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Neurolinguistic Programming Treatment of Combat-Related Posttraumatic Stress Disorder

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NEUROLINGUISTIC PROGRAMMING TREATMENT OF COMBAT-RELATED POSTTRAUMATIC STRESS DISORDER

by

Susan Rogers

A dissertation submitted in partial fulfillment of the requirements for the degree of

DOCTOR OF PHILOSOPHY

IN

PSYCHOLOGY

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1992
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Susan Rogers
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ABSTRACT

Neurolinguistic Programming Treatment of Combat-Related Posttraumatic Stress Disorder

by

Susan Rogers, Doctor of Philosophy
Utah State University, 1992

Major Professor: Dr. Elwin Nielsen
Department: Psychology

The goal of the study was to determine the effect of the neurolinguistic programming procedure of visual-kinesthetic dissociation on symptoms of posttraumatic stress disorder in a sample of Vietnam combat veterans. Thirty-eight veterans in a Veterans Administration treatment program were given three sessions of either visual-kinesthetic dissociation or regular program activities. Overall post-traumatic symptoms, re-experiencing symptoms, and amount of sleep were measured before and after treatment and at a three month follow-up. Results indicated that the treatment program itself had no significant effect on symptoms as measured, nor did the addition of visual-kinesthetic dissociation provide any incremental symptom relief.

(90 pages)
Researchers have estimated that as many as 15-30% of the more than three million veterans of the Vietnam war may have symptoms of Posttraumatic Stress Disorder or PTSD (Figley & Southerly, 1980; Frye & Stockton, 1982; Kulka et al., 1990). This disorder consists of persistent psychological impairment following exposure to exceptionally stressful events, events which often involve an imminent threat to one's safety. PTSD was included as an anxiety disorder in the 1980 Diagnostic and Statistical Manual (DSM-III) with many of the diagnostic indicators of the earlier Gross Stress Reaction (APA, 1952). The diagnostic criteria for PTSD were revised for the DSM-III-R (APA, 1987) to include the following:

A. The person has experienced an event that is outside the range of usual human experience and that would be markedly distressing to almost anyone, e.g., serious threat to one's life or physical integrity; serious harm to one's children, spouse, or other close relatives and friends; sudden destruction of one's home or community; or seeing another person who has recently been, or is being, seriously injured or killed as a result of an accident or physical violence.

B. The traumatic event is persistently reexperienced in at least one of the following ways:
   (1) recurrent and intrusive distressing recollections of the event (in young children, repetitive play in which themes or aspects of the trauma are expressed)
   (2) recurrent distressing dreams of the event
   (3) sudden acting or feeling as if the traumatic event were recurring (includes a sense of reliving the experience, illusions, hallucinations, and dissociative [flashback] episodes, even those that occur upon awakening or when intoxicated)
   (4) intense psychological distress at exposure to events that symbolize or resemble an aspect of the
traumatic event, including anniversaries of the trauma

C. Persistent avoidance of stimuli associated with the trauma or numbing of general responsiveness (not present before the trauma), as indicated by at least three of the following:
   (1) efforts to avoid thoughts or feelings associated with the trauma
   (2) efforts to avoid activities or situations that arouse recollections of the trauma
   (3) inability to recall an important aspect of the trauma (psychogenic amnesia)
   (4) markedly diminished interest in significant activities (in young children, loss of recently acquired developmental skills such as toilet training or language skills)
   (5) feeling of detachment or estrangement from others
   (6) restricted range of affect, e.g., unable to have loving feelings
   (7) sense of foreshortened future, e.g., does not expect to have a career, marriage, or children, or a long life

D. Persistent symptoms of increased arousal (not present before trauma), as indicated by at least two of the following:
   (1) difficulty falling or staying asleep
   (2) irritability or outbursts of anger
   (3) difficulty concentrating
   (4) hypervigilance
   (5) exaggerated startle response
   (6) physiological reactivity upon exposure to events that symbolize or resemble an aspect of the traumatic event (e.g., a woman who was raped in an elevator breaks out in a sweat when entering any elevator)

E. Duration of the disturbance (symptoms in B, C, and D) of at least one month.
   (APA, pp. 250-251)

A subtype of PTSD with delayed onset (symptoms appearing six months or more after the trauma) is also described in the DSM-III-R.
Depression and guilt (in the case of those who have survived an event which has resulted in the death of others) are other clinical features associated with PTSD.

In the past 10 years a great amount of material regarding PTSD has been written. The majority of the earlier work described etiological theories and empirical support for one or another of these theories. Validation of the diagnostic criteria was also of concern in the early stages and the results of this line of research can be seen in the changes made in the criteria in the DSM-III-R. Later studies focused on PTSD assessment, particularly on the development of PTSD measures and the improvement of diagnostic accuracy. More recently one finds an increasing number of articles devoted to PTSD treatments and the attempts to evaluate the effectiveness of those treatments.

Kolb (1984, 1987) noted the limited success of traditional treatments, including dynamic psychotherapy, hypnosis, and antidepressant medication as well as biofeedback and relaxation training, but treatments which are based on a conditioning model of PTSD have shown promise. The majority of these treatments are derived from behavioral phobia treatments. They typically involve exposure to stimuli which are associated with the traumatic event. The behavioral treatments which have so far been applied to PTSD fall into two categories, those which rely on the inhibition
of anxiety (systematic desensitization) and those which rely solely on extinction (flooding and implosion).

A recent addition to the list of approaches to the treatment of trauma-based phobia, "Three Place Visual-Kinesthetic Dissociation" (Cameron-Bandler, 1978; Bandler & Grinder, 1979), can be placed in the former category by right of its dependence on the induction of anxiety-incompatible behaviors during exposure to trauma-related stimuli. Bandler and Grinder (1979) reported success in treating combat veterans with this procedure, but there has been no empirical validation of this claim.

Problem Statement

To date no group studies of brief, low-anxiety PTSD treatments have been conducted. While such brief behavioral interventions as flooding and implosion have been shown to be effective in reducing the phobic component of PTSD, these procedures involve the induction of high levels of anxiety. Studies of low anxiety treatments for PTSD such as systematic desensitization have had mixed results. Recently another phobia treatment, Visual-Kinesthetic Dissociation (VKD), has been applied to PTSD. This approach, while apparently sharing with desensitization a basis in reciprocal inhibition and thus a low level of anxiety, has the added claim of rapid effect.
Purpose of the Study

This study was designed to determine the incremental effectiveness of visual-kinesthetic dissociation when added to an existing PTSD treatment program. The purpose of the study was to determine whether the technique would result in a decrease in intrusive cognitions (memories, dreams, flashbacks), sleep disturbance, and overall level of PTSD symptomatology.

Hypotheses

The primary hypotheses of the study were as follows:

1. Veterans receiving three sessions of visual-kinesthetic dissociation (VKD) would show greater reductions in frequency and severity of intrusive memories, dreams, and flashbacks related to their combat experiences than a control group of veterans who do not receive VKD.

2. Veterans receiving VKD would show a greater increase in hours slept per night than controls.

3. Veterans receiving VKD would show a greater improvement in overall PTSD symptomatology as measured by the Mississippi Scale for Combat-Related PTSD than controls.

It was further hypothesized that:

1. Gains shown by the treatment group would be maintained over three months.
2. Treatment outcome would be related to:

a. level of combat exposure,

b. level of pathology as shown by the MMPI, and

c. subjects' skill in forming and controlling mental images as measured by the Betts QMI Vividness of Imagery Scale.
CHAPTER II
REVIEW OF THE LITERATURE

In 1988, the Veterans Administration released the results of its National Vietnam Veterans Readjustment Study. Based on the results of this study, it was estimated that as many as 470,000 Vietnam veterans are struggling with combat-related post-traumatic stress disorder. This was an upward revision of the earlier estimate of 116,000 (Roberts, 1988) and emphasizes the need for continued efforts to improve the services provided to these men and women.

Prior to the publication of DSM-III, Vietnam veterans seeking help for stress symptoms had limited options. Those seen at VA medical centers were most often treated for disorders such as schizophrenia, schizoid and anti-social personality disorders, depression, and substance abuse without regard for the centrality of combat exposure in symptom formation (Goodwin, 1980; Penk et al., 1981). At the same time, veterans were forming their own self-help groups focused on the discussion of combat experiences (Shatan, 1973; Egendorf, 1982). These small "rap groups" were eventually incorporated into the services provided by Vet Centers, storefront clinics available to veterans who wished to avoid involvement with the larger VA medical centers (Blank, 1985). Since 1980, the number of specialized PTSD programs in the VA system has increased. Descriptions of
these programs (Berman, Price, & Gusman, 1982; Rosenheck, 1984; Sax, 1985) reveal that they typically involve a mixture of group and individual psychotherapy, education, and training in coping skills. The central element appears to be the complete recall of traumatic events, abreaction of related emotions, and integration of the memories in the context of a supportive environment. Very often these programs have taken advantage of the naturally occurring bond between veterans to facilitate treatment. While types of medication used in treatment vary widely, the majority of programs favor a conservative approach to their use. This approach minimizes side effects and patients' reliance on artificial means of controlling symptoms. Medications could also interfere with the desired recall and abreaction of traumatic memories.

