to change his thinking about it (“It’s bearable. . . I’ll get better in time. . . I’ll have some pain now but later I’ll be ok.”), which consequently lowered his stress. The therapist and Soldier 2 agreed that he did not require further therapy at termination of the 10 therapy sessions.

In terms of additional components that may have affected Soldier 2’s treatment outcome, one should consider the personality factors of both patient and therapist. To begin, Soldier 2 was constantly active in his therapy sessions, spontaneously asking questions and openly sharing his specific thoughts and feelings. He showed tremendous motivation and did not hesitate from experimenting with his new cognitive thoughts outside of sessions. Although he had some fixed beliefs about people and the world (“They *should* have. . . ”) when he started treatment, he showed considerable flexibility over time, learning to change his expectations in order to help himself feel better.

During the sessions, he exhibited a solid ability to focus and stay on task, often repeating the goals of the treatment aloud (“. . . to get me to a point where. . . it’s [the stress] manageable”). Though he was able to generate some new alternative thoughts of his own, he preferred to incorporate the therapist’s suggestions into his repertoire and had a knack for repeating her phrases verbatim, like a soldier following a drill sergeant.

Overall, Soldier 2 had a positive, hopeful attitude about therapy and a clear understanding of what it entailed. He acknowledged his role in adding physical and emotional stress to his life, and he was eager to change his ways. As for his relationship with his therapist, there was a clear agreement on treatment goals from the outset: "[Soldier 2] The goal is to get me over there – [to] effective new philosophies. [Therapist] Exactly." Aside from frequently sharing humor in sessions, Soldier 2 and his therapist also began to mirror each other's language, which further suggests his increasing internalization of the therapy. Moreover, the therapist stayed very close to the treatment protocol and, when necessary, firmly redirected the patient to the task at hand. Although she could appear brusque at times and exhibited questionable handling of the termination process with the patient, Therapist 2 seemed to be a good match for Soldier 2 as she shared his motivated work ethic and his thinking style; as much as he talked about emotions, he clearly had an ability for rote learning, which suited the therapist's manner of teaching.

Cross-Case Comparison of Soldiers 1 and 2

Quantitative indicators.

Overall, the results in Tables 1 and 2 indicate that the two soldiers had largely opposite quantitative indicators (except for catastrophic thinking) and treatment outcomes both at 12 weeks and 12 months post-enrollment: Soldier 1 showed a worsening of most symptoms, while Soldier 2 had a general improvement of most symptoms.

As for physical functioning, Soldiers 1 and 2 demonstrated little commonality in both symptom severity and improvement. As shown in Table 1, at enrollment, Soldier 1 had a healthier level of physical symptomatology than Soldier 2 (PHQ-15 of 13 versus

20, respectively, where lower scores are healthier, and a difference of 5 points is considered clinically significant [Kroenke et al., 2002]). On the SF-36V Soldier 1 also had a higher level of Physical Functioning than Soldier 2 (33.88 versus 14.94, respectively, where higher scores are healthier).

During the course of treatment, however, Soldier 1's physical condition worsened at the 12-week time point on the SF-36V Physical Functioning scale, and then worsened more at the 12-month time point, with the drop from enrollment to 12 months being statistically significant on the RCI test. On the PHQ-15, Soldier 1 showed very little change at 12 weeks or 12 months (see Table 1).

In contrast, Soldier 2 showed significant improvement on the PHQ-15 at 12 weeks (from 20 to 10), which was sustained at 12 months (with a score of 9). Also, on the SF-36V Physical Functioning scale, Soldier 2 improved substantially, from 14.94 at enrollment, to 23.36 at the 12-week time point, to 29.67 at the 12-month time point. The two latter scores both showed statistically significant improvement over enrollment via the RCI test.

In sum, Soldier 1 started out with considerably less physical symptomatology than Soldier 2 and generally deteriorated, while Soldier 2 improved considerably so that he ended with very similar scores at the 12-month time point as Soldier 1.

Although both soldiers still met criteria for PTSD at week 12 and later follow-up, their levels of severity and change were markedly different. Soldier 1 showed a small, short-term reduction in her PTSD symptoms after 12 weeks (her PCL-C score went down from 62 to 58), but then her PCL-C score indicated a major increase in PTSD symptoms that was statistically significant via the RCI test at the 12-month point.

In contrast to Soldier 1's initial PCL-C score of 62, Soldier 2 began treatment with a much higher PCL-C score of 79; but he then had a steady, meaningful improvement in his symptoms both at the 12-week point (score of 66) and at 12 month follow-up (score of 53), with both increases statistically significant via the RCI test.

The soldiers began therapy with different degrees of catastrophic thinking related to their symptoms, with Soldier 1 (Catastrophizing Scale: 9) showing a lesser tendency to catastrophize than Soldier 2 (Catastrophizing Scale: 20). However, both experienced a large, comparable decline by the end of treatment (5 and 14, respectively) followed by a slight increase at 12 months (6 and 15, respectively).

Finally, Soldier 1 made more short-term gains in her coping skills (see Table 2: 12 weeks post-enrollment), like positive reframing and self-distraction, than Soldier 2 -- aside from his significant decrease in venting. Nevertheless, both soldiers had difficulty maintaining long-term use of their similar, beneficial strategies – especially those involving denial, acceptance, active coping, use of emotional support, and self-blame (see Table 2: 12 months post-enrollment).

Qualitative indicators.

Soldiers 1 and 2 exhibited several similarities and differences in relation to the qualitative indicators of their treatment outcomes. Overall, both soldiers felt that they had benefitted from therapy. Specifically, Soldier 1 noted her new ability to recognize old cognitive habits that were keeping her emotionally and physically “stuck”; and Soldier 2 highlighted a number of positive changes in his life, such as decreased stress and anger.

In terms of their PTSD, only Soldier 1 openly discussed her condition as well as the fact that she was still experiencing difficulty with flashbacks, poor concentration, and

hopelessness. As mentioned above, Soldier 1 continued to use avoidance to cope with her symptoms and had doubts about whether she could recover from her traumatic experiences. Nevertheless, she demonstrated a new awareness for how her coping mechanisms were negatively affecting her life.

At the end of treatment, both soldiers reported ongoing issues with physical pain and functioning, although Soldier 2's accounts were somewhat inconsistent. Specifically, Soldier 1 talked about emotional stress manifesting itself in her body, while Soldier 2 fluctuated between complaining of new neck pain and potential discomfort after the surgery on his foot to stating that he was only "a little uncomfortable."

In their final sessions, Soldiers 1 and 2 reviewed their progress in the treatment and the degree to which they had developed skills in creating and using new cognitive thoughts to lower their stress. Although both soldiers had learned to recognize moments of stress and their related negative thoughts, only Soldier 2 was able to consistently apply his new alternative thoughts, and consequently, experience a significant reduction in stress and improvements in his relationships. Soldier 1 did not yield the same results as regards her own treatment outcome, but was open to acknowledging the important work that lay ahead for her.

Comparison of the quantitative and qualitative indicators.

In the case of both Soldier 1 and Soldier 2, the quantitative and qualitative indicators generally agree with each other and support the patients' treatment outcomes. Soldier 1's indicators suggest that, despite her improvements in self-awareness and catastrophic thinking, she continued to have difficulties with physical functioning, PTSD-related symptoms, and coping strategies. In a similar way, Soldier 2's indicators mostly

point to gains in coping skills, catastrophic thinking, and physical functioning. There was an absence of explicit discussion in the therapies regarding both Soldier 1's amelioration in catastrophic thinking and Soldier 2's significant improvement of PTSD.

Comparison of factors contributing to treatment outcomes.

Although both soldiers felt that the therapy protocol had helped them, it appears that Soldier 2 demonstrated the greatest gains and success in treatment outcome. Why? In order to understand the different results, it is important to consider a number of factors. First, there was the role of the therapeutic intervention itself; second, the personality and cognitive functioning of the patient; and third, the working relationship between the patient and the therapist.

