Emotional Aftermath of the Persian Gulf War

Veterans, Families, Communities, and Nations

EDITED BY

Robert J. Ursano, M.D.

Professor and Chairman, Department of Psychiatry
Uniformed Services University of the Health Sciences
F. Edward Hebert School of Medicine
Bethesda, Maryland

Ann E. Norwood, M.D.

Assistant Professor and Assistant Chair
Department of Psychiatry
Uniformed Services University of the Health Sciences
F. Edward Hebert School of Medicine
Bethesda, Maryland

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19 Treatment of Veterans Severely Impaired by Posttraumatic Stress Disorder

Robert A. Rosenheck, M.D.
Alan Fontana, Ph.D.

Although the Persian Gulf War is now over, it is sure to live on in the memories of those who participated in it. Fortunately, most Persian Gulf veterans, after a period of readjustment, have resumed the threads of their lives and are continuing much as they had before their deployment to Southwest Asia. Others, however, as demonstrated in the chapters of this volume, are, and may remain, significantly distressed by their experiences. These veterans will continue to relive various war-zone experiences, ranging from the merely troublesome to the deeply traumatic, for weeks, months, or even years. What can we say about the long-term prospects for these veterans? What can we do to ameliorate their suffering?

Every war is unique to those who fought in it. Much has been made of the very real differences between the Gulf War and other 20th-century U.S. military actions. Nevertheless, amid important differences, many threads of commonality run through modern warfare generally (Fontana and Rosenheck 1993; Rosenheck and Fontana 1994), and the experiences of veterans

of previous wars can be profitably recalled and reconsidered as we anticipate caring for Persian Gulf veterans in the years to come.

As reviewed in previous chapters, there is, regrettably, abundant evidence of the tenacity of war-related posttraumatic stress disorder (PTSD): from World War II (Archibald and Tuddenham 1965), the Korean conflict (Sutker et al. 1989), and the Vietnam War (Kulka et al. 1990b). Fifteen years after the last American soldier left Saigon, more than 15% of those who served in the Vietnam theater were found to be suffering from PTSD (Kulka et al. 1990b).

But even among those who suffer from PTSD, many veterans are able to sustain family life and work productively in spite of their symptoms, and more than a few find themselves moved by the inner pain and sorrow of their war experience to devote themselves, fully and wholesomely, to the care of their fellow veterans. In 1985, Steven Silver, a Vietnam War veteran psychologist working in the Department of Veterans Affairs (VA) medical center in Coatesville, Pennsylvania, noted an important change in what he called the mythos of the Vietnam veteran: a change from the outlaw mythos exemplified in movies such as *Taxi Driver* and *Rambo* to a generative mythos of the strong, sensitive, and caring survivor (Silver 1985). Many Vietnam veterans who suffer from PTSD have used their pain to propel their lives in creative and healing directions.

Our own analysis of data from the National Vietnam Veterans Readjustment Study (NVVRS) showed that among those diagnosed with PTSD who had never sought help (38% of all those currently suffering from PTSD), the majority (67%), when asked why they had not sought help, said they did not feel that their problems were serious enough to require special assistance and that they thought they would get better without help. Without minimizing the suffering of these veterans, for their pain is no doubt substantial, we seek here to contrast them with a group of veterans who also suffer from persistent PTSD but who are far more severely symptomatic and socially impaired (Friedman and Rosenheck, in press).

Clinical Characteristics of and Treatment for Severe and Persistent PTSD

The group of veterans with PTSD whose care is addressed in this chapter often suffer from comorbid conditions such as mood disorders and substance abuse, conditions that are compounded by suicidality in many cases (Table 19–1). As a result, these individuals make extensive use of health care services and sometimes also become involved with the criminal justice system. They are often unable to work because they are easily overwhelmed by storms of emotion and have difficulty responding to the demands of authority figures. For the same reasons, they find themselves severely socially isolated, having been abandoned or rejected by most of those who once loved them. This complex of problems may eventually result in exceptionally severe deficits in social adjustment such as extreme poverty, vagrancy, and homelessness. Impoverished and severely cut off from social support by war-related stresses, these veterans resemble other patients who suffer from disabling mental health problems. They are most likely to turn to public-sector providers of last resort for assistance, in many instances to programs offered by the VA.