The matter of which medications are appropriate to the treatment of PTSD is the source of much debate at present. Major tranquilizers, tricyclic antidepressants, anxiolytic drugs, and adrenergic blocks have all at one time or another been promoted as medications for PTSD (Hogben & Cornfield, 1981; Kolb, Burris, & Griffiths, 1984) but to date there have been no controlled group studies of the effectiveness of any of these agents.
Hypnosis as a Treatment for PTSD

Hypnosis is one of the older methods used in the treatment of traumatic stress. Janet, Freud, and Jung all used hypnosis in the treatment of hysterias which were fundamentally trauma-based. Grinker and Spiegel (1945) described a variety of techniques which were used to promote the abreaction of traumatic experiences in the treatment of combat reactions during World War II, including hypnosis and amytal interviews. By this time it was apparent that abreaction itself only yielded a temporary relief of symptoms and it needed to be followed by some sort of integration of the material which was being uncovered. Brende and Benedict (1980) described the use of hypnosis with Vietnam veterans with PTSD and Fairbank, DeGood, and Jenkins (1981) used it as a specific treatment for startle response. Stutman and Bliss (1985) found a correlation between PTSD symptom severity and hypnotic suggestibility among Vietnam veterans. It remains unclear whether suggestibility is the result of PTSD or a predisposing factor to the development of PTSD under stress.

Silver and Kelly (1985) noted several advantages of hypnosis over drug-induced abreaction, including fewer medical requirements, the lack of side effects or interactions, the potential for clear recall of events after more than 20 years by means of unconscious processes, and inner control of integration of uncovered material into
consciousness. Certain personality types have been identified for which hypnosis is contraindicated (Brende, 1985; Brende & McCann, 1985). Individuals with anti-social or borderline traits do not appear to profit from this approach to treatment. Even among veterans who are good candidates for hypnotherapy, there remains a risk of regression or acting out during the procedure (Silver & Kelly, 1985).

A summary of the literature relating to the use of hypnosis in PTSD treatment reveals that:

1. Veterans with PTSD appear to be more than normally susceptible to hypnotic suggestion.

2. Hypnosis can be a useful adjunct to supportive psychotherapy for PTSD and can be used for multiple functions—uncovering of repressed memories of the traumatic event, anxiety reduction, integration of new material.

3. Hypnosis is best used in the later stages of treatment and in the context of a solid therapeutic relationship.

4. Hypnotherapy has several advantages over drug-induced abreactive treatments but is not the treatment of choice with all patients.

A Conditioning Model of PTSD

It is the belief of some researchers (Keane, Zimering, & Caddell, 1985) that the development of PTSD symptoms can best
be explained by a behavioral model such as Mowrer's (1950) "Two Factor Theory." According to this theory, anxiety is a learned response, the result of both classical and operant conditioning. Classical conditioning contributes to the development of anxiety in this way: during the traumatic event a variety of neutral stimuli are associated with fear-provoking (unconditioned) stimuli. These neutral stimuli become conditioned and thus also elicit fear. In order to avoid or terminate the conditioned anxiety when the conditioned stimuli are encountered, the individual leaves the situation, tries to avoid thinking about the traumatic event, or self-medicates with drugs or alcohol. This negative reinforcement increases the frequency of the avoidance-escape behaviors and the individual is caught in a cycle of classically conditioned anxiety and operantly conditioned avoidance.

If this conditioning model is valid, a complete avoidance of the conditioned stimuli or the extinction of the learned anxiety response would both result in a reduction of the anxiety. There are two phenomena which make it unlikely that anxiety reduction will occur naturally--stimulus generalization and higher-order conditioning. Stimulus generalization refers to the tendency of individuals to exhibit the same response to stimuli that resemble the unconditioned stimulus. Therefore someone may react fearfully to persons resembling an assailant, or combat
veterans may start to a sound which resembles artillery fire. Higher-order conditioning refers to the fact that the conditioning of a neutral stimulus can occur as a function of its pairing with a conditioned stimulus as well as an unconditioned one. For example, the sound of artillery may be paired with the sensations of the hot, humid weather at the time of the barrage. Hot weather is now a conditioned stimulus which elicits anxiety. When hot weather is paired with another neutral stimulus, it too can become conditioned. These two phenomena can account for an ever-increasing number of stimuli which can elicit anxiety. Keane and others (Horowitz, 1976) have suggested that the long-term strategy of simply trying to avoid trauma-related stimuli, including mental events such as thoughts and memories, will eventually fail due to the spread of conditioned anxiety. While an individual is repeatedly exposed to trauma-related stimuli in the form of memories, dreams, thoughts and external reminders of the event, the exposure is brief, incomplete (in that it does not include the full stimulus complex), and is terminated at high levels of anxiety. The net result is a long-term increase in anxiety and in the number of stimuli which can trigger that anxiety.

The conditioning model of PTSD has been supported by several reports. In order to create an animal model of human phobia, Stampfl (1987) focused on the complexity of the conditioning and the sequential ordering of the conditioned
stimuli found among humans. As noted by Keane et al. (1985), humans appear to exhibit avoidance to early parts of the sequence and thereby avoid exposure (and extinction) to the stimuli which are in the latter part of the sequence. Of particular interest in Stampfl's model is the elaboration of the ways in which avoidance can be reinforced. Humans are capable of a great variety of avoidance responses, some of which involve less effort or "response cost" than others. A social phobic who declines an invitation long before contact with the feared stimuli, does so with much less effort than does one who attends a party and finds it necessary to escape. This explains the tendency to "back up" to earlier stimuli. Furthermore, this type of response is followed by a reinforcing period of freedom from having to make avoidance responses (termed "timeout from avoidance responding").

Stampfl's inducement of a very human-like phobic response among rats, involving one-trial learning, complete avoidance of the CS, and persistence of avoidance, points to the appropriateness of the behavioral approach to the treatment of phobia and other human psychopathologies.

Wirtz and Harrell (1987) found a strong relationship between subjective distress and post-trauma exposure to attack-related stimuli among rape victims. It appears that victims who withdraw from their usual activities after a rape have fewer opportunities for the extinction of conditioned anxiety and they show higher levels of anxiety longer than do
women who resume their normal activities. In a similar study, soldiers who were sent away from the front after treatment for combat stress were more likely to develop chronic PTSD than did those who were returned to their units (Solomon & Benbenishty, 1986). Again, a return to the combat unit provides opportunities for extinction, provided the conditioned stimuli are not again paired with life threat.

Recently, behavioral techniques which were originally developed for the treatment of phobias have been applied to the treatment of PTSD. The assumption underlying these endeavors is that the symptoms of PTSD constitute conditioned responses which can be eliminated by the process of extinction (presenting the conditioned stimulus while preventing escape) or inhibition (pairing the conditioned stimulus with a response which is incompatible with anxiety).

**Extinction-based Treatments of PTSD**

The majority of behavioral approaches to PTSD treatment have involved flooding or implosive techniques. Flooding is based on prolonged exposure to the conditioned stimuli while escape is prevented until anxiety drops spontaneously (Levis, 1980). Implosion is a similar procedure but includes the presentation of hypothesized, emotionally loaded cognitions about the stimuli (Levis & Hare, 1977). Both approaches can be distinguished from systematic desensitization in that no
Attempt is made during these procedures to pair the conditioned stimulus with an anxiety-inhibiting response.

Flooding with imaginal presentation of trauma scenes has been used in a series of case studies of combat veterans. Imaginal presentation of conditioned stimuli has the advantage of including many details which would be difficult to capture in any in vivo exposure. The validity of imaginal exposure is supported by Pitman's (1987) finding of increased physiological arousal during imagery sessions with combat veterans.

The subject of one such report (Black & Keane, 1982) was a World War II veteran with post-combat agoraphobia, automobile phobia, chronic anxiety, marital problems, and chronic alcohol abuse of 10 years duration who was receiving 100% disability payment from the Veterans Administration. Flooding by imaginal presentation (the subject is asked to visualize the traumatic scene) was done until a reduction in anxiety was experienced (three 40-minute sessions). The subject initiated in vivo flooding of the automobile phobia. At a 24-month follow-up the subject was able to drive long distances comfortably and the rate of alcohol-related hospitalizations dropped from an average of once every two months to none over the 24 months the subject was tracked. However, the marital problems were unchanged as a result of the flooding. The design of the study did not allow for the
examination of the separate contributions of imaginal and in vivo exposure.

A treatment which combined relaxation training and imaginal presentation of scenes derived from intrusive memories of the trauma was used in several later studies. It should be noted that many of the treatments termed "flooding" involve the use of relaxation training. However, since the investigators make no attempt to maintain the relaxation during the presentation of the conditioned stimulus, these treatments can rightly be considered extinction-based. This procedure involved the identification of sensory and cognitive components of each scene to aid in creating a complete and realistic image. A variety of indicators of treatment effects were reported in the treatment of a Vietnam veteran (Keane & Kaloupek, 1982). Self-reported frequency of nightmares and flashbacks decreased after treatment, while hours of sleep per night increased. Scores on the State-Trait Anxiety Inventory (STAI) decreased dramatically after treatment. Heart rate response to presentation of combat scenes decreased between pretest and posttest, even to one scene which had not been presented in flooding. The authors concluded that this was the result either of generalization from the treatment or some decrease due to the brief presentation of this scene during assessment itself. These effects were maintained at a three-month follow-up. Further evidence of the effectiveness of the flooding in
ameliorating the broad spectrum of PTSD symptoms was the posttreatment decrease in use of alcohol and anxiolytic medication and improved social and occupational functioning. Nightmares and flashbacks were not completely eliminated, but occurred rarely (an average of once every two months) after treatment.

The issue of generalization of the flooding effect was explored further in a study by Fairbank and Keane (1982). They found that reductions in subjective discomfort (SUDs) were generalized only according to the amount of shared content (stimulus cues) between the scene used in flooding and the scene used in assessment. These findings have important implications for the clinical application of flooding for PTSD. For treatment to be successful, care must be taken to present all of the elements of the traumatic memory by getting as complete a description of events as possible.