In Soldier 1's case, although her progress was limited, the therapy itself did bring about some positive effects. Especially, it increased her awareness of her tendency for avoidance and self-criticism; it provided her with an encouraging atmosphere in which to begin replacing this tendency with healthier alternative strategies; and it helped decrease her fears about looking into her past as well as socializing.

Similarly, Soldier 2 made improvements in self-awareness and interpersonal relationships in a positive, supportive environment. There were several differences, however, between these two patients. Overall, Soldier 2 was more ready and able to apply new cognitive thoughts to his life on a more consistent basis, thereby decreasing his stress. What explains such a difference?

Although the two soldiers initially shared a number of problems in common -- high levels of physical and emotional stress, PTSD, negative cognitions, and difficulty trusting others -- there were at least two differing components that played a part in their

contrasting treatment outcomes: personality and degree of condition. From early on, Soldier 2 showed a level of motivation, engagement, focus, and flexibility in his thinking that was absent in Soldier 1. He was quick to grasp the point of therapy and the concept of “disputing beliefs,” and seemed hopeful about making changes. In contrast, Soldier 1 was often “confused” about the treatment and typically presented with a passive, depressed, skeptical -- sometimes even oppositional -- state.

Over the course of treatment, Soldier 2 learned to accept new views about others, which he eventually translated into real practice and, consequently, lowered his stress level. Soldier 1, however, stayed fixed in her worldview and continued to try to fight “the system” (e.g., her children’s foster parents), which only caused her additional stress and disappointment. Whereas Soldier 1 spent time overanalyzing her therapist’s suggestions, Soldier 2 rarely did so, instead frequently rattling off his therapist’s words verbatim almost as quickly as she could speak them. Soldier 2 could easily recall his therapist’s alternative examples, while Soldier 1 struggled to do so, often answering, “I don’t know.” Soldier 2 was very open in sharing and connecting to his thoughts and feelings, while Soldier 1 remained vague, guarded, and somewhat emotionally numb.

Perhaps another difference between the soldiers was how they perceived the roots of their illnesses. Soldier 1 continued to believe that her physical pain was caused by the weather and her MS, while Soldier 2 became increasingly aware and accepting of his own psychological role in contributing to his physical and emotional stress.

Unlike Soldier 2, Soldier 1 manifested personality-disorder traits. These traits are associated with the DSM-IV diagnostic categories of "Avoidant Personality Disorder" and "Passive-Aggressive Personality Disorder," and hence her diagnosis of "R/O

Personality Disorder NOS" in Table 3. These traits included being preoccupied with criticism and rejection in social situations; viewing herself as unappealing to others; being inhibited in new interpersonal situations because of feelings of inadequacy; passively fulfilling tasks; being sullen and argumentative; and alternating between hostility and contrition. These types of traits very likely contributed to her poor outcome in the therapy; and the lack of such traits in Soldier 2 very likely helped to contribute to his successful positive outcome. The role of such personality-disorder traits should clearly be taken into consideration in future clinical work and research in applying cognitive-behavioral treatments with Gulf War Syndrome patients. (For relevant publications in the cognitive-behavioral field, see the work of Linehan and Dexter-Mazza [2008], with borderline personality disorder; and the work of Sperry [2006], with the full range of DSM-IV personality disorders.)

Such variances between the two soldiers could also be attributed to factors like Soldier 2's prior therapy experience – particularly since his had been one of a similarly pragmatic nature -- and Soldier 1's lack of such experience. But there were other issues that likely placed Soldier 1 at a disadvantage vis-a-vis Soldier 2, specifically, MS and active PTSD-related flashbacks. One might argue that both conditions played a key role in Soldier 1's poor treatment outcome. Finally, in line with her symptomatology and other personal characteristics, Soldier 1 demonstrated difficulty with the following cognitive abilities: concentration on tasks and goals, comprehension and encoding of new concepts, problem solving, and recall (e.g., of specific cognitive tools). All of these skills are essential in a patient's ability to overcome negative thinking and incorporate new, healthier ways of thinking and behaving into his/her life.

Finally, in looking at treatment outcome factors, it is important to consider the working relationship of the patient-therapist dyads and individual traits of the therapists. In terms of similarities, both pairs were committed to the same treatment goals and frequently used humor in their interactions. Additionally, both therapists identified their patients' chief problems, consistently checked homework, maintained a collaborative working style, regularly challenged their patients' cognitions, provided encouragement and positive feedback, highlighted connections between patients' cognitions and stress, gave numerous examples of rational thoughts, and continuously checked in with the patients to make sure they understood the therapeutic concepts.

As alike as the therapists were in their work with Soldiers 1 and 2, they also exhibited some stylistic differences: Therapist 2 was rather dogmatic and directive in keeping Soldier 2 on task, while Therapist 1 appeared to have some difficulty doing so with her patient – this was apparent in moments when Soldier 1 would spend up to 10 minutes speaking about an unrelated topic. Therapist 1 behaved in a more empathic manner than Therapist 2, as reflected in her tone of voice and the amount of time spent inquiring about her patient's emotional state; Therapist 1 provided her patient with more psychoeducation about emotions, whereas Therapist 2 often talked with her patient about the effects of cognitions; and finally, Therapist 1 spent several sessions addressing termination -- discussing Soldier 1's feelings about it as well as making future treatment plans, while Therapist 2 only briefly touched on termination and appeared uncomfortable and avoidant in discussing the patient's emotional reaction to it.

In comparing the work of both therapists, it seems that Therapist 1 had some additional characteristics that might have impacted Soldier 1's poorer treatment outcome.

On several occasions, she joined with the patient regarding the legitimacy of a therapeutic concept, possibly lessening its impact on the patient (Patient: "Yeah, when you say it I'm thinking 'you gotta be kidding?' " [laughs]; Therapist: "I know. Right? [laughs]"). At other times, Therapist 1 appeared uncomfortable when her patient was avoiding a topic and -- rather than bring her back to it -- quickly permitted the patient to move away, thereby neglecting the original treatment focus. A number of times, Therapist 1 emphasized the difficulty of thinking in a new way to her patient. Although this approach was meant to be normalizing, it seemed to have had a negative effect on Soldier 1 as seen in her somewhat hopeless attitude which followed the therapist's statements. Finally, Therapist 1 showed inconsistency in guiding her patient through the therapy, such as when she hesitantly asked Soldier 1, "I *wonder* if we should work on the depression."

As the two soldiers were so different in their responsiveness to the treatment, with Soldier 2 being much more receptive and easier to keep focused than Soldier 1, one might consider whether the outcomes would have differed if the soldiers had worked with other therapists. For example, if Therapist 1 had been assigned to Soldier 2, Therapist 1's inconsistent guidance may have had less of an impact since Soldier 2 was clearly motivated and often initiated talking about where he was "stuck." And if Therapist 2 had been assigned to Soldier 1, the patient's outcome may have been better as Soldier 1 seemed to require a higher level of structure and constant direction which Therapist 1 lacked.

Summary

According to the WRIISC study, GWS patients were to be treated with CBT therapy for 10 sessions. The goal entailed providing them with new alternative thoughts,

via cognitive restructuring, in order to help them reduce their levels of emotional and physical stress. In both soldiers' cases, such a treatment was undertaken. The results, however, indicate opposite outcomes. Soldier 1, although more self-aware of her "stuck" points and less self-critical, remained symptomatic for poor physical functioning and PTSD. As her therapist stated, Soldier 1 was "transitioning" from her old cognitive habits to newer, healthier ones, but was not yet able to put her new skills into practice. For Soldier 2, on the other hand, the brief CBT model proved to be effective. He showed signs of improvement for most of his issues, especially stress and physical functioning.

What may have been the cause for such diverse outcomes? Why did Soldier 2 have more success with his treatment than Soldier 1? At enrollment, both soldiers shared diagnoses of GWS and PTSD, including poor physical states; and both had difficulty accepting the imperfectness of people and "systems." In addition, their therapists had more similarities than differences in their delivery of the manualized treatment. On the other hand, the two soldiers had considerable differences. Aside from their personalities -- including Soldier 2's higher motivation and greater openness to the Brief CBT model, Soldiers 1 and 2 had varying illnesses and levels of cognitive functioning.