In this chapter we present a portrait of this subgroup of veterans, an important minority within the larger minority who suffer from war-related PTSD. For these veterans, more than half of whom have suffered from PTSD for more than 20 years, as for other individuals disabled by severe psychiatric illnesses, vet-

Table 19–1. Characteristics of severely ill veterans who suffer from posttraumatic stress disorder

Severe and persistent symptoms	Legal system involvement
Comorbid disorders (e.g., depression, substance abuse)	Poor employment capacity
Suicidality	Severe social isolation
Extensive use of health care services	Extreme poverty
	Homelessness

eran and nonveteran alike, clinical care must be a delicate balance of limited expectations and realistic hopes. It is our belief that these veterans require specialized treatment embodying five general principles (Table 19–2):

1. *Long-term perspective.* Treatment of these veterans requires considerable patience because clinical improvement comes in small steps, often at long intervals. Expecting too much too soon may result in early termination.
2. *Attention to multiple domains.* Attention must be directed to multiple social adjustment domains as well as to conventional clinical problems. Needs for financial assistance, housing support, daily activity structure, and supported employment must be addressed at face value and not merely psychologized.
3. *Practical problem solving.* A practical problem-solving approach must complement an empathic, psychotherapeutic

Table 19–2. Treatment principles for severely and persistently mentally ill veterans who suffer from posttraumatic stress disorder (PTSD)

Treatment must be viewed from a long-term perspective.
Clinical attention must be focused on multiple domains:
—PTSD symptoms
—Substance abuse
—Social support
—Structured daily activities
—Financial assistance
—Housing
—Supported employment
A practical, problem-solving approach to the diverse domains should be used.
The clinician(s) should maintain flexibility.
—Be available for intensive crisis intervention.
—Tolerate periods of distancing or disengagement.
Continuity of care, providing dependability and consistency, should be ensured.

approach. Psychological understanding and practical assistance work synergistically with these patients, each one augmenting the effectiveness of the other.

4. *Flexibility.* Treatment must be responsive to fluctuating levels of need, with intermittent high-intensity treatment provided when crises arise, and periods of low-intensity or even interrupted treatment being accepted in less tumultuous times.
5. *Continuity of care.* Finally, through hard times and smooth times, through crises and periods of steady, if small, progress, these patients are best served through a consistent clinical presence that conveys to the patient that the clinician can be relied on to "do what can be done" in all situations.

An approach that embodies these principles, which, we must reiterate, is specifically indicated for severely and persistently ill veterans, marks a significant departure from the more acute, trauma-focused treatment usually recommended for patients with PTSD. In this chapter we provide a brief review of the treatment literature on combat-related PTSD and some new empirical data that we feel demonstrate both the existence of these war-veteran clients and their need for a treatment approach that is tailored to their unique circumstances.

Treatment Outcome Studies of Combat-Related PTSD

A recent review of more than 255 English-language reports on the treatment of PTSD (S. D. Solomon et al. 1992) reported only 7 randomized clinical trials involving combat veterans. In these studies, findings were mixed for various types of pharmacotherapy, with more improvement in anxiety and depressive symptoms than in specific symptoms of PTSD. Improvement was somewhat more consistently positive for systematic desensitization (Peniston 1986) and for exposure therapies (Cooper and Clum 1989; Keane et al. 1989b), although the number of subjects participating in these studies was small and, in most

cases, more severe cases were excluded. Instances of exacerbation of symptoms were reported with exposure therapies, especially in veterans suffering from other disorders in addition to PTSD (Pittman et al. 1991). Although most of these studies were conducted at VA medical centers, comparison of symptom severity, social maladjustment, and functional disability with veterans who suffer from PTSD in the general population was not undertaken. As a result, we do not know how the samples in these studies compare with the general population of veterans suffering from PTSD. We do know, however, that treatment was not curative in most cases.

Several uncontrolled studies have addressed more typical samples of VA patients and have found notable but limited clinical improvement, especially in morale and social support (Boudewyns and Hyer 1990; Boudewyns et al. 1990; Fontana et al. 1993; Perconte 1989; Scurfield et al. 1990). Two of these studies, however, found evidence of symptom exacerbation after specialized inpatient or day treatment (Fontana et al. 1993; Perconte 1989). In most of these uncontrolled studies, however, the representativeness of the treatment populations was not systematically characterized, but it appears that these studies, too, noted limited response to the cogent and thoughtful treatment provided.