All three response modalities (physiological, cognitive, and behavioral) were assessed in a case study of noncombat PTSD subjects (McCaffrey & Fairbank, 1985). Two survivors of transportation accidents were treated with a package consisting of relaxation, imaginal flooding, and self-directed in vivo exposure to trauma-related situations. Treatment effect was measured by means of polygraph (heart rate and skin conductance), self-report (Fear Thermometer), and behavioral avoidance (termination of videotape
presentation of trauma-relevant scenes). After treatment, subjects' average number of hours of sleep per night increased, and self-monitored frequency of nightmares and intrusive memories decreased. Anxiety was reduced to such an extent that the subjects could resume trauma-related activities (the witness of a helicopter crash was returned to active flight status). The results of the tripartite assessment were less convincing. When exposed to a trauma-related videotape and a neutral videotape, one subject failed to respond differentially, though heart rate and skin conductance response to the trauma tape did decrease to a small degree after treatment. Results for a second subject were more clear cut. A significant decrease in reactivity to trauma stimuli was noted, while reaction to the neutral tape remained unchanged. The authors concluded that the lack of synchrony across response modalities could be attributed to the less severe and chronic nature of the symptoms of these subjects compared to combat subjects. Yet a lack of synchrony between response modes is not uncommon. Furthermore, persons who have PTSD and yet do not respond to the presentation of trauma stimuli have been noted by other researchers (Pallmeyer, Blanchard, & Kolb, 1986; Kolb, 1987), as have persons who do respond, but whose outward symptoms of PTSD have remitted. It is possible that the use of videotaped images (which may differ from the actual event in some aspects) in assessment contributes to this confusion.
A treatment package of relaxation and imaginal flooding was used in the treatment of another Vietnam combat veteran (Fairbank, Gross, & Keane, 1983). Scores on the Hamilton Depression Rating Scale and a PTSD Checklist decreased after treatment. Intrusive thoughts about combat still occurred but were less distressing. Nightmares decreased from a rate of two per week to one over several months. The subject was able to think about and discuss his combat experiences without the excessive distress he had experienced prior to treatment. These effects were maintained at a six month follow-up.

The implosive techniques used by Keane and Kaloupek (1982) were more fully described in a recent article (Lyons & Keane, 1989). Patients in this program are first trained in progressive muscle relaxation and guided imagery for the purposes of building rapport, assessing subjects' skill in creating and controlling mental images, and facilitating sleep and anxiety reduction outside of flooding sessions. Subjects are then asked to rank combat experiences in order of their stressfulness. During the implosion sessions themselves, which last approximately two hours, the patients are first asked to relax themselves according to their training. The implosive portion of the session is introduced by means of what the authors described as "hypnotic-like" suggestions.
You are now going on a journey back in time, back to Vietnam. You will be able to see, hear, smell, taste and feel everything as if you are really there, but always in the back of your mind you'll know it's all happening in your imagination where it can't hurt you now. You will be able to go through each scene to the very end, and it will be easy for you to do this. You will be able to reexperience the entire event without leaving the chair, without opening your eyes. You will always be able to hear my voice and experience everything I tell you. (Lyons & Keane, p. 144)

The effectiveness of this treatment seems to be supported by subsequent group research (Lyons & Keane, 1989). It's clear from this description that there are more elements present than simple extinction. The treatment involves relaxation training, presentation of conditioned and hypothesized stimuli, and possibly an expectation or suggestion element. The authors take pains to caution against allowing the patient to form a "third party perspective" during this procedure.

Flooding was also used in the treatment of a 10-year old girl who had survived an artillery attack on her neighborhood in Beirut, and was exhibiting intrusive memories, avoidance, depression, and impaired concentration. She was treated with imaginal exposure to four discrete scenes based on the traumatic event (Saigh, 1986). Assessment of treatment effect across scenes using the Digit Span and Coding subtests of the WISC, the Childrens' Manifest Anxiety Scale (CMAS),
the Childrens' Depression Inventory (CDI), self-rated discomfort (SUDs), and behavioral avoidance was done after each flooding session. After flooding on all four scenes had been completed, it was found that scores on the avoidance, anxiety, and depression measures had dropped while scores on the cognitive measures showed an improvement. Frequency of intrusive thoughts was also significantly reduced.

Examination of the SUDs ratings for the four scenes revealed that the extinction of anxiety for each scene occurred only after that scene had been presented in flooding, a finding which is consistent with the proposition that flooding generalizes according to the degree of stimulus cue overlap. The behavioral avoidance test which was used repeatedly in probes and pre- and posttesting of treatment effect may have obscured the effects of the imaginal flooding, since it took place at the scene of the trauma and may well have constituted in vivo exposure. Saigh (1987) has reported successful replication of this treatment with a six-year-old boy after three unsuccessful attempts with systematic desensitization.

In a recent case study, Grigsby (1987) reported successful treatment of combat PTSD with a procedure which is similar to Keane's. After 19 months of a psychodynamic approach which yielded limited results, the author introduced the following procedure: The patient was asked to close his eyes and imagine a combat scene, describing as much detail as
possible, including internal affective states. This usually elicited visible levels of anxiety followed by recall of greater detail. This occasionally led to other scenes, but more often the original scene was repeated until it no longer elicited anxiety. In the later sessions the patient was asked to picture different outcomes for the scenes. This treatment resulted in the elimination of intrusive thoughts and a decrease in the patient's dosage of alprazolam by 75%. Grigsby described a certain amount of astonishment on the part of his patient about the effects of the procedure which belies the influence of therapist/patient expectations. This treatment differs from that used by the Keane group in its lack of relaxation training and the relatively limited amount of imagery guidance provided in the initial stages. It should be noted that both treatments took place in the context of a long-term trusting relationship with the therapist.

It is hard to imagine that flooding would be the treatment of choice if an equally effective low-anxiety alternative were available. While the classification of treatments into low- and high-anxiety categories is quite simple, the dimension of exposure is much more complex. One can consider the amount or duration of the exposure (as has been done in so many phobia studies), the stimulus content of the presentation (which was done quite thoroughly by Fairbank & Keane in 1982), or the mode of presentation (visual,
auditory, imaginal, in vivo, self-presented or presented by a therapist). The first question is whether exposure to the conditioned stimulus is necessary at all. Even such medication approaches as Kolb's (1984) treatment of PTSD with adrenergic blocks (which would at first glance appear to be a low-anxiety, no-exposure treatment) may include some informal or self-induced exposure to trauma-conditioned stimuli (in fact, Kolb's subjects reported a kind of spontaneous abreaction and greater recall of traumatic events while they were on the medication and it may be this effect of the medication which accounts for its success). Still, if the conditioning model of PTSD is valid, one would expect brief exposure to be ineffective or even counterproductive, yet it is unlikely that Kolb's subjects were receiving the same massive exposures found in flooding. The question still remains whether low-anxiety, low-exposure treatments can reduce PTSD symptoms.

Inhibition-based Treatments of PTSD

Systematic desensitization, originally developed by Wolpe (1958), is the most widely used inhibition-based phobia treatment and was one of the first behavioral techniques applied to PTSD. This technique most commonly involves pairing muscle relaxation with gradual exposure to a hierarchy of anxiety-provoking stimuli. In the course of studying the treatment of nightmares, Celluci and Lawrence
(1977) found desensitization to be effective for one subject whose nightmares were based on a traumatic event (automobile accident). Desensitization also effectively eliminated the recurring nightmares of a combat veteran (Schindler, 1980).

Self-directed in vivo desensitization was used successfully in the treatment of an acute combat reaction (Kipper, 1977). In this case, exposure to the conditioned stimulus was increased from 5 to 30 seconds and was repeated until no anxiety was evoked. It should be noted that the subjects of this study received treatment within days of experiencing the stressor, before avoidance had been reinforced, and before any generalization had occurred. This is not typical of individuals who develop PTSD.

Relaxation is not the only inhibiting response which can be used in desensitization. Johnson, Gilmore, and Shenoy (1982) developed a treatment modeled after that reported in the famed "Case of Peter" (Jones, 1924), in which satiety was used to countercondition an animal phobia. In this case, a combat veteran who exhibited phobic avoidance of a site on his farm which resembled the scene of an ambush in Vietnam was deprived of food for three days and then served his favorite meal at the feared setting. This one session resulted in significant reduction but not total elimination of self-reported anxiety and avoidance behavior as well as hyperalertness, vigilance, and stress-related headaches. Repetition of the treatment produced no further reductions in
anxiety but the improvement was maintained over a period of 10 months.

A long-term imaginal desensitization treatment for combat-related PTSD was investigated by Bowen and Lambert (1986). Ten combat veterans were asked to formulate a hierarchy of stressful combat and noncombat scenes. Each subject's scenes were presented to him in random order by an experimenter in pre- and posttests while physiological (EMG and heart rate) and self-report (SUDs) responses were monitored. Treatment consisted of relaxation training and presentation of the combat scenes only over a period of seven months. Biweekly sessions were terminated when the subject could visualize all of the scenes in his hierarchy comfortably. Three results were of interest. First, untreated combat scenes elicited more anxiety than noncombat scenes during the pretest. Treated combat scenes did not elicit more anxiety than noncombat scenes during the posttest, in fact heart rates were somewhat lower during these scenes. Noncombat scenes elicited less anxiety during the posttest than during the pretest. This may be the result of habituation to the measuring apparatus or a side effect of the relaxation training. This last finding may reveal an oversight in the design of the study. It may be that difference scores reflect a change due to repeated testing rather than a treatment effect, as the scores on the combat scenes were higher to begin with and therefore had farther to
The use of a few untreated combat scenes as controls, or better yet, the use of a separate control group, would have clarified the nature of the effects observed.