During the treatment, Soldier 1's PTSD-related flashbacks became more active and she was overwhelmed by the increasingly debilitative effects of her MS. Regardless of cause, she clearly struggled in areas of memory, concentration, comprehension, and problem solving, all of which likely contributed to her poor treatment outcome. In contrast, Soldier 2 showed no such signs and his PTSD had significantly declined by the end of the therapy (albeit he still met criteria for PTSD). This being said, of course one

would need to compare more GWS cases with this particular treatment in order to make a definitive conclusion about the impact of various factors on treatment outcome.

In looking to future work regarding CBT approaches with GWS, several recommendations could be made. To begin, it appears that taking more frequent quantitative measures (e.g., weekly) could provide therapists with more feedback about their patients' progress, leading to more appropriate and successful individual interventions. One may also consider whether certain patients, such as those with MS and active PTSD flashbacks, should be screened out and referred first for more appropriate treatments -- e.g., exposure therapy (Foa, Hembree, & Rothbaum, 2007) or cognitive processing therapy (Resick, Monson, & Chard, 2007) for the PTSD.

In addition, it seemed that Soldier 1 was starting to make progress at the end of the 10 sessions and was motivated to continue with her therapist, having established a good relationship with her. While whether in fact the two continued to work together and for how long is not available, and while Soldier 1's outcome at 12 months post-enrollment does not look particularly favorable, it seems very possible that there are some patients who can profit from CBT treatment for their GWS symptoms but need longer than 10 sessions. The different courses of therapy for different patients like Soldiers 1 and 2 suggest places to look deeply for factors that distinguish patients who can do well in 10 sessions and patients who require more time to progress.

In conclusion, the two, in-depth case studies of Soldiers 1 and 2 presented here suggest how intertwined are the multiple psychological, physical, and life-circumstance problems that GWS patients bring to the therapy office, and how complex are the reciprocally interacting forces in their lives. These and other such case studies thus

challenge the CBT community to develop and adapt their strategies and procedures to the multiple needs of GWS patients.

Table 1
Intake and Outcome Measures for Soldiers 1 and 2

			SOLDIER 1			SOLDIER 2		
Scale	Healthier Functioning Indicated by ...	Clinical Cut-Off Score	Enrollment	12 Weeks Post-Enrollment	12 Months Post-Enrollment	Enrollment	12 Weeks Post-Enrollment	12 Months Post-Enrollment
Patient Health Questionnaire - 15 (PHQ-15)	lower scores	15: red flag; 10: yellow flag	13	14	12	20	10#	9#
Veterans Short Form – 36 Health Status Questionnaire (SF-36V)	higher scores							
Physical Functioning		45	33.88	29.67 (-1.13)	25.27 (-2.30)*	14.94	23.36 (2.25)*	29.67 (3.94)*
Physical Role Limitation		45	32.86	39.71 (1.46)	27.47 (-1.15)	17.67	25.75 (1.72)	32.36 (3.13)*
Bodily Pain		45	32.96	37.18 (.94)	32.96 (0.0)	24.93	29.15 (.94)	29.15 (.94)
Vitality		45	30.33	30.33 (0.0)	25.54 (-.91)	35.12	39.91 (.91)	20.74 (-2.72)*
PTSD Checklist (PCL-C)	lower scores	50	62	58 (-1.41)	68 (2.12)*	79	66 (-4.59)*	53 (-9.19)*
Catastrophizing Scale	lower scores	n/a	9	5	6	20	14	15

*= $p < .05$, for RCI values greater than 1.96, which constitutes a "statistically reliable" and "meaningful" difference in pre-to-post treatment scores (Ferguson et al., 2002). Note that all the RCI calculations involve a comparison of the enrollment score with either a 12 week or 12 month follow-up.

A decrease of 5 points or more is considered clinically significant improvement (Kroenke et al., 2002). Note that the PHQ-15 comparisons are between the enrollment score and either a 12 week or 12 month follow-up.

Table 2
Brief COPE Results for Soldiers 1 and 2

	SOLDIER 1			SOLDIER 2		
Strategy	Enrollment	12 Weeks Post-Enrollment	12 Months Post-Enrollment	Enrollment	12 Weeks Post-Enrollment	12 Months Post-Enrollment
Active coping	3*	4	3	4	3	2
Denial	3	2	3	3	4	4
Substance Abuse	2	0	1	3	3	0
Use of emotional support	1	3	1	3	3	0
Use of instrumental support	1	2	1	0	0	0
Behavioral disengagement	1	0	2	3	3	2
Venting	2	2	3	6	3	1
Positive reframing	1	4	3	1	1	1
Planning	2	4	4	2	0	2
Humor	2	2	3	3	5	4
Acceptance	4	4	3	3	1	1
Self-blame	3	2	4	3	1	3
Self-distraction	6	1	1	0	1	2

* higher scores represent greater use of the coping strategy

Table 3
DSM-IV (American Psychiatric Association, 1994) Diagnosis for Soldiers 1 and 2

Soldier 1

Axis I:	309.81 Posttraumatic Stress Disorder, severe
	296.30 Major Depressive Disorder
Axis II:	R/O 301.9 Personality Disorder NOS
Axis III:	340 Sclerosis, multiple (MS)
	715.90 Osteoarthrosis (osteoarthritis)
	272.0 Hypercholesterolemia
	596.54 Neurogenic bladder NOS
Axis IV:	Lack of social support, inadequate finances, unemployment
Axis V:	GAF = 40 (at intake)
	GAF = 50 (at termination)

Soldier 2

Axis I:	309.81 Posttraumatic Stress Disorder
	303.90 Alcohol Dependence, sustained full remission
	304.20 Cocaine Dependence, sustained full remission
	309.9 Adjustment Disorder NOS, unspecified
Axis II:	deferred
Axis III:	272.0 Hypercholesterolemia
	491.20 Bronchitis, obstructive chronic (COPD), without acute exacerbation
	278.00 Obesity
	530.81 Esophageal reflux
	724.2 Low back pain
Axis IV:	Inadequate finances, inadequate housing, unemployment, discord with family and friends
Axis V:	GAF = 45 (at intake)
	GAF = 55 (at termination)

REFERENCES

Andrusyna, T.P., Tang, T.Z., DeRubeis, R.J., & Luborsky, L. (2001). The factor structure of the Working Alliance Inventory in cognitive-behavioral therapy. *Journal of Psychotherapy Practice and Research*, *10*, 173-178.

Baldwin, S.A., Wampold, B.E., & Imel, Z.E. (2007). Untangling the alliance-outcome correlation: exploring the relative importance of therapist and patient variability in the alliance. *Journal of Consulting and Clinical Psychology, 75*(6), 842-52.

Benjamin, L.S. (1974). Structural Analysis of Social Behavior. *Psychological Review*, *81*, 392-425.

Benjamin, L.S., Foster, S.W., Roberto, L.G., & Estroff, S.E. (1986). Breaking the family code: Analysis of videotapes of family interactions by Structural Analysis of Social Behavior (SASB). In L.S. Greenberg & W. Pinsof (Eds.), *The psychotherapeutic process: A research handbook* (pp. 391-438). New York: Guilford Press.

Bjorner, J.B., Wallenstein, G.V., Martin, M.C., Lin, P., Blaisdell-Gross, B., Tak Piech, C., & Mody, S.H. (2007). Interpreting score differences in the SF-36 Vitality scale: using clinical conditions and functional outcomes to define the minimally important difference. *Current Medical Research and Opinion*, *23*(4), 731-9.

Boscarino, J.A. (2004). Posttraumatic Stress Disorder and physical illness: Results from clinical and epidemiologic studies. *Annals of the New York Academy of Sciences*, *1032*, 141–153.

Carver, C. S. (1997). You want to measure coping but your protocol's too long: Consider the Brief COPE. *International Journal of Behavioral Medicine*, *4*(1), 92-100.

Carver, C.S., Scheier, M.F., & Weintraub, J.K. (1989). Assessing coping strategies: A theoretically based approach. *Journal of Personality and Social Psychology, 56*, 267-283.