In the remainder of this chapter we explore the course of treatment of severely ill PTSD patients through a presentation of findings from a 1-year uncontrolled follow-up study of veterans receiving outpatient treatment in the VA's specialized PTSD Clinical Teams Program. First, we situate these patients in a larger context through a comparison of baseline clinical status and social adjustment characteristics with comparable information from a representative national sample of veterans suffering from combat-related PTSD but who have not sought VA mental health services. Second, we present the results of the follow-up study to examine 1) areas of clinical change, 2) the magnitude of change, and 3) potential moderators of change. Through this presentation, we hope to objectively characterize the clinical presentation and treatment course of a distinctly troubled and

especially deserving group of veterans who are still struggling to make the long journey home. Fortunately, we can anticipate that only a small percentage of Persian Gulf veterans will find themselves in the circumstances of this group. But we must not forget that such veterans exist and that they often require a special type of treatment.

Department of Veterans Affairs PTSD Clinical Teams Program

The data presented here are derived from structured interviews conducted as part of the national evaluation of the VA PTSD Clinical Teams Program. Fifty-six PTSD clinical teams (PCTs) were established across the country by VA between 1989 and 1992 to provide treatment of PTSD to war-zone veterans in specialized clinical settings. Six of these teams, located in Boston, Jackson (Mississippi), Kansas City, New Orleans, Providence, and San Francisco, agreed to participate in an outcome study of the treatment of PTSD. Four of the six teams were led by nationally recognized experts in the treatment of PTSD. During 1990–1991, 554 male veterans of World War II, the Korean War, and the Vietnam War completed baseline assessment and agreed to be reinterviewed at 4-month intervals for 1 year.

Previous studies of factors associated with VA service use have shown that veterans who come to VA for health care services are more often minorities, poorer, more severely ill, and more functionally disabled than veterans who seek medical care from other sources (Rosenheck and Massari 1993). By legislative mandate, the federal government, and more specifically the VA, have a special responsibility for providing care to the most disadvantaged segment of the veteran population.

Previous studies have not, however, identified distinguishing characteristics of veterans who choose to use VA mental health services among those who suffer from PTSD. Data available from the NVVRS offer an opportunity for such a comparison.

The NVVRS was conducted on a national sample of veterans

of the Vietnam War era who were identified through computerized military personnel records. Details of sampling strategy and instrumentation can be found in the original report on the study (Kulka et al. 1989). Of greatest interest here is the fact that survey data allow characterization of a representative national sample of veterans who suffer from PTSD, with a well-validated cutoff score of 89 on the Mississippi Scale for Combat-Related PTSD (Keane et al. 1988).

The nationally weighted data for veterans in the NVVRS sample who had never used VA services (population estimate 494,186) and equivalent data from the Vietnam War veterans who participated in the PCT follow-up study (N = 476) are presented in Table 19–3. It is clear from this comparison that those who come to VA for help are at a considerable disadvantage, even when compared with other veterans suffering from PTSD. In addition to more frequently being black, being divorced, separated, or never married, and being considerably poorer, they are only half as likely to be employed, and approximately six times as likely to have made a suicide attempt in the past. In addition, they report almost twice as many indicators of alcoholism and score 25% higher in PTSD symptoms on the Mississippi Scale for Combat-Related PTSD. According to the NVVRS, only 20% of veterans who currently suffer from PTSD have ever sought mental health services from VA for their PTSD (Kulka et al. 1990). It appears that those who do seek help from VA for PTSD are quite different from other veterans suffering from PTSD, in that their problems are more severe and they appear to lack personal and social resources with which to cope with them. It is to the description of the treatment and clinical course of these veterans that we now turn.