Desensitization was recently compared with hypnosis and brief psychodynamic treatment of PTSD (Brom, Kleber, & Defares, 1989). As is so often the case in direct comparisons of treatments, all three were found to be effective when compared to no treatment (the authors reported a "clinically significant" improvement among 60% of their treatment subjects compared to 28% of their control subjects). The more interesting finding was a differential effect picked up by one of the measures used in the study. On the Impact of Event Scale (Horowitz, Wilner, & Alvarez, 1979), which was designed to reflect intrusive and avoidance dimensions of PTSD symptomatology, subjects receiving the psychodynamic treatment showed reductions of avoidance symptoms while subjects in the desensitization and hypnosis treatments showed reductions in intrusive symptoms. This may be explained by the emphasis on the development of coping skills in the psychodynamic treatment and the behavioral nature of the hypnosis treatment. Other merits of this study deserve mention. In an attempt to follow the guidelines for outcome research described by Smith, Glass, and Miller (1980), the investigators used a large sample (112), a three-month follow-up, and, of course, a control group. The large sample was made possible by the inclusion
of individuals exposed to a wide variety of recent (within five years) stressors.

Despite the positive results of these inhibition-based treatments, Kolb (1987) and Saigh (1986, 1987) reported repeated failures to treat PTSD with desensitization. There are several possible explanations for these conflicting results. One is that the subjects of the studies in which desensitization was successful had been traumatized but had not developed chronic PTSD. Another explanation is that the authors have varied in their application of Wolpe's procedures. In the Kipper and Johnson studies, in vivo rather than imaginal exposure was used. It is generally accepted that in vivo exposure is a more powerful method of achieving extinction of phobic behaviors than is imaginal exposure (Rimm & Lefebvre, 1981). The procedure described by Kolb involved having the subjects listen to a tape of combat sounds, first at subliminal levels and then gradually increasing the volume. None of the subjects were able to maintain a relaxed state while listening to the tape, which suggests that the relaxation training was inadequate or that the traumatic conditioning was very powerful. Unfortunately, Saigh has not described his desensitization failures with children.

Based on the preceding studies, it appears that behavioral-based phobia techniques show promise as PTSD treatments, but it would be premature to apply these
techniques, especially such high-anxiety approaches as flooding and implosion, based on a few case studies. Carefully controlled group studies need to be conducted and potential risks and contraindications identified before these techniques can be included in a PTSD treatment program.

Visual-Kinesthetic Dissociation

A new treatment has been developed which may be useful in clarifying the mechanisms underlying successful phobia/PTSD treatments. In 1979, Bandler and Grinder introduced a "three-place visual-kinesthetic dissociation" (VKD) phobia treatment. It has elements in common with all of the treatments described in this review, exposure to mental images of a traumatic event, and inhibition of the anxiety by pairing this image with a competing response with the addition of a component which could be described as "induced dissociation." When asked the difference between this technique and systematic desensitization, Richard Bandler replied, "About six months," and indeed, one of the potential advantages to VKD is speed. Since VKD accesses a wide variety of anxiety-incompatible states by means of mental imagery, the time-consuming task of relaxation training is made unnecessary. The procedure as described by Bandler and Grinder consists of the following steps.

The subject is asked to identify an anxiety-inhibiting response by visualizing a positive situation in his life.
The authors term this a "resource" image and are quite liberal in their definition— they most often ask the subject to search for situations which represents his strength or competence or their best capabilities. They rightly point out that relaxation is not always the desired state (for example, one would not want to pair deep relaxation with driving a car). The therapist then guides the subject to enhance this state by accessing the kinesthetic details of the memory. When the therapist is satisfied by observation of facial expressions, breathing, and posture that the subject has achieved a state which is incompatible with anxiety, those feelings are "anchored" or paired with a touch on the subject's arm. The subject is asked to do the same process with the phobic feeling and these are anchored on the other arm. He is then guided in "dissociating" in order to view an image of the traumatic event. This is usually accomplished by asking him to construct a mental image of himself watching a film of himself experiencing the traumatic event. This is exactly the kind of dissociated viewpoint which is discouraged in Keane's implosive procedure and seems to have the effect of muting the overwhelming kinesthetic reaction to the traumatic event. Viewing the event from this perspective also appears to elicit the recall of greater detail— a phenomenon which Keane expects only at high levels of anxiety. Once the event has been viewed thoroughly, the
subject is guided through a reversal of the dissociation and integration of the new details.

In a recent case study of a combat veteran, Spiegel, Hunt, and Dondershine (1988) described a treatment which is quite similar to VKD. The therapist first hypnotized his patient and then had him visualize a television monitor with a split screen with one side showing the traumatic event and the other showing a positive event. These authors did not report that the patient was instructed to view himself in the scenes. They did state that trance

...can be helpful in providing controlled access to these various states of mind while at the same time giving the patient the sense of control and mastery, so that he or she feels able to tap these dysphoric areas but at the same time balance them with other states that are less demoralizing. The intense focused concentration of the hypnotic trance enables the individual to attend to a portion, or a condensation, of the traumatic experience that does not seem so overwhelming, and thereby put it into a different perspective which can include the loss against some victory or achievement. (p. 27)

They further stated that what can be achieved with hypnosis can be achieved without it, which in this case would result in something which closely resembles VKD.

Bandler and Grinder made the claim that their technique was powerful enough to eliminate a phobia in less than an hour. That claim was studied in 1985 (Krugman et al., 1985). One session of VKD was compared with one session of self-control desensitization in the treatment of
undergraduates with public speaking anxiety. Results of a behavior checklist, a public speaking anxiety inventory, and observer ratings indicated that while speech anxiety did decrease, it did so in both treatment conditions as well as the wait-list control condition and thus was not attributable to the treatment. It must be noted, however, that this was more of a test of the one session claim than it was of the treatment itself. It is possible that further sessions may be necessary before the effect is apparent. At this point it seems as important to focus on the effectiveness of VKD as a PTSD treatment as well as the claims of quick results.

It is also possible that, despite speculation about the traumatic origins of phobia, speech anxiety is not an adequate analog for the phobias found subsequent to severe trauma.

Recently, claims have been made that VKD has been an effective treatment among combat veterans with intrusive traumatic cognitions. It has been stated that the treatment often takes less than 10 minutes and can be utilized by persons with no prior training in neurolinguistic programming. A case study by Gregory (1984) provided a detailed account of the use of both VKD and two other Bandler and Grinder techniques in the treatment of a combat veteran. While treatment was successful within five sessions, it is Gregory's contention that the VKD needs some modification for persons who may have distorted their memories of traumatic
events over long periods of time. He seems to have come up with a flooding/VKD hybrid—a treatment which follows a high-anxiety visualization of the trauma with a low-anxiety one. He first had his patient relax by listening to a tape, then had him visualize the scene and access detail in much the same way as Keane, then had him visualize the same scene from a dissociated perspective, and finally he touched both arms (conditioned stimulus for the anxiety and resource feelings). Gregory's rationale for the inclusion of the high-anxiety viewing is that many veterans have experienced years of intrusive cognitions related to their war experiences and have detached themselves from the emotions by visually distorting the memories. His interest is in achieving reciprocal inhibition to the stimuli which were originally conditioned and not to the distortions. He also advocates the careful establishment of anxiety and resource "anchors" and indicates that success in this early stage of the procedure is a good predictor of subjects who will respond favorably to VKD.

Before proceeding into a description of the methods used in the present study, some issues relating to the evaluation of treatment outcome should be addressed.

Evaluation of PTSD Treatment

The systematic evaluation of the effectiveness of psychotherapy has been an issue of concern since Eysenck's
(1952) controversial work on the subject. The debate over whether therapy is of use at all has largely given way to the evaluation of specific approaches, and the necessity of defining both symptoms and interventions carefully has become apparent (Wilson & Rachman, 1983). Size of effect is another important factor. While statistical significance may be easy to define, clinical significance remains a rather vague criterion in evaluating treatment. It is clear that the acceptability of various levels of change will always be tied to the decisions likely to be made with the results of any given study. Improvement rates, closeness to normal functioning, distributions, and measures of variability are all standards by which a treatment can be measured (Jacobson, Follette, & Revenstorf, 1984; Nietzel, Russell, Hemmings, & Gretter, 1987). Following Campbell and Stanley (1966), many authors have reiterated the need for control-group designs in treatment evaluation (Cook & Campbell, 1979; Smith et al., 1980). Case studies, while providing descriptions of promising or innovative approaches, are no substitute for controlled comparisons of a treatment with alternative-treatment or no-treatment conditions. Durability of effect is another factor. Studies which do not incorporate the use of follow-up measures may miss a deterioration of a treatment's impact with time, or conversely, a "sleeper" effect. Again, the timing of follow-up assessment should be appropriate to the disorder being studied. Lastly, the
appropriateness of the measures in terms of sensitivity to desired effects, reliability, and validity should be considered.