Cohen, H., Neumann, L., Haiman, Y., Matar, M.A., Press, J., & Buskila, D. (2002). Prevalence of Post-Traumatic Stress Disorder in fibromyalgia patients: Overlapping syndromes or post-traumatic fibromyalgia syndrome? *Seminars in Arthritis and Rheumatism*, *32*(1), 38-50.

Cruz, A.C. (2006). *Medically unexplained symptoms: A look at the interdependency among some psychological variables and the experience of symptoms.* Retrieved from Dissertations and Theses database. (AAT 3193332)

David, D., Lynn, S. & Ellis, A. (2009). *Rational and irrational beliefs: Research, theory, and clinical practice.* New York: Oxford University Press.

Davis, S. (2005). *Common and model-specific factors: What marital therapy model developers, their former students, and their clients say about change*. Retrieved from Dissertations and Theses database. (URN etd-03232005-172348)

DeRubeis, R.J. & Feeley, M.F. (1990). Determinants of change in cognitive therapy. *Cognitive Therapy and Research*, *14*(5), 469-482.

Donta, S.T., Clauw, D.J., Engel, C.C., Guarino, P., Peduzzi, P., Williams, D., . . . Feussner, J.R. (2003). Cognitive behavioral therapy and aerobic exercise for Gulf War Veterans' illnesses. *The Journal of the American Medical Association, 289*, 1396-1404.

Elkin, I., Shea, M.T., Watkins, J.T., Imber, S.D., Sotsky, S.M., Collins, J.F., . . . Parloff, M.B. (1989). National Institute of Mental Health Treatment of Depression Collaborative Research Program: General effectiveness of treatments. *Archives of General Psychiatry, 46*(11), 971-982.

Elvins, R., & Green, J. (2008). The conceptualization and measurement of therapeutic alliance: An empirical review. *Clinical Psychology Review*, *28*(7), 1167-1187.

Engel, C.C. (2001). Outbreaks of medically unexplained physical symptoms after military action, terrorist threat, or technological disaster. *Military Medicine*, *166*, 47-48.

Fenton, L.R., Cecero, J.J., Nich, C., Frankforter, T.L., & Carroll, K.M. (2001). Perspective is everything: The predictive validity of six working alliance instruments. *Journal of Psychotherapy Practice and Research*, *10*, 262-268.

Ferguson, R.J., Robinson, A.B., & Splaine, M. (2002). Use of the Reliable Change Index to evaluate clinical significance in SF-36 outcomes. *Quality of Life Research*, *11*, 509-516.

Fishman, D.B. (2005). Editor's introduction to PCSP -- From single case to database: A new method for enhancing psychotherapy practice. *Pragmatic Case Studies in Psychotherapy, 1*(1). Available from http://pcsp.libraries.rutgers.edu

Fishman, D.B. (2008, June). Case studies of good and poor outcome in randomized clinical control clients: A new, "individual-case-comparison" method for psychotherapy research. Paper presented at the annual meeting of the Society for Psychotherapy Research, Barcelona, Spain.

Foa, E., Hembree, E., & Rothbaum, B.O. (2007). *Prolonged Exposure Therapy for PTSD: Emotional Processing of Traumatic Experiences - Therapist Guide*. New York, NY: Oxford University Press.

Folkman, S., & Lazarus, R.S. (1988). Coping as a mediator of emotion. *Journal of Personality and Social Psychology. 54*, 466-475.

Ford, J.D. (1978). Therapeutic relationship in behavior therapy: An empirical analysis. *Journal of Consulting and Clinical Psychology*, *46*(6), 1302-1314.

Garfield, S.L. (1995). The client-therapist relationship in rational-emotive therapy. *Journal of Rational-Emotive and Cognitive-Behavior Therapy*, *13*(2), 101-116.

Goldberg, D.L., & Sandhu, H.S. (2002). Fibromyalgia and Post-Traumatic Stress Disorder: Another piece in the biopsychosocial puzzle. *Seminars in Arthritis and Rheumatism*, *32*(1), 1-2.

Guarino, P., Peduzzi, P., Donta, S.T., Engel, C.C., Clauw, D.J., Williams, D.A., . . . Fuessner, J.R. (2001). A multicenter two by two factorial trial of cognitive behavioral therapy and aerobic exercise for Gulf War veterans' illnesses: Design of a veterans affairs cooperative study (CSP #470). *Controlled Clinical Trials, 22*, 310-332.

Hellman, C.J., Budd, M., Borysenko, J., McClelland, D.C., & Benson, H. (1990). A study of the effectiveness of two group behavioral medicine interventions for patients with psychosomatic complaints. *Behavioral Medicine, 16*(4), 165-173.

Horvath, A.O., & Luborsky, L. (1993). The role of the therapeutic alliance in psychotherapy. *Journal of Consulting and Clinical Psychology*, *61*, 561-5.

Horvath, A.O., & Symonds, B.D. (1991). Relation between working alliance and outcome in psychotherapy: A meta-analysis. *Journal of Counseling Psychology*, *38*(2), 139-149.

Hotopf, M. (2003). Treating Gulf War Veterans' illnesses – Are more focused studies needed? *Journal of the American Medical Association, 289*, 1436-1437.

Hotopf, M., David, A., Hull, L., Nikalaou, V., Unwin, C., & Wessely, S. (2004). Risk factors for continued illness among Gulf War Veterans: A cohort study. *Psychological Medicine*, *34*, 747-754.

Hughes, A. A., & Kendall, P. C. (2007). Prediction of cognitive behavior treatment outcome for children with anxiety disorders: Therapeutic relationship and homework compliance. *Behavioural and Cognitive Psychotherapy*, *35*, 487-494.

Institute of Medicine (2001). *Gulf War Veterans: Treating symptoms and syndromes*. Washington, D.C.: National Academy Press.

Ismail, K., & Lewis, G. (2006). Multi-symptom illnesses, unexplained illness and Gulf War Syndrome. *Philosophical Transactions of the Royal Society B*, *361*, 543–551.

Iversen, A., Chalder, T., & Wessely, S. (2007). Gulf War Illness: Lessons from Medically Unexplained Symptoms. *Clinical Psychology Review*, *27*(7), 842-854.

Jacobson, N.S., & Truax, P. (1991). Clinical Significance: A Statistical Approach to Defining Meaningful Change in Psychotherapy Research. *Journal of Consulting and Clinical Psychology*, *59*(1), 12-19.

Kazantzis, N., Deane, F., & Ronan, K. (2000). Homework assignments in cognitive and behavioral therapy: A meta-analysis. *Clinical Psychology: Science and Practice*, *7*, 189- 202.

Kazdin, A. (2007). Mediators and mechanisms of change in psychotherapy research. *Annual Review of Clinical Psychology*, *3*, 1-27.

Kazdin, A. (2007). Systematic evaluation to improve the quality of patient care: From hope to hopeful. *Pragmatic Case Studies in Psychotherapy*, *3*(4), 37-49.

Kazis, L.E., Austin, F.L., Spiro, A., Miller, D. R., Rogers, W., Ren, X. S., & Zhang, M. (2002). HOS/VA Comparison Project. Health Outcomes Technology Program. http://www.cms.hhs.gov/surveys/hos/download/HOS_VA_Comparison_Project_Part2.pdf

Kroenke, K., Spitzer, R.L., & Williams, J.B.W. (2002). The PHQ-15: Validity of a new measure for evaluating the severity of somatic symptoms. *Psychosomatic Medicine*, 64, 258-266.

Krupnick, J.L., & Pincus, H.A. (1997). Current directions in psychotherapy research. In P.J. Wilner (Ed.), *Psychiatry*. Philadelphia: Lippincott-Raven.

Lashof, J.C., & Cassells, J. (1998). Illness among Gulf War Veterans: Risk, factors, realities, future research. *Journal of the American Medical Association, 280*, 1010-1011.

Linehan, M.M., & Dexter-Mazza, E.T. (2008). Dialectical behavioral therapy for borderline personality disorder. In Barlow, D.H. (Ed.). Clinical handbook of psychological disorders: A step-by-step treatment manual (4th ed.), pp. 365-420. New York: Guilford Press.