Veterans Treated in the PTSD Clinical Teams Program: An Outcome Study

In the remainder of this chapter we examine immediate and subsequent change in adjustment over the course of the first

Table 19–3. Comparison of Vietnam War veterans suffering from posttraumatic stress disorder (PTSD) in the clinical sample seen by Department of Veterans Affairs (VA) PTSD clinical teams and veterans who had not used VA mental health services in the NVVRS

	PTSD clinical team: Vietnam veterans (*N* = 476)	**NVVRS: no treatment at VA (*N* = 494,186)[a]**
Age (years)	42.94	44.30
SD	3.22	4.26
Race		
White	71.2%	71.2%
Black	25.0%	18.3%
Hispanic	1.1%	5.4%
Other	2.7%	5.2%
Marital status		
Married	47.3%	66.8%
Widowed	1.1%	1.2%
Separated	9.2%	6.2%
Divorced	30.9%	18.0%
Never married	11.6%	7.9%
Employed	36.6%	73.7%
Education (years)	13.05	12.68
SD	2.36	2.39
Earned income	$5,755	$18,996
SD	$9,864	$12,545
Total income	$13,937	$19,985
SD	$13,344	$12,066
Combat–Legacies[b]	10.64	9.64
SD	2.84	3.38
Combat–Keane[c]	28.20	25.15
SD	8.96	10.35

(continued)

Table 19–3. Comparison of Vietnam War veterans suffering from posttraumatic stress disorder (PTSD) in the clinical sample seen by Department of Veterans Affairs (VA) PTSD clinical teams and veterans who had not used VA mental health services in the NVVRS *(continued)*

	PTSD clinical team: Vietnam veterans (*N* = 476)	**NVVRS: no treatment at VA (*N* = 494,186)[a]**
PTSD diagnosis	81.7%	20.7%
Mississippi Scale for Combat-Related PTSD[d]	125.77	100.65
SD	21.36	10.76
Suicide attempt	34.7%	5.2%
Violence[e]	10.28	9.75
SD	6.66	4.50
Brief MAST[f]	9.68	4.62
SD	9.59	7.91
DIS–drug abuse[g]	0.51	0.27
SD	0.92	0.57

Note. NVVRS = National Vietnam Veterans Readjustment Study; SD = standard deviation; MAST = Michigan Alcoholism Screening Test; DIS = Diagnostic Interview Schedule.
[a]Data for NVVRS based on reanalysis of data reported in Kulka et al. 1990a.
[b]Revised Combat Scale (Laufer et al. 1981).
[c]Keane et al. 1989a.
[d]Keane et al. 1988.
[e]Violent behavior measure from the NVVRS (Kulka et al. 1990b).
[f]Pokorny et al. 1972.
[g]Robins et al. 1981.

year after entry into the PTSD Clinical Teams Program (*N* = 476). Measurements were gathered through a series of structured interviews conducted at the time of entry to the program and at 4, 8, and 12 months thereafter.

Any attempt to track adjustment longitudinally is subject to the problem of missing data at one or more of the time points. Fortunately, a new approach to this problem, *random regression modeling,* has been developed by statistical researchers for use with incomplete longitudinal data (Gibbons et al. 1993). The random regression approach uses available data to make the best estimate of the missing data for each subject by imputing values and performing the desired analyses. We have used Program 5V of the BMDP statistical package (Schluchter 1988) for the analyses reported on in this chapter.

Indices of Adjustment

Because war-related PTSD is a persistent and disabling disorder for many veterans in this sample, outcomes were measured in multiple functional domains in addition to PTSD symptomatology. These domains included mental and physical symptoms; interpersonal relations and violent behavior; social contact; employment and income; VA compensation status; and involvement with the criminal justice system. The methods and measures of assessment for these domains are as follows.

PTSD, psychological symptoms, and medical problems. PTSD symptoms were assessed by the Mississippi Scale for Combat-Related PTSD (Keane et al. 1988), and guilt reactions to war-zone experiences were assessed by the Guilt Inventory (Laufer and Frey-Wouters 1988). General psychological distress was assessed by the General Severity Index of the Brief Symptom Inventory (Derogatis and Melisaratos 1983) and the Psychiatric Symptoms Index from the Addiction Severity Index (ASI; McLellan et al. 1985). Suicide attempts were assessed as a dichotomous variable during the 30 days before both baseline and follow-up. The ASI Alcohol and Drug Indices were used to measure the severity of substance abuse problems. Medical difficulties were assessed with the ASI Medical Condition Index.