Fairbank and Nicholson (1987) noted the dearth of control group studies of PTSD treatments, though the number of programs treating this disorder have risen steadily since 1980. They identified several guidelines for the direction of PTSD treatment research. First, it is their belief that researchers should be alert to common elements among treatment approaches. At this point, it seems that reviewing the traumatic event in the context of psychotherapy is an essential element in the treatment of PTSD, but little is known about the mechanisms underlying the successful integration of the traumatic memories. Natural coping methods and resources of traumatized individuals have not been investigated, including family and other support systems. Narrowing the focus of studies to narrowly defined populations reduces generalizability but increases the likelihood of detecting treatment effects. And finally, the development of a standard assessment battery for PTSD, including self-monitoring of such hallmark symptoms as intrusive cognitions and sleep disturbance with third party verification, can provide a common ground for the evaluation of treatments and treatment programs.
Conclusions

Due to the predominance of anxiety and avoidance symptoms in PTSD, clinicians have shown an increasing interest in the application of behavioral phobia treatments to this disorder. The behavioral techniques reviewed in this chapter can be divided into two main categories—those based on extinction and those based on inhibition. The extinction-based treatments (flooding and implosion) naturally involve high levels of anxiety during exposure to the conditioned stimulus. The inhibition-based treatments (systematic desensitization, visual-kinesthetic dissociation, and Johnson's inhibition procedure) involve low levels of anxiety. Visual-kinesthetic dissociation has several advantages over the other treatments reviewed. It does not involve high levels of anxiety, it does not require lengthy relaxation training or the development of complex stimulus hierarchies, and it does not require formal trance induction. These factors as well as the positive results of preliminary case studies justify the further investigation of this treatment.
CHAPTER III

METHOD

Design

The study conformed to the requirements of pretest-posttest control-group design with a three-month follow-up.

Subjects

Fifty male Vietnam combat veterans were recruited from the PTSD Treatment Program at the DVA Medical Center in Coatesville, Pennsylvania. Veterans are referred to the program from other units in the hospital (substance abuse, general psychiatry, or mental hygiene), or from outside agencies (outpatient clinics, other medical centers, or veterans outreach programs). A licensed psychologist conducts evaluations by interviewing the patient, obtaining a military history, reviewing the patient's psychological test results and reviewing his medical records. An effort is made to exclude individuals who present factitious PTSD or who falsify their military history, who show evidence of psychotic disorders or who otherwise appear unable to profit from an intensive and stressful treatment program, or whose PTSD symptoms are mild enough to be treated on an outpatient basis. The unit has a five-month waiting list. It is a
further requirement that veterans be drug and alcohol free for 30 days prior to admission.

Once admitted, patients may be discharged prematurely for failure to comply with program requirements. Periodic breathalyzer and urine testing is done to ensure that patients are not abusing alcohol or drugs during their hospitalization.

Of the 50 subjects recruited, 12 did not complete the posttest. Of these, six were discharged prior to posttesting because of substance abuse. Thirty-eight subjects completed pre- and posttests.

Treatment Program

The PTSD Unit of the VA Medical Center in Coatesville, Pennsylvania is a 33-bed inpatient unit designed to provide treatment to combat veterans who are experiencing symptoms of Post-Traumatic Stress Disorder. The unit is open to male and female veterans of any American military action and to date has accepted veterans of World War II, Korea, Vietnam, and Lebanon.

The unit houses three separate programs. The majority of beds are allotted to the 90-Day Treatment Program. A 30-Day Stabilization Program is available to patients who have completed the longer program and have experienced a recurrence of PTSD symptoms. The Observation and Evaluation Program is a
conditional admission to the Unit while a patient is evaluated for the Treatment Program.

The unit is headed jointly by a psychiatrist and a psychologist, both of whom have been involved with the program since its inception in 1982. In addition, there are two psychologists, a master’s-level psychology technician, a social worker, a physician’s assistant, a nurse clinical specialist (an RN with master’s-level training in counseling), four RNs, an LPN, seven nursing assistants, and a secretary. As this is a teaching hospital, the staff is occasionally supplemented by a psychology intern or social work student. Five of these staff members serve as primary therapists, providing individual therapy sessions and taking overall responsibility for case management, with a typical caseload of six patients.

The basic components of the treatment program include individual therapy, group therapy, peer group, patient education, Alcoholics Anonymous/Narcotics Anonymous meetings, and structured assignments off the unit through the hospital's Rehabilitation Medicine Service (options include occupational, recreational, educational or art therapies or a paid work detail).

Patient education sessions are held five times a week. These sessions include videotapes, lectures, and smaller workshops or training sessions. The film series includes historical narratives of the Vietnam and Korean Wars, combat
footage, and films related to the symptoms and treatment of PTSD. Lectures and workshops address such issues as stress management, relaxation, and assertiveness training. The films serve as a springboard for the therapy groups which meet directly afterwards. A typical group comprises six patients and two therapists. The groups meet with their therapists three days a week and meet in “peer group” format on the other two days.

Patients meet with their primary therapists for individual sessions twice a week. Though the training and theoretical orientations of the therapists vary, they all ascribe to a psychodynamic and abreactive approach. Much of the individual time is spent reviewing the patients' most traumatic experiences, re-experiencing the related emotions, and integrating the experience to promote insight and behavior change.

Staff and patients make periodic day trips to the Vietnam Memorial in Washington, DC. This facilitates the grieving process which is long overdue in many cases. This is a difficult experience for many of the patients and requires careful planning and staff support.

Intervention

The treatment used in the study was the three-place visual-kinesthetic dissociation process described in
Cameron-Bandler (1978) and Bandler and Grinder (1979). The steps involved in the treatment are described below:

1. The subject is asked to think of a situation which represents his fullest capabilities as a mature person, or an occasion when he was particularly satisfied with his behavior. The subject is allowed to take his time doing this and is asked to signal the therapist when he has identified the situation.

2. The subject is then asked to produce the image again and to imagine stepping into the image. The subject is instructed to signal the therapist when he is experiencing the feelings of competence and strength associated with the situation by reaching over and taking the therapist's hand and is told that the pressure on the therapist's hand can be increased at any point if he needs to remind himself of the positive feelings.

3. The subject is then asked if he can remember the feelings associated with the traumatic event, and when he signals that he has accessed these feelings, he signals the therapist and the phobic feelings are anchored (associated with a touch on the arm).

4. The subject is asked to close his eyes and to imagine a screen in front of him. On the screen he is asked to place a snapshot of himself at a younger age in the combat situation. The arm is touched again to access the phobic feeling and the subject is asked to take only as much of the
phobic feeling as he needs to form a focused visual image of himself and is asked to nod when the image is clear.

5. The subject is then asked to form another visual image of himself from above, so that he can now see himself as he looks from that perspective and can see the screen. He is reminded to maintain this perspective until instructed to stop. When he signals that he has this image clearly, it is anchored by the therapist touching the top of his hand (this anchor is maintained throughout the next step).

6. The subject is asked to take the image from the snapshot and run it forward like a movie, watching and listening carefully so that he can form a new understanding of the events. The subject is instructed to let the younger self in the film experience the old feelings while he remains comfortable, signalling with a nod when the film has run to the end.

7. When the film has been completed, the subject is asked to come down from the overhead perspective and reunite with his body. At this point the “dissociation” anchor is released.

8. The subject is asked to imagine stepping into the film at the end and running it backwards quickly and is again instructed to signal when this has been completed. This step is repeated twice, increasing the speed (until it takes about a second).
9. At this point the anchor for the positive feeling is released.

This procedure can be stopped whenever it appears that the subject is losing the dissociative image or is becoming distressed. The steps may then be repeated until the procedure has been completed. Program staff were available at all times and subjects were asked to report any adverse effects of the treatment sessions. Treatment was administered over three one-hour sessions. A rationale and outline for the treatment was presented at the beginning of the first session.

Measures of the Dependent Variable

The Mississippi Scale for Combat-Related PTSD (MISS) is a self-report inventory of 35 items derived from the diagnostic criteria and associated features of PTSD as described in the DSM-III. A study of male Vietnam-era veterans (Keane, Wolfe, & Taylor, 1987) revealed an internal consistency coefficient of .94. Averages of each item's correlation with the total score ranged from .23 to .73 and averaged .58 (p < .0001). Factor analysis yielded six main factors reflecting intrusive memories, depression, interpersonal problems, affective lability, ruminative processes, and sleep disturbance. The instrument's correlation with the Combat Exposure Scale (Keane et al., 1985) is $r = .25$, $p < .0001$; higher scores were correlated with
higher combat exposure. Test-retest reliability over one week was found to be .97 ($p < .0001$). Scores appear to be consistent from one testing to another regardless of initial level of symptom severity. The scale's correct classification of PTSD, non-PTSD and noncombat veterans was 90% when compared with clinicians' evaluations using a battery of a structured interview, Combat Exposure Scale, MMPI and PTSD Subscale, Beck Depression Inventory, and State-Trait Anxiety Inventory. The Mississippi Scale was chosen for the present study because it reflects the full range of PTSD symptoms (DSM-III-R Groups B, C, and D), because it is one of the better-known and widely used PTSD scales, because its psychometric properties have been more thoroughly examined than most other PTSD scales, and because the instrument's range and continuous scoring increase the likelihood that it is sensitive to treatment effects.

A Symptom Severity Index (SSI) of self-reported frequency and intensity of intrusive combat memories, dreams, and flashbacks was also utilized as a measure of treatment effect. The index yields a single score. Most of the PTSD case studies conducted to date have used self-ratings of these re-experiencing symptoms (DSM-III-R Group B) since they are so characteristic of the disorder. The use of the SSI makes possible an evaluation of the treatments' effect on these central symptoms and also permits comparison of the results with those of previous studies.
In order to assess the effectiveness of the intervention in reducing sleep disturbance, a one-week self-report of hours of sleep per night (SLEEP) was also averaged before and after treatment and at three months follow-up. This measure was chosen to reflect the impact of treatment on the PTSD symptoms related to persistent increased arousal (DSM-III-R Group D). It may be that sleep disturbance is also related to the nightmares that are part of the B symptom group but research in that area is sparse.

Other Measures

Several other independent variables were included in the study which were thought to be related to treatment outcome. These included skill in mental imagery, level of exposure to combat stressors and an independent measure of PTSD symptom severity, demographic variables of age in years, education in years, service-connected disability rating in percentage (as determined by the Veterans Administration), race, and branch of service.