Locke, S.E., Budd, M., & Ford, P. (1995). *PHIP Facilitator Manual*. Unpublished manual.

Martin, D.J., Garkse, J.P., & Davis, M.K. (2000). Relation of the therapeutic alliance with outcome and other variables: A meta-analytic review. *Journal of Consulting and Clinical Psychology, 68*(3), 438-50.

McHorney, C.A., Ware, J.E., Jr., Lu, J.F., & Sherbourne, C.D. (1994). The MOS 36-Item Short-Form Health Survey (SF-36): III. Tests of quality, scaling assumptions, and reliability across diverse patient groups. *Medical Care, 32,* 40-66.

O'Malley, S.S., Suh, C.S., & Strupp, H.H. (1983). The Vanderbilt Psychotherapy Process Scale: A report on the scale development and a process-outcome study. *Journal of Consulting and Clinical Psychology*, *51*(4), 581-86.

Orlinsky, D.E., Ronnestad, M.H., & Willutski, U. (2004). Fifty years of psychotherapy process-outcome research: Continuity and change. In M. J. Lambert (Ed.), *Bergin and Garfield's Handbook of Psychotherapy and Behavior Change* (5th Ed., pp. 307-389). New York: John Wiley & Sons.

Osman, A., Barrios, F.X., Kopper, B.A., Hauptmann, W., Jones, J., & O'Neill, E. (1997). Factor structure, reliability, and validity of the Pain Catastrophizing Scale. *Journal of Behavioral Medicine*, *20*, 589-605.

Ouimette, P., Cronkite, R., Henson, B.R., Prins, A., Gima, K., & Moos, R.H. (2004). Posttraumatic Stress Disorder and Health Status Among Female and Male Medical Patients. *Journal of Traumatic Stress, 17*(1*),* 1–9.

Persons, J. B. (1989). *Cognitive Therapy in Practice: A Case Formulation Approach.* New York: W.W. Norton & Company.

Peterson, D.R. (1991). Connection and disconnection of research and practice in the education of professional psychologists. *American Psychologist, 46*, 422-429.

Piper, W.E., Ogrodniczuk, J.S., Joyce, A.S., McCallum, M., Rosie, J.S., O'Kelly, J.G., & Steinberg, P.I. (1999). Prediction of dropping out in time-limited, interpretive individual psychotherapy. *Psychotherapy*, *36*(2), 114-122.

Powell, P., Bentall, R.P., Nye, F.J., & Edwards, R.H.T. (2004). Patient education to encourage graded exercise in chronic fatigue syndrome: 2-year follow-up of randomised controlled trial. *British Journal of Psychiatry, 184,* 142-146.

Reis, B.F. & Brown, L.G. (2006). Preventing therapy dropout in the real world: The clinical utility of videotape preparation and client estimate of treatment duration. *Professional Psychology: Research and Practice, 37*(3), 311-316.

Resick, P.A., Monson, C.M., & Chard, K. (2007). *Cognitive Processing Therapy*. Retrieved May 1, 2008, from ISTSS Web site: http://istss.org/resources/cpt.cfm

Richardson, R., & Richards, D.A. (2006). Self-Help: Towards the next generation. *Behavioural and Cognitive Psychotherapy*, *34*, 13-23.

Safran, J.D. & Muran, J.C. (1996). The resolution of ruptures in the therapeutic alliance. *Journal of Consulting and Clinical Psychology*, *64*, 447-458.

Samstag, L.W., Batchelder, S.T., Muran, J.C., Safran, J.D., & Winston, A. (1998). Early identification of treatment failures in short-term psychotherapy: An assessment of therapeutic alliance and interpersonal behavior. *Journal of Psychotherapy Practice and Research*, *7*, 126-143.

Samstag, L.W., Muran, J.C., Wachtel, P.L., Slade, A., Safran, J.D., & Winston, A. (2008). Evaluating negative process: a comparison of working alliance, interpersonal behavior, and narrative coherency among three psychotherapy outcome conditions. *American Journal of Psychotherapy*, *62*(2), 165-94.

Smith, S.R., Hilsenroth, M.J., Baity, M.R., & Knowles, E.S. (2003). Assessment of patient and therapist perspectives of process: A revision of the Vanderbilt Psychotherapy Process Scale. *American Journal of Psychotherapy*, *57*(2), 195-205.

Sperry, L. (2006). Cognitive behavior therapy of DSM-IV-TR personality disorders: Highly effective interventions for the most common personality disorders (2nd ed.). New York: Routledge.

Sullivan, M.J.L., Bishop, S.R., & Pivik, J. (1995). The Pain Catastrophizing Scale: Development and Validation. *Psychological Assessment*, *7*, 524-532.

Sullivan, M.J.L., Lynch, M.E., & Clark, A.J. (2005). Dimensions of catastrophic thinking associated with pain experience and disability in patients with neuropathic pain conditions. *Pain*, *113*, 310-315.

Tichenor V., & Hill, C.E. (1989). A comparison of six measures of working alliance. *Psychotherapy*, *26*, 195–199.

United States Department of Veterans Affairs (2006). *Telemedicine Treatment for Veterans with Gulf War Illness*. Retrieved from http://www.clinicaltrials.gov

Vlaeyen, J.W., & Linton, S.J. (2000). Fear-avoidance and its consequences in chronic musculoskeletal pain: A state of the art. *Pain, 85*, 317-332.

Ware, J.E., & Sherbourne, C.D. (1992). The MOS 36-Item Short-Form Health Survey (SF-36): Conceptual framework and item selection. *Medical Care, 30*, 473-483.

Ware J.E., Jr,, Snow, K.K., Kosinski, M., & Gandek, B. (1993). *SF-36 health survey manual interpretation guide*. Boston, MA: The Health Institute, New England Medical Center.

Watson, J.C., Goldman, R.N., & Greenberg, L.S. (2007). *Case studies in Emotion-Focused Treatment of depression: A comparison of good and poor outcome.* Washington, D.C.: American Psychological Association.

Weathers, F.W., & Litz, B. (1993). The PTSD Checklist (PCL): Reliability, validity, and diagnostic utility. Paper presented at the Annual Convention of the International Society for Traumatic Stress Studies, San Antonio, TX.

Yovel, I., & Safren, S.A. (2006). Measuring homework utility in psychotherapy: Cognitive-behavioral therapy for Adult Attention-Deficit Hyperactivity Disorder as an example. *Cognitive Therapy and Research*, *31*, 385-399.

APPENDIX A

Overview of CBT Protocol

Overview of CBT Treatment

The full 10 sessions of CBT are outlined on the following pages. In summary, the CBT intervention will begin by providing veterans with an evidence-based explanation for their physical symptoms. A brief historical overview will be provided of war-related syndromes and the terminology used to describe these syndromes. This explanation will emphasize the prevalence of symptom-based illness and suggest it may represent a normal (benign) manifestation of war-related stress. Another subject that will be addressed through didactic lecture and reading material is the ABC model that underlies our treatment approach. This will emphasize the conventional cognitive view that "thinking causes feeling". Participants will learn that "A" stands for activating event, "B" for belief, and "C" for emotional or behavioral consequence. An example of this will be presented in which a physical symptom occurring at point A is followed by psychological distress or anxiety at point C. The model will be used to help veterans understand how a thinking error at B ("this symptom is probably a sign of fatal illness") may lead to anxiety at C. An early homework assignment, called a stress log, will be used to clarify the distinction between thinking and feeling and assist patients in becoming more aware of their automatic stress-producing thoughts. By the second session, participants will have developed a list of therapeutic targets that will include different types of emotional distress and/or self-defeating behaviors (C's). Specific CBT coping skills to be addressed include: how to distinguish normal pains and aches from "symptoms"; how to re-assess the medical significance of pain and other physical sensations; how to reduce anxiety about medical uncertainty; how to cope with social and other incentives for illness behavior; how to cope with chronic symptoms and accept responsibility for illness behavior; how to recognize and cope with medically unexplained symptoms; how to combat fears of (re)injury and overcome excessive inactivity; how to reduce reliance on medical reassurance; and how to reduce anger about chronic symptoms and/or ineffective medical care.