Interpersonal relations and violence. Interpersonal relations were assessed by use of the ASI Family Index, and violence, by a seven-item scale derived from the NVVRS reflecting a veteran's recent violent behavior ($\alpha = .80$) (Kulka et al. 1990a).

Social contact and involvement, and employment and income. Social contact and involvement were assessed by use of the Social Participation Index of Katz and Lyerly (1963) and by a count of the number of different people to whom the veteran felt emotionally close. Employment was assessed by the number of days that the veteran worked during the preceding month.

VA compensation status. VA compensation was measured by an index specially constructed to encompass the full range of compensation levels. Veterans without service connection (i.e., compensation) received a value of 0; those who were service connected at less than 10% received a value of 1; those who were service connected at 10% or more but less than 50% received a value of 2; those who were service connected at 50% or more but less than 100% received a value of 3; and those who were service connected at 100% received a value of 4.

Criminal justice involvement. Current difficulties with the criminal justice system were assessed with the ASI Legal Difficulties Index.

Plan of Data Analysis

In studying the care of severely ill patients, it is as important to know when change occurs, and in what sequence, as it is to know the net magnitude of change. Preliminary analyses on partial data from this study suggested that there are two phases of change during the first year of PCT treatment: a movement phase (the first 4 months), in which significant changes occur, and a stabilization phase (months 4–12), during which gains are maintained but not extended (Fontana et al. 1993). Because of these preliminary indications of differential amounts of

change during different phases of treatment, we took care to examine change during these two time frames.

Data analysis was conducted first by performance of two series of one-way random regression analyses. One series evaluated the significance of changes from the beginning of treatment to 4 months (the movement phase), and the other evaluated changes over the remainder of the year, across the three remaining time points (4, 8, and 12 months following intake). The statistical significance of change during each period was evaluated by use of Wald's chi-square.

In the second phase, these analyses were repeated as interactional random regression analyses in which six baseline characteristics and six treatment characteristics were dichotomized and examined as factors that might significantly affect the veterans' response to treatment. In clinical terms, these analyses determine whether the course of treatment differs for veterans who differ on certain key characteristics—for example, whether veterans with substance abuse problems in addition to PTSD, or veterans who are seeking compensation, show more or less change in their symptoms and social adjustment than other veterans). In statistical terms, these analyses examine the interaction of background and treatment characteristics with time course for each outcome measure. A significant interaction means that either the degree of change or the direction of the change is significantly different for veterans who differ on the characteristic in question.

Pretreatment Background Characteristics

The six background characteristics selected for examination were

1. Vietnam War service (88% of the sample) versus service in other eras
2. The possibility of secondary financial gain (i.e., veterans seeking to obtain [76.4%] vs. retain [13.7%] compensation vs. those who were not [9.9%])

3. Clinical prognosis (veterans with complicating clinical factors [94.8%] vs. others [5.2%])
4. Exposure to childhood physical or sexual abuse (15.4%)
5. Comorbid substance abuse (26%)
6. Availability of social support (divided at the median on a social support scale [$\alpha = .79$])

Participation in Treatment

Special attention was also paid to examination of the relationship between outcome and various aspects of PCT treatment. Data for these treatment measures were primarily derived from the Clinical Process Form (CPF), a structured clinical summary completed by PCT clinicians 2, 4, 8, and 12 months after each veteran entered treatment. Data on satisfaction were derived from patient interviews. Six treatment characteristics were hypothesized to be associated with greater improvement:

1. Regularity of attendance in therapy (58.5% of the sample)
2. Length of time in therapy (4 months or less [40%] vs. more than 4 months [60%])
3. Number of therapy sessions attended during the year (split at the median, 14 sessions)
4. Degree of direct attention to war traumas in therapy ("some or a lot" [53%] vs. "little or none" [47%] by clinician's rating)
5. Termination of therapy because goals had ostensibly been achieved, as judged by clinician (5.1%)
6. Satisfaction with current PTSD treatment (highly satisfied [50.1%] vs. satisfied [39.8%] vs. dissatisfied [10.2%])

Course of Treatment and Predictive Variables

Changes Over Time for All PTSD