In order to assess subjects' skill in forming and manipulating mental images, the Betts Questionnaire on Mental Imagery (QMI) Vividness of Imagery Scale was administered. This 35-item self-report test measures an individual's ability to imagine various stimuli (the face of a friend, the taste of salt, etc.). The questionnaire produces a total score or scores on each sensory modality.
A Combat Stress Index (CSI) was administered to measure subjects' exposure to various stressors, including receiving fire, seeing American servicemen killed, killing enemy troops or guerrillas, and so forth.

The MMPI is usually administered on a veteran's first admission to the medical center and scores on the PTSD subscale of that test are computed. The subscale (Keane, Melloy, & Fairbank, 1984) comprise 49 items from the MMPI and was originally reported to yield an 82% correct classification or "hit" rate. Later research (Denny, Rubenowitz, & Penk, 1987; Hyer, Fallon, Harrison, & Boudewyns, 1987) produced lower hit rates using this scale. A recent study of 234 Vietnam veterans yielded a hit rate which was slightly better than chance (56%). Its accuracy in identifying true positives was somewhat better, with a rate of 78.6% (Silver & Genovese, 1989).

Procedure

After individuals were admitted to the PTSD Treatment Program, the study was described to them. Treatment and assessment procedures were explained and consent forms were signed by those individuals who were willing to participate. Subjects were randomly assigned to control and experimental groups. CSI (combat exposure) and MMPI scores, demographic information, and military history were obtained from hospital records and were used to determine the equivalence of the
groups and the degree to which the sample was representative of patients in the PTSD program. The Betts QMI, the Mississippi Scale, and Symptom Severity Index were administered and patients were asked to keep a log of their sleep for one week prior to initiation of treatment sessions. The information from the sleep logs was used to determine an average of hours slept per night. Subjects in the experimental group then received three one-hour sessions of visual-kinesthetic dissociation. Subjects in the control group attended regularly scheduled program activities. Posttesting (with the Mississippi, SSI, and sleep self-report) was completed after the intervention period and subjects were contacted after leaving the treatment program for a three-month follow-up with the same measures.

Analysis

The basic analysis for the data yielded by this study was analysis of variance using pretest, posstest, and follow-up scores for control and experimental groups. This method of analysis allowed for the examination of the Coatesville program's overall effectiveness (as shown over time), and the incremental effectiveness of the VKD technique (as shown by group), and the possible interaction of these effects.

Group equality was established by means of chi-squares and t-tests of demographic variables of age, education,
service-connected disability rating, race, branch of service, and combat exposure.

Mean scores on the independent variables (demographics and MMPI scores) and dependent variables (SLEEP, SSI and MISS) were entered into a correlation matrix.
CHAPTER IV

RESULTS

Descriptive Statistics

Ranges, means, and standard deviations of continuous independent variables are presented in Table 1.

Table 1

Descriptive Statistics—Demographic Variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>Min</th>
<th>Max</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (years)</td>
<td>34</td>
<td>46</td>
<td>40.68</td>
<td>2.55</td>
</tr>
<tr>
<td>Education (years)</td>
<td>9</td>
<td>16</td>
<td>12.32</td>
<td>1.26</td>
</tr>
<tr>
<td>Combat (CSI score)</td>
<td>9</td>
<td>48</td>
<td>26.78</td>
<td>9.30</td>
</tr>
<tr>
<td>PTSD (MMPI subscale)</td>
<td>13</td>
<td>104</td>
<td>38.58</td>
<td>15.95</td>
</tr>
<tr>
<td>Disability (percent)</td>
<td>0</td>
<td>100</td>
<td>24.74</td>
<td>26.79</td>
</tr>
</tbody>
</table>

Education level was determined by years of schooling or equivalency completed. In other words, subjects having completed Graduate Equivalency Diplomas were counted as having 12 years of education. Fifty-five percent of the subjects were black, 45% were white. Thirty-four percent of the subjects served in the Marine Corps, 55% in the Army, and 11% in the Navy. Air Force veterans were not represented in this sample.
Equality of Groups

The equality of the experimental and control groups was determined by means of $t$-tests and chi-square analyses. Results of $t$-tests of age, education, service-connected disability rating (SC%), combat exposure, PTSD severity as measured by the MMPI subscale, and imagery skill are presented in Table 2. There were no significant differences found between control and experimental groups on these variables.

Table 2

T-tests of Demographic Variables

<table>
<thead>
<tr>
<th></th>
<th>VKD Mean</th>
<th>Control Mean</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (years)</td>
<td>40.75</td>
<td>40.61</td>
<td>.290</td>
<td>.773</td>
</tr>
<tr>
<td>Education (years)</td>
<td>12.29</td>
<td>12.40</td>
<td>-.213</td>
<td>.833</td>
</tr>
<tr>
<td>Disability (percent)</td>
<td>31.50</td>
<td>17.22</td>
<td>1.681</td>
<td>.102</td>
</tr>
<tr>
<td>Combat (CSI score)</td>
<td>29.23</td>
<td>24.50</td>
<td>1.322</td>
<td>.198</td>
</tr>
<tr>
<td>PTSD (MMPI subscale)</td>
<td>38.14</td>
<td>34.40</td>
<td>1.540</td>
<td>.133</td>
</tr>
<tr>
<td>Imagery (QMI score)</td>
<td>81.29</td>
<td>78.00</td>
<td>.313</td>
<td>.756</td>
</tr>
</tbody>
</table>

Chi-square analyses of race and branch of service were done and no significant differences were found between control and experimental groups on these variables ($x^2$ race = .1, $x^2$ branch = 7.52)
A final series of t-tests were done to determine the equality of the groups in terms of pretreatment scores on the dependent variables. No significant differences were found on hours slept/night (SLEEP), full PTSD symptomatology as measured by the Mississippi Scale (MISS), and intrusive cognitions (INDEX). Results of this analysis are presented in Table 3.

Table 3
T-tests of Pretest Scores

<table>
<thead>
<tr>
<th></th>
<th>VKD Mean</th>
<th>Control Mean</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>SLEEP (hours)</td>
<td>4.93</td>
<td>5.27</td>
<td>-1.018</td>
<td>.318</td>
</tr>
<tr>
<td>MISSISSIPPI</td>
<td>135.18</td>
<td>135.167</td>
<td>.005</td>
<td>.996</td>
</tr>
<tr>
<td>SSI</td>
<td>69.13</td>
<td>69.14</td>
<td>-.001</td>
<td>.999</td>
</tr>
</tbody>
</table>

A correlation matrix was generated using independent and dependent variables. The strongest correlation found was between combat exposure and imagery (−.56). Because of the scoring on the Betts scale of mental imagery (lower scores indicate greater skill in imagery), this correlation shows that greater skill in imagery was found among subjects with higher levels of combat exposure. None of the correlations between independent and dependent variables was significant.
Treatment Effect

Means and standard deviations for sleep in hours per night are presented in Table 4.

Table 4

<table>
<thead>
<tr>
<th>Group</th>
<th>Pre M</th>
<th>SD</th>
<th>Post M</th>
<th>SD</th>
<th>Follow-up M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>VKD</td>
<td>5.05</td>
<td>1.07</td>
<td>4.94</td>
<td>.99</td>
<td>4.02</td>
<td>1.08</td>
</tr>
<tr>
<td>Control</td>
<td>5.46</td>
<td>1.97</td>
<td>5.41</td>
<td>1.86</td>
<td>4.46</td>
<td>1.15</td>
</tr>
</tbody>
</table>

A two-way ANOVA was performed using treatment group and time (pretest-posttest-follow up) as independent variables and subjects' self-reported hours of sleep/night (SLEEP) as a dependent variable. No significant effect was found for group ($F = 1.94, p = .163$), or for the interaction of group with time ($F = .03, p = .974$). There was a significant effect for time, ($F = 4.37, p = .015$), showing that average hours of sleep per night among all subjects decreased significantly on follow-up.

Post hoc comparisons of the sleep data by means of Scheffe test show significant differences between subjects' pretest and follow-up scores and between posttest and follow-up scores. This is not a surprising finding given that the period between pre- and posttesting was only one
week and the period between posttest and follow-up was three months.

Means and standard deviations for the Mississippi Scale are presented in Table 5.

Table 5

Means and Standard Deviations—Mississippi Scale

<table>
<thead>
<tr>
<th>Group</th>
<th>Pre M</th>
<th>Pre SD</th>
<th>Post M</th>
<th>Post SD</th>
<th>Follow-up M</th>
<th>Follow-up SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>VKD</td>
<td>133.65</td>
<td>12.35</td>
<td>134.22</td>
<td>15.68</td>
<td>140.58</td>
<td>16.34</td>
</tr>
<tr>
<td>Control</td>
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<td>13.52</td>
<td>135.88</td>
<td>15.68</td>
<td>140.21</td>
<td>11.65</td>
</tr>
</tbody>
</table>

A two-way ANOVA was performed using treatment group and time (pretest-posttest-follow up) as independent variables and subjects' scores on the Mississippi Scale as a dependent variable. No significant effect was found for group \((F = .045, p = .813)\), time \((F = 1.712, p = .184)\), or for the interaction of group with time \((F = .038, p = .951)\).

Means and standard deviations for the Symptom Severity Index (SSI) are presented in Table 6.
A two-way ANOVA was performed using treatment group and time (pretest-posttest-follow up) as independent variables and subjects' scores on the Symptom Severity Index as a dependent variable. No significant effect was found for group \((F = .092, p = .755)\), time \((F = .421, p = .663)\), or for the interaction of group with time \((F = .223, p = .801)\).