Each coping skill will be taught using standard CBT methods such as imaginal role-playing and behavioral rehearsal. Participants may be asked to imagine a new (or existing) physical symptom and then be encouraged to let themselves feel their usual emotional discomfort. They will then be asked to identify their stress-producing thought and replace it with a more realistic coping statement. For example, a familiar physical symptom might be re-assessed as "uncomfortable but hardly a sign of serious illness, I can certainly stand it when this happens." Routine (chronic) discomfort will be distinguished from unusual (acute) sensation. Whereas the former does not require medical attention, patients may consider medical consultation for the latter. The concept of medical uncertainty will be discussed in detail and patients will be taught how to accept the idea that many ailments cannot be scientifically explained or treated. They will learn that demanding or insisting on a medical explanation or cure is likely to increase their stress level and

possibly aggravate their medical condition. Aside from role-playing exercises, other techniques to be employed include cognitive and behavioral homework assignments. For example, participants will be given behavioral "reactivation" assignments as described by Donta in the form of regular non-strenuous exercise. The CBT rationale for this is that gradual increases in activity help participants overcome fear avoidance beliefs that can perpetuate inactivity. Muscle relaxation exercises will be illustrated and assigned along with weekly writing assignments. As mentioned in the PHIP manual, writing exercises are used to encourage self-disclosure of stressful (traumatic) experience. At least one recent study has shown that this component of CBT, even when administered alone, is sufficient to reduce medical utilization. An audio recording of each session will be made available for play back in both On-Line and In-Person CBT groups. Participants will be instructed to review these taped sessions on a weekly basis as one of their homework assignments. An overview of each CBT session is provided below.

Overview of CBT Treatment Protocol

Session 1. 1 Hour

A. Initial Education Modules:
- Overview of 10 Week Program
- Define Multisymptom (Gulf War) Illness (CDC Criteria)
- Define Cognitive-Behavioral Therapy (CBT)
- Why CBT for GWI?

B. Initial Assessment Modules:
- Assess Personal Stressors or Antecedent Events - A's (physical symptoms, work stressors, etc)
- Assess Personal Emotional/Behavioral Problems – C's (e.g., anxiety re symptoms; frequent care seeking; etc)

C. Initial Homework Assignments:
- Weekly Stress Log (list symptoms/stressful events)
- Relaxation Script (hand out)

Session 2. 1 Hour

A. Education Modules
- ABC Model of Stress

B. Follow Up Assessment
- Review Stress Log
- Develop Initial Problem List

C. Introduction to CBT Treatment Exercises
- Illustrate Steps in Emotional Problem Solving:
- Use ABC Template
- Identify Sample "A-C" Pair (e.g., unfair treatment – anger)

Practice Identifying the "B" ("I don't deserve to be treated like this, she should be more understanding")

Practice Alternative Coping Statements/Disputing Techniques ("I don't like being treated this way but its hardly the end of the world")

D. Homework Assignments:
- Symptom-Stress Log – practice recognizing stress-producing beliefs about physical symptoms (e.g., catastrophizing)
- Review Tape of Treatment Sessions Nos. 1 and 2
- Practice Relaxation

Session 3. 1 hour

A. Follow Up Assessment
- Identify Recent Stressors
- Review Homework
- Symptom-Stress Log

B. CBT Exercise I: Coping with Medical Uncertainty

Participants are coached through the following sequence of coping steps:

1. Identify Chronic/Routine Symptom(s)-A's
2. Identify Usual Emotional/Behavioral Reactions-C's
3. Identify Stress-Producing Beliefs-Irrational Beliefs or IB's
4. Demonstrate/Role-Play Coping/Disputing Strategy
5. Assign Practice Homework

C. Homework Assignments:

Review and Practice Disputing Personal IB's
Review Tape of Current Session
Practice Relaxation Exercise (5x week at 10 minutes@)
Written Self Disclosure Assignment Number 1.
"Write about the most stressful experience in your life for a minimum of 20 minutes" at least twice in the next week."

Session 4. 1 Hour

A. Follow Up Assessment

Identify Recent Stressors
Review Homework
Log of Personal Irrational Beliefs/Disputes
Review Writing Assignment

B. Education Module

Health Effects of Activity Restriction Due to Illness
(explain disuse syndrome)

C. Complete Worksheet for Time-Based Activity Pacing

D. Homework Assignments:

Update List of Personal IB's/Disputes
Weekly Activity Log
Review Tape of Current Session
Written Self Disclosure Assignment Number 2.
"Write about the most stressful experience in your life for a minimum of 20 minutes" at least twice in the next week but this time try to use more emotion- or feeling words to describe how you felt about the event when it happened."

Session 5 1 Hour

A. Follow Up Assessment

Identify Recent Stressors
Log of Personal Irrational Beliefs/Disputes

Review Homework
Activity Log
Writing Assignment

B. CBT Exercise III: Coping with Trauma/War-Related Experience
Participants are coached through the following sequence of coping steps (if no trauma reported this exercise is purely didactic):

1. Identify Symptom(s) of Traumatic Experience-A's
2. Identify Usual Emotional/Behavioral Reaction-C's
3. Identify the Stress-Producing Belief-IB's
4. Demonstrate Coping/Disputing Strategy
5. Assign Practice Homework

C. Behavioral Reactivation – Discuss/Develop Plan for Progressive Activity/Exercise Program

D. Homework Assignments
Update List of Personal IB's/Disputes
Progressive Exercise Program (handout)
Review Tape of Current Session
Practice Relaxation Exercise (5x week at 10 minutes@)
Written Self Disclosure Assignment Number 3.
"Write about the most stressful experience in your life for a minimum of 20 minutes" at least once in the next week

Session 6 1 Hour

A. Follow Up Assessment
Identify Recent Stressors
Review Homework
Writing Assignment

B. Present CBT Exercise IV: Coping with Chronic Pain/Discomfort (I)
Participants are coached through the following sequence of coping steps (with emphasis on catastrophizing):
1. Identify Chronic Physical Symptom(s)-A's
2. Identify Usual Emotional/Behavioral Reactions-C's
3. Identify the Stress-Producing Belief-IB's
4. Demonstrate Coping/Disputing Strategy
5. Assign Practice Homework

C. Homework Assignments:
Update List of Personal IB's/Disputes
Review Tape of Current Session
Activity Program/Progressive Exercise (daily)
Written Self Disclosure Assignment Number 4.
"Write about the most stressful experience in your life for a minimum of 20 minutes" at least twice in the next week
Practice Relaxation (5xweek at 10 minutes@)

Session 7 1 Hour

A. Follow Up Assessment
Identify Recent Stressors
Review Homework
Writing Assignment

B. CBT Exercise V: Coping with Chronic Pain/Discomfort (II)
Participants practice the following sequence of coping steps (using role play/emotive imagery):

1. Identify Physical Symptom(s) following activity-A's
2. Identify Usual Emotional/Behavioral Reactions-C's

3. Identify the Stress-Producing Belief-IB's
4. Demonstrate Coping/Disputing Strategy
5. Assign Practice Homework

C. Homework Assignments:
Update List of Personal IB's/Disputes
Review Tape of Current Session
Activity Program/Progressive Exercise (daily)
Written Self Disclosure Assignment Number 5.
"Write about the most stressful experience in your life for a minimum of 20 minutes" at least once in the next week
Practice Relaxation (5xweek at 10 minutes@)

Session 8 1 Hour

A. Follow Up Assessment
Identify Recent Stressors
Review Homework
Writing Assignment

B. Present CBT Exercise VI: Coping with Injustice (especially about illness)
Participants are coached through the following sequence of coping steps (if no anger reported this is didactic only):
1. Identify Physical Symptom(s) following activity-A's
2. Identify Usual Emotional/Behavioral Reactions-C's
3. Identify the Stress-Producing Belief-IB's
4. Demonstrate Coping/Disputing Strategy
5. Assign Practice Homework