Based on these results, the null hypothesis (no difference between the treatment and control groups) must be accepted for each of the dependent variables. In other words, the addition of three sessions of Visual-Kinesthetic Dissociation did not significantly enhance the effects of this PTSD treatment program.
The goal of this study was to investigate the effectiveness of Visual-Kinesthetic Dissociation as a treatment for combat-related Post-Traumatic Stress Disorder. This was done by adding VKD to an existing treatment program in a pre/post/follow-up control group design. It was hypothesized that the PTSD symptoms of both groups would improve as a result of treatment but that the experimental group would show a significantly greater improvement than the control group. Results did not support this hypothesis. In fact, neither group showed improvement in intrusive cognitions or overall PTSD symptoms and both groups showed a significant decrease in amount of sleep after treatment.

Program Effectiveness

It was surprising to find so little evidence of symptom relief in persons completing three months of intensive psychotherapy in a program using widely accepted methods. It may be that the optimism generated by early case reports describing successful treatment of PTSD was unwarranted. In the past year the first controlled group studies of PTSD treatment have begun to appear in the literature.

Several such studies have been conducted within the VA system. The VA currently has 16 inpatient PTSD programs and
an increasing number of outpatient treatment options available to combat veterans. Though these programs have developed independently, most seem to be based on the idea of promoting veterans' "debriefing" of their war experiences in group and individual sessions; all rely heavily on peer bonding and a sense of community; all include skills training in stress management and social skills; veterans with diagnosed personality disorders and active substance abuse problems are eliminated from the programs; and medication use is minimal. Despite differences in methodology and instrumentation used in these studies, each program was found to have a positive impact on patients' PTSD symptoms. These studies also provided information about which symptoms respond best to intervention, how great a change can be expected, and how long the effects of treatment can be expected to last.

One of the earliest program evaluations was conducted at the Palo Alto VA (Berman et al., 1982). Interviews of program graduates showed that 60% experienced relief of acute psychological distress, resolved family crises, secured employment or began school.

Perconte (1989) evaluated a day treatment program at the Pittsburgh VA and reported that veterans completing the program showed a significant (p<.01) decrease in symptoms (as measured by the SCL-90 R). However, these gains proved to be temporary. Within a year these same veterans showed a
significant increase in symptoms, not to pretreatment levels, but significant nevertheless. Not only was relapse a problem, but so was attrition. The program had a dropout rate of 26% in the first month alone. From this the authors concluded that the optimism by early case reports may have been unwarranted. Several factors were identified which may have contributed to relapse, including substance abuse, reactivation of PTSD symptoms related to a current life stressor, failure to address family and vocational issues in treatment, and secondary gain due to disability compensation.

Scurfield, Kenderdine, and Pollard (1990) recently completed an outcome study of the inpatient combat PTSD treatment program at the VA Medical Center in American Lake, Washington. Using the Mississippi Scale, the Impact of Event Scale, the MMPI, and a locally developed symptom checklist and questionnaire, they assessed the immediate and long-term results of a 12-week inpatient PTSD treatment program. Sixteen weeks after discharge, significant improvements were found in veterans' self-esteem and understanding of themselves, in their ability to form trusting, stable relationships with others, and in dysphoric symptoms. Intrusive symptoms, particularly nightmares and sleep disturbance, were the least impacted by this intensive treatment program. These findings suggest that traditional psychotherapy may not have any direct effect on this core of intrusive cognitions but may make them more tolerable.
In 1987 a survey was conducted to determine the outcome of the Coatesville treatment program. Measures taken in that study included veterans' self-ratings of depression, anger, substance abuse, sleep disturbance, and quality of relationships. Of these, substance abuse and relationships were found to improve the most, and anger and sleep improved the least. Intrusive symptoms were also studied by comparing frequency of memories, dreams, and flashbacks at their peak during the program and after discharge. Nightmares were most affected by the program, with flashbacks and intrusive memories lagging behind. Another important finding was that patients' symptoms actually got worse while they were in the program, peaking somewhere around the 60-day point and then decreasing before discharge.

A more extensive evaluation of the Coatesville program was completed later (Hammarberg, 1989). In that study, veterans in the program were compared to Vietnam era veteran and nonveteran controls as well as a group of controls asked to simulate PTSD symptoms. A significant treatment effect was found (using the recently developed PTSD Inventory), with the treatment group showing a decrease in symptoms of approximately one standard deviation while controls remained unchanged. These findings were in agreement with veterans' self-ratings and therapists' ratings. As was the case in the Pittsburgh study, symptoms increased and approached pre-treatment levels six months after discharge.
To summarize, patients in VA PTSD treatment programs have reported improvements in a variety of symptoms, but these effects may be short-lived once the patients leave treatment. For this reason, outpatient follow-up has been a standard recommendation. Though several studies have indicated a vulnerability of this population to relapse, little is known about why or when this occurs.

In light of previous findings of treatment effect in VA programs and the Coatesville program in particular, it is interesting that no such effect was observed in the present study. Timing of assessments may be one explanation, especially since symptoms do not improve steadily but get worse before they get better. In the Hammarberg study, veterans were assessed upon admission, at 4, 8, 12 weeks and at six months post-discharge. Symptoms were at their lowest point at 12 weeks, which is immediately prior to discharge. In the present study veterans were typically assessed in the third and fourth week of their hospital program, and again a few weeks after discharge. It is possible that assessments were done at the times least likely to show treatment effects, while patients were uncovering painful memories which they had repressed prior to treatment, and after they had left the hospital.
Instrumentation

Another explanation is that the instruments used in the Hammarberg study were more sensitive to treatment effects than those used in the present study. Due to the small number of subjects available for the present study, an effort was made to choose a few measures that would adequately reflect the changes expected as a result of VKD. The Mississippi Scale for Combat-Related PTSD was originally chosen for this study because it was a brief, combat-specific measure that covered all of the symptom domains of PTSD. It is one of the most widely used PTSD measures and is the only inventory which allows for the measurement of PTSD severity on a continuous scale. While the scale may reliably identify individuals with PTSD, no evidence of its sensitivity to the effects of therapeutic intervention is available. Many of the items reflect such problems as unemployment, social isolation, and substance abuse. Even very powerful treatments are unlikely to have an immediate impact on such problems. It should be noted that the Mississippi Scale was used in one of the VA outcome studies cited previously (Scurfield et al., 1990). While other measures used in the study reflected change as a result of the treatment program, Mississippi scores did not change.

Amount of sleep was chosen as a dependent variable in an attempt to evaluate VKD's effect on the physiological aspect
Results of the present study indicate that VKD subjects did not report a significant change in hours of sleep when compared to controls. In fact, both groups reported a significant reduction in sleep when compared to their pretest levels. This could be a negative effect of the treatment program. If feelings and memories are stirred up during the therapeutic process and were not resolved, it could be reflected in a decrease in the amount of sleep. However, since the pretest and posttest were both done while the subjects were hospitalized and the follow-up was done after the subjects were discharged, these results may simply show the difference in sleep patterns between the hospital and home. Many veterans develop a sleep pattern at home which echoes the habits they developed in combat. They may check their environment carefully before going to sleep, making sure doors and windows are locked, sleep in defensive postures (back against the wall, arm folded across the face and throat), and be easily awakened by sounds. Furthermore, those veterans whose war experiences included frequent night patrols may develop a long-standing pattern of sleeping during the day and remaining wakeful after dark. On the PTSD unit, daytime sleep is precluded by program requirements. While in the program, patients are away from settings in which they have practiced poor sleep habits, share rooms with other combat veterans, and are checked hourly by a nursing staff which is essentially "standing watch"; these are
conditions which may provide a sense of security that is conducive to sleep. While patients' informal self-report confirms these explanations, pre-hospitalization sleep data were not obtained for this study and these ideas could not be tested.

Several authors (Brill & Beebe, 1956; Archibald, Long, & Miller, 1962; van der Kolk, Burr, Blitz, & Hartman, 1981) have noted the durability of PTSD sleep disturbance, in some cases observed 40 years after the traumatic event. Individuals with PTSD have been found to have lower sleep efficiency, shorter but denser REM periods, more frequent awakenings, and less slow-wave sleep (Hefez, Metz, & Lavie, 1987; Glaubman, Mikulincer, Porat, Wasserman, & Birger, 1990). A recent study by Inman, Silver, and Doghramji (1990) showed that PTSD insomniacs did not differ from non-PTSD insomniacs in the severity of their sleep disturbance but did differ in amount of dream recall, anxiety about falling asleep, ability to resume sleep after a nightmare, and frequency of nightmares.

It has often been observed that subjects in sleep studies underestimate the amount of sleep they are getting. Since this study relied on self-report, the same could hold true for these data. However, the kinds of estimates turned in by the subjects in this study compare favorably with those obtained in sleep laboratories. Schlosberg and Benjamin's (1978) study of Israeli combat veterans yielded an average of
3.8 hours/night. It is possible that sleep disturbance may be one of the last symptoms of PTSD to resolve with treatment.