C. Homework Assignments:
Update List of Personal IB's/Disputes
Review Tape of Current Session
Activity Program/Progressive Exercise (daily)
Written Self Disclosure Assignment Number 6.
"Write about the most stressful experience in your life for a minimum of 20 minutes" at least once in the next week
Practice Relaxation

Session 9 1 Hour

A. Follow Up Assessment
Identify Recent Stressors
Review Homework
Writing Assignment

B. Present CBT Exercise VI: Coping with Social Rewards for Illness
Participants are coached through the following sequence of coping steps (if not acknowledged this is didactic only):
1. Identify Physical Symptom(s) following activity-A's
2. Identify Usual Behavioral Reactions-C's
3. Identify the Belief-IB's
4. Demonstrate Coping/Disputing Strategy ("Its better if I do it myself, my spouse is not my caregiver")
5. Assign Practice Homework

C. Goal Setting Exercise for Personal Improvement (long- short-term goal setting)

D. Homework Assignments:
- Update List of Personal IB's/Disputes
- Review Tape of Current Session
- Activity Program/Progressive Exercise (daily)
- Written Self Disclosure Assignment Number 7.
- "Write about the most stressful experience in your life for a minimum of 20 minutes" at least once in the next week
- Practice Relaxation

Session 10 1 Hour

A. Follow Up Assessment
- Identify Recent Stressors
- Review Homework
- Writing Assignment

B. Review ABC Problem Solving Method

C. Solving Future Emotional/Behavioral Problems

D. Review Progress –Identify Areas to be Addressed in Future

E. Homework Assignments:
- Review Tape of Current Session
- Activity Program/Progressive Exercise (daily)
- Practice Relaxation (daily)
- Self-Assigned Writing Assignments (as indicated)

APPENDIX B

Self-report Measures

Demographics Questionnaire

INITIAL ENROLLMENT SURVEY

Today's Date: _____

Sex: ☐Male ☐Female

Are you Hispanic or Latino?: ☐Yes ☐No

What is your race or ethnicity?: (Check all that apply)

☐American Indian or Alaska Native ☐Asian

☐Black or African American ☐White

☐Native Hawaiian or Other Pacific Islander

What is your marital status?:

☐Never married ☐Divorced/Separated

☐Married ☐ Widowed

☐Living together/Common law

Current Work Status: **(Check all that apply)**

☐Work full-time (35 hrs/week or more)

☐Work part-time (less than 35 hrs/week)

☐Full-time homemaker

☐Unable to work due to injury/illness*

*** If disabled, for how long? ____ (Years/Months)**

☐ **Retired**

☐ **Unemployed**

☐ **Full-time student**

What is your education level?: **(Check highest level of school completed)**

☐Some high school or less

☐High School graduate (including GED)

☐Some college (including Junior College/AA degree/Trade School)

☐College graduate (4 year degree)

☐Graduate/Professional School (attended or graduated)

Which of the following best describes your total household income from all sources last year?

☐Under $25, 000

☐$25,000 to $34,999

☐$35,000 to 49,999

☐$50,000 to $74,999

☐$75,000 to $99,999

☐$100,000 to $149,999

☐$150,000 or more

Including yourself, how many people live in your household?

_____

Do you receive a VA pension?

☐Yes ☐No

If yes, _____ %

List all sources of current income or income you expect to receive. Please check all that apply.

☐Salary I earn at work

☐Workman's Comp. benefits

☐Financial support from family/friends

☐Welfare

☐Spouse salary

☐ Lawsuit settlement

☐Disability benefits

☐Other*

*Other types of income received:

_____

Military Rank:

☐Officer ☐Enlisted

What was your first year of military service?

_____

Have you ever been deployed overseas or to another country?

☐**Yes** ☐**No**

If yes, where? _____

Do you receive federal (Social Security) disability benefits?

☐Yes ☐No

Do you receive New Jersey state disability benefits?

☐Yes ☐No

If you are disabled, what is (are) the medical reason(s) or diagnosis(es)?

_____

Patient Health Questionnaire-15 (PHQ-15): Somatic symptoms scale

[note: WRIISC study added items a thru o; p thru u]

Part A: During the last 4 weeks, how much have you been bothered by any of the following problems?
Part B: For problems you've had, when did the problems start?
Part C: Did you receive medical attention for these problems in the past 12 months?

	A HOW MUCH WERE YOU BOTHERED BY THE FOLLOWING PROBLEMS? (Past 4 weeks)			B WHEN DID THE PROBLEM START?			C DID YOU SEEK MEDICAL ATTEN-TION?	
	Not bothered	Bothered a little	Bothered a lot	Less than 6 months ago	More than 6 months ago but less than 1 year	A year or longer	YES	NO
a. Stomach pain	☐	☐	☐	☐	☐	☐	☐	☐
b. Back pain	☐	☐	☐	☐	☐	☐	☐	☐
c. Pain in your arms, legs, or joints (knees, hips, etc)	☐	☐	☐	☐	☐	☐	☐	☐
d. Menstrual cramps or other problems with your period	☐	☐	☐	☐	☐	☐	☐	☐
e. Pain or problems during sexual intercourse	☐	☐	☐	☐	☐	☐	☐	☐
f. Headaches	☐	☐	☐	☐	☐	☐	☐	☐
g. Chest pain	☐	☐	☐	☐	☐	☐	☐	☐
h. Dizziness	☐	☐	☐	☐	☐	☐	☐	☐
i. Fainting spells	☐	☐	☐	☐	☐	☐	☐	☐
j. Feeling your heart pound or race	☐	☐	☐	☐	☐	☐	☐	☐
k. Shortness of breath	☐	☐	☐	☐	☐	☐	☐	☐

l. Constipation, loose bowels, or diarrhea	☐	☐	☐	☐	☐	☐	☐	☐
m. Nausea, gas or indigestion	☐	☐	☐	☐	☐	☐	☐	☐
n. Fatigue	☐	☐	☐	☐	☐	☐	☐	☐
o. Trouble sleeping	☐	☐	☐	☐	☐	☐	☐	☐
p. Difficulty remembering	☐	☐	☐	☐	☐	☐	☐	☐
q. Moodiness	☐	☐	☐	☐	☐	☐	☐	☐
r. Feeling depressed	☐	☐	☐	☐	☐	☐	☐	☐
s. Feeling anxious	☐	☐	☐	☐	☐	☐	☐	☐
t. Trouble finding words	☐	☐	☐	☐	☐	☐	☐	☐
u. Muscle pain	☐	☐	☐	☐	☐	☐	☐	☐

Veterans Short Form-36 Health Status Questionnaire (SF-36V)

SF-36V is considered a quality of life measure. The following subscales were used: "Physical Functioning" – how much health problems interfere with physical tasks, "Role Physical" – how much health problems create home/work-related disability (i.e., interfere with your ability to fulfill your roles and obligations); "Vitality" – how much energy you feel you have; "Body Pain" – pain severity and interference with function. **The following items are about activities you might do during a typical day. Does <u>your health now limit</u> you in these activities? If so, how much?**

	Yes, limited a lot	*Yes, limited a little*	*No, not limited at all*		*Yes, limited a lot*	*Yes, limited a little*	*No, not limited at all*
1. <u>Vigorous activities</u>, such as running, lifting heavy objects, participating in strenuous sports	***2***	***1***	***0***	**8. Walking <u>several blocks</u>**	***2***	***1***	***0***
2. <u>Moderate activities</u>, such as moving a table, pushing a vacuum cleaner, bowling, or playing golf	***2***	***1***	***0***	**9. Walking <u>one block</u>**	***2***	***1***	***0***
3. Lifting or carrying groceries	***2***	***1***	***0***	**10. Bathing or dressing yourself**	***2***	***1***	***0***
4. Climbing <u>several</u> flights of stairs	***2***	***1***	***0***	**11. Combing your hair**	***2***	***1***	***0***
5. Climbing <u>one</u> flight of stairs	***2***	***1***	***0***	**12. Sitting**	***2***	***1***	***0***
6. Bending, kneeling, or stooping	***2***	***1***	***0***	**13.Walking**	***2***	***1***	***0***
7. Walking <u>more than a mile</u>	***2***	***1***	***0***	**14. Talking**	***2***	***1***	***0***

During the past 4 weeks, have you had any of the following problems with your work or other regular daily activities as a result of your physical health?

	No, none of the time	*Yes, a little of the*	*Yes, some of the time*	*Yes, most of the time*	*Yes, all of the time*
1. Cut down the amount of time you spent on work or other activities	***0***	***1***	***2***	***3***	***4***
2. Accomplished less than you would have liked	***0***	***1***	***2***	***3***	***4***
3. Were limited in the kind of work or other activities	***0***	***1***	***2***	***3***	***4***
4. Had difficulty performing the work or other activities (for example, it took extra effort)	***0***	***1***	***2***	***3***	***4***

These questions are about how you feel and how things have been with you during the past 4 weeks. For each question, please give the one answer that comes closest to the way you have been feeling. How much of the time during the past 4 weeks...

	All of the time	*Most of the time*	*A good bit of the time*	*Some of the time*	*A little of the time*	*None of the time*
1. Do you feel full of pep?	5	4	3	2	1	0
2. Did you have a lot of energy?	5	4	3	2	1	0
3. Did you feel worn out?	5	4	3	2	1	0
4. Did you feel tired?	5	4	3	2	1	0

	Very Severe	*Severe*	*Moderate*	*Mild*	*Very Mild*	*None*
5. How much bodily pain have you had during the <u>past 4 weeks</u>?	***5***	***4***	***3***	***2***	***1***	***0***

	Extremely	*Quite a bit*	*Moderately*	*Slightly*	*Not at all*
6. During the <u>past 4 weeks</u>, how much did pain interfere with your normal work (including both work outside the home and household work)?	***4***	***3***	***2***	***1***	***0***

PTSD Checklist (PCL-C)

Below is a list of problems and complaints that people sometimes have in response to stressful life experiences. Please listen to each one carefully then answer on a scale from 0 to 4 (where 0 is "Not at all" and 4 is "Extremely" to indicate how much you have been bothered by that problem <u>in the past month</u>.

	Not at all	*A little bit*	*Moderately*	*Quite a bit*	*Extremely*
1. Repeated, disturbing memories, thoughts, or images of a stressful experience from the past?	***0***	***1***	***2***	***3***	***4***
2. Repeated, disturbing dreams of a stressful experience from the past?	***0***	***1***	***2***	***3***	***4***
3. Suddenly acting or feeling as if a stressful experience from the past were happening again (as if you were reliving it)?	***0***	***1***	***2***	***3***	***4***
4. Feeling very upset when something reminded you of a stressful experience from the past?	***0***	***1***	***2***	***3***	***4***
5. Having physical reactions (e.g., heart pounding, trouble breathing, sweating) when something reminded you of a stressful experience from the past?	***0***	***1***	***2***	***3***	***4***
6. Avoiding thinking about a stressful experience from the past or avoiding having feeling related to it?	***0***	***1***	***2***	***3***	***4***

7. Avoiding activities or situations because they reminded you of a stressful experience from the past?	***0***	***1***	***2***	***3***	***4***
8. Trouble remembering important parts of a stressful experience from the past?	***0***	***1***	***2***	***3***	***4***
9. Loss of interest in activities that you used to enjoy?	***0***	***1***	***2***	***3***	***4***
10. Feeling distant or cut off from other people?	***0***	***1***	***2***	***3***	***4***
11. Feeling emotionally numb or being unable to have loving feelings for those close to you?	***0***	***1***	***2***	***3***	***4***
12. Feeling as if your future somehow will be cut short?	***0***	***1***	***2***	***3***	***4***
13. Trouble falling or staying asleep?	***0***	***1***	***2***	***3***	***4***
14. Feeling irritable or having angry outbursts?	***0***	***1***	***2***	***3***	***4***
15. Having difficulty concentrating?	***0***	***1***	***2***	***3***	***4***
16. Being "superalert" or watchful or on guard?	***0***	***1***	***2***	***3***	***4***
17. Feeling jumpy or easily startled?	***0***	***1***	***2***	***3***	***4***

Catastrophizing Scale

We are interested in the types of thoughts and feelings that you have when you experience physical symptoms. Think about a recent time when you felt unwell. Now, please tell me how much you had the following thoughts and feelings. I'm going to ask you to use the scale below:

	Not at all	*To a slight degree*	*To a moderate degree*	*To a degree*	*All the time*
1. I feel like I can't go on.	***0***	***1***	***2***	***3***	***4***
2. It's terrible and I think it's never going to get any better.	***0***	***1***	***2***	***3***	***4***
3. It's awful and I feel like it overwhelms me.	***0***	***1***	***2***	***3***	***4***
4. I feel I can't stand it anymore.	***0***	***1***	***2***	***3***	***4***
5. I worry all the time about whether it will end.	***0***	***1***	***2***	***3***	***4***
6. There is nothing I can do to reduce the intensity of my symptoms.	***0***	***1***	***2***	***3***	***4***

Brief COPE

These items deal with ways you've been coping with the stress in your life related to your illness. There are many ways to try to deal with problems. These items ask what you've been doing to cope with your illness. Obviously, different people deal with things in different ways, but I'm interested in how you've tried to deal with it. Each item says something about a particular way of coping. I want to know to what extent you've been doing what the item says. How much or how frequently. Don't answer on the basis of whether it seems to be working or not—just whether or not you're doing it. Use these response choices. Try to rate each item separately in your mind from the others. Make your answers as true FOR YOU as you can.

	I haven't been doing this at all	*I've been doing this a little bit*	*I've been doing this a medium amount*	*I've been doing this a lot*
1. I've been turning to work or other activities to take my mind off things.	***0***	***1***	***2***	***3***
2. I've been concentrating my efforts on doing something about the situation I'm in.	***0***	***1***	***2***	***3***
3. I've been saying to myself "this isn't real."	***0***	***1***	***2***	***3***
4. I've been using alcohol or other drugs to make myself better.	***0***	***1***	***2***	***3***
5. I've been getting emotional support from others.	***0***	***1***	***2***	***3***
6. I've been giving up trying to deal with it.	***0***	***1***	***2***	***3***
7. I've been taking action to try to make the situation better.	***0***	***1***	***2***	***3***
8. I've been refusing to believe that it has happened.	***0***	***1***	***2***	***3***
9. I've been saying things to let my unpleasant feelings escape.	***0***	***1***	***2***	***3***
10. I've been getting help and advice from other people.	***0***	***1***	***2***	***3***
11. I've been using alcohol or other drugs to help me get through it.	***0***	***1***	***2***	***3***
12. I've been trying to see it in a different light, to make it seem more positive.	***0***	***1***	***2***	***3***
13. I've been criticizing myself.	***0***	***1***	***2***	***3***

14. I've been trying to come up with a strategy about what to do.	***0***	***1***	***2***	***3***
15. I've been getting comfort and understanding from someone.	***0***	***1***	***2***	***3***
16. I've been giving up the attempt to cope.	***0***	***1***	***2***	***3***
17. I've been looking for something good in what is happening.	***0***	***1***	***2***	***3***
18. I've been making jokes about it.	***0***	***1***	***2***	***3***
19. I've been doing something to think about it less, such as going to movies, watching TV, reading, daydreaming, sleeping, or shopping.	***0***	***1***	***2***	***3***
20. I've been accepting the reality of the fact that it has happened.	***0***	***1***	***2***	***3***
21. I've been expressing my negative feelings.	***0***	***1***	***2***	***3***
22. I've been trying to find comfort in my religion or spiritual beliefs.	***0***	***1***	***2***	***3***
23. I've been trying to get advice or help from other people about what to do.	***0***	***1***	***2***	***3***
24. I've been learning to live with it.	***0***	***1***	***2***	***3***
25. I've been thinking hard about what steps to take.	***0***	***1***	***2***	***3***
26. I've been blaming myself for things that happened.	***0***	***1***	***2***	***3***
27. I've been praying or meditating.	***0***	***1***	***2***	***3***
28. I've been making fun of the situation.	***0***	***1***	***2***	***3***