The Symptom Severity Index was chosen because intrusive cognitions in the forms of memories, flashbacks, and dreams are peculiar to PTSD and because VKD is a treatment which is supposed to target anxiety symptoms. Several methods of measuring anxiety are available, including paper and pencil inventories, physiological reactivity, avoidance or termination of trauma stimuli, and simple self-report of anxiety level or SUDs. SUDs have been the most commonly used anxiety measure in case reports of PTSD treatment. However, this method seems open to expectancy effects, particularly when they are taken as part of a treatment session in the presence of the therapist. Physiological reactivity may be the method which is least vulnerable to expectancy and self-report bias but has some other drawbacks. A measure which would require subjects to return to the hospital would have drastically reduced the number of subjects completing the follow-up and would have limited the generalizability of the findings. Inventories such as the STAI and Back Anxiety Inventory may be reliable measures of overall anxiety, but are not PTSD specific. The Symptom Severity Index, while avoiding many of the drawbacks of other methods, measures frequency of intrusive cognitions and the distress resulting from these but not the classic phobic behaviors of anxiety and avoidance per se.
The present study relied entirely upon self-report measures of outcome. It has long been recognized that such measures are vulnerable to intentional or unintentional bias. Physiological, observational, or behavioral measures could greatly enhance further investigations. Some attempt to evaluate the classic phobic complex of physiological reactivity and avoidance behavior as well as subjective distress could be a better test of phobia treatments applied to PTSD. Full-spectrum PTSD measures which have shown some sensitivity to treatment effects such as the PTSD Inventory should also be considered.

We must now address the failure of this study to replicate previous successes described by therapists using VKD. Some of the factors to be considered are the number of sessions, the training and experience of the therapist, the exact procedure used in the sessions, and characteristics of the population.

**Number of Sessions**

Subjects in the experimental group in this study underwent three sessions of VKD, which is generous in light of the claims made of "one-shot cure" with this technique. It is possible that this was still not enough to illustrate the effects of VKD. Two recent studies of brief treatments of PTSD (systematic desensitization and flooding) used 10-15
sessions. Further investigation including a greater number of sessions is warranted.

Therapist Variables

The training and experience of the therapist may also be a factor which would influence the effectiveness of the treatment. The therapist in this study had received training in basic NLP techniques, including simple anchoring and phobia treatment. In fact the therapist had undergone the VKD procedure herself in a workshop by a well-known NLP trainer. Further training consisted of reading a variety of written descriptions of the procedure, and watching a videotape of an NLP trainer doing the procedure. Next, the therapist practiced with phobics and was given further supervision by a psychologist certified in NLP. Finally, in a pilot study the therapist completed three sessions of VKD with four individuals, one civilian and three veterans with PTSD. In three of these cases subjects reported a dramatic decrease in anxiety on recalling the traumatic events at the end of three sessions, and reported a significant decrease in intrusive memories, dreams, and flashbacks the week after treatment. The therapist did not complete advanced workshop training in VKD, but it is believed that her training and experience were enough to provide an adequate test of VKD. It should be noted that the therapists in the studies of brief desensitization and flooding previously mentioned
received similar amounts of training. The fact that the primary investigator and the therapist were the same person in the present study could have biased the results. However, given her previous successes with the technique, it would most likely be a bias in favor of the treatment, not against it.

**Procedural Variables**

During the author's training, several variations of the VKD procedure were found. It is assumed that later versions represented minor improvements in the technique rather than major revisions. Most of these changes were related to the "collapsing" stage at the end of the treatment, where the subject is asked to enter the trauma scene while maintaining new kinesthetic sensations. In an early NLP publication the subject is asked to converse with her younger self and offer insights achieved since the experience. A later version, the one used in this study, has the subject experiencing the sequence of events in reverse order. A third variation was described in a case study of a Vietnam veteran (Gregory, 1984).

Gregory discovered that the standard low-anxiety VKD procedure had a limited impact on PTSD symptoms. It was the author's impression that veterans had already emotionally detached themselves from their trauma to some extent by distorting their memories of the experience. To offset this
tendency Gregory incorporated a step in which his subject was asked to mentally relive his traumatic experience accurately without the help of an anchored positive resource. This step resembles Keane's flooding and evoked comparably high levels of anxiety. Rather than prolonging this step as would be done in flooding, Gregory used the information gathered in this step and proceeded with VKD as originally described. Using this modified procedure, he produced a convincing decrease in sleep disturbance, intrusive cognitions, depression, and interpersonal estrangement after six hours of treatment. These gains were maintained at 22 months and were supported by significant achievements in employment, school performance, and marital satisfaction. Gregory concluded that therapists following the protocol described in NLP literature would desensitize only the distorted memories and would therefore experience treatment failures.

VKD seems to consist of two identifiable elements—reciprocal inhibition and dissociation. It is as yet unclear whether both of these elements are necessary. It would be a relatively simple matter to investigate these elements separately by comparing a group in which subjects are asked to recall the traumatic event while a positive anchor is applied, another in which subjects recall the event from a dissociated perspective but without the positive anchor, a third group in which subjects do both in the standard VKD protocol, and a control group in which they are simply
instructed to recall the event. Such a study could best be conducted with single-event subjects.

Population Variables

The subjects in this study represent the most chronic and severely impaired PTSD population. Veterans applying to the Coatesville program have been referred by clinicians in seven states who conclude that hospitalization is necessary. Since the program has a long waiting list, veterans whose symptoms are considered treatable on an outpatient basis are not accepted. Most have experienced multiple severe stressors and have shown significant emotional and social impairment.

Due to the time constraints of the study, it was necessary to have subjects select only one traumatic event for desensitization. It is possible that even the fully successful desensitization of a traumatic memory could be obscured if other memories remain untouched. As shown by Keane et al.'s (1985) work, desensitization generalizes over memories only to the extent to which those memories share stimulus elements.

In this study, no attempt was made to determine the severity or centrality of the memories which subjects chose for desensitization, but one factor related to choice did emerge. It was apparent from some subjects' reports that they had spontaneously dissociated at the time of the event.
and were already observing themselves in the situation when remembering it. This naturally occurring dissociation and its connection to severe trauma have been of interest since Janet's time. It has long been felt to be a phenomenon which has a protective function, allowing the person to buffer himself emotionally from the event. Since the point of VKD was to deliberately induce dissociation where it was lacking, subjects reporting such memories were asked to select a different event for the VKD sessions. Studies of single-event PTSD subjects and those who do not spontaneously dissociate may provide useful information about VKD and the mechanisms underlying PTSD.

Time between trauma and treatment is another important factor. Not only were the subjects of this study exposed to multiple severe stressors, but most had gone twenty years before receiving treatment that addressed their combat experiences specifically. Recent research (Brom & Kleber, 1989; Mitchell & Resnick, 1986) does show that PTSD can be successfully treated, even prevented, by debriefing immediately after the event. The length of time since the trauma and the level of impairment experienced by the subjects may have impacted another aspect of the VKD sessions.

It was noted during the sessions that several subjects had difficulty identifying and fully accessing positive memories to use in the procedure. Even after such memories
had been accessed, some subjects tended to "contaminate" them with feelings of guilt or loss. Because developing these positive memories was considered an essential part of the treatment, time was taken on this step even if it slowed the procedure somewhat.

It was the author's observation that the majority of subjects in this study had difficulty reviewing their traumatic experiences as instructed. Even though they initially gave indications of relaxation and dissociation (relaxed posture, deep regular breathing, head tilted back), once asked to "run the film" of the incident, they very quickly slid into re-experiencing the event rather than watching it. Very often they showed signs of physiological distress and were stopped by the therapist without signalling that they had lost the dissociated perspective. It should be remembered that patients are in a relatively high-anxiety treatment program in which they are exposed to reminders of combat most of the time. It may thus be even more difficult for them to control the imagery in a VKD session. A research design in which VKD was used with outpatients or immediately prior to discharge may have avoided the conflict between high and low anxiety treatment approaches.

It has long been observed that Vietnam veterans have difficulty trusting others and have a low tolerance for situations in which they feel they are being controlled. Subjects in this study were in the process of forming
trusting relationships with their primary therapists when they were asked to review sensitive material in a limited number of sessions with an unfamiliar therapist. It seems most likely that a lack of confidence in an untested technique with an unfamiliar therapist affected the results.

It has been suggested that the VA's own system for awarding service-connected disability payments could influence the results of treatment outcome studies. Since veterans can receive payment according to the severity of their PTSD symptoms, the issue of secondary gain cannot be dismissed. It is possible that any treatment could be undermined by the fear that disability payments could be reduced or stopped if one reports improvements after treatment. In the author's own experience this is a common concern among patients in the VA programs, which in turn inhibits the success of treatment. Unfortunately, it would be difficult to assess this variable in any meaningful way.

For the purposes of this study, the item of analysis was simply percentage rating of disability. This is a crude measure, showing only the level of impairment in a veterans' ability to work as awarded by a separate review board. It does not reflect how big an influence the rating may have on a veteran's behavior. A veteran could be 0% service-connected but have a claim pending, another could be 100% and have his rating up for review. Some subjects could have had concerns about individual results coming to the
attention of disability claims boards even though they were assured that confidentiality would be maintained. It would be very difficult to obtain a numerical rating of such a complex issue. Unfortunately, there appears to be no way to avoid the issue of compensation with traumatized populations.

Conclusion

There has been a growing trend toward the symptomatic treatment of PTSD in recent years. The most frequently described and investigated techniques are those originally developed to treat simple phobias. This may be because the phobic aspects of PTSD are so obvious and lasting that they have been assumed to be central to the disorder. There is as yet insufficient evidence to support the notion that treating the conditioned anxiety will result in the disappearance of other PTSD symptoms. Behavioral phobia treatments are brief, simple, and easily defined, and therefore lend themselves to being researched. There is a danger that PTSD treatment research could become too narrowly focused on techniques which are easily investigated and methods which are less easily defined will be overlooked. In that sense we may indeed resemble the man who looks for his lost keys under the streetlight "because that's where the light is."

Because of the severity and chronicity of the population and the limited number of sessions, the present study represented a very rigorous test of Visual-Kinesthetic
Dissociation. While the results of this study offer strong evidence against the claims of one-shot cure, further investigation is needed before VKD can be eliminated as a useful adjunct in the treatment of posttraumatic symptomatology.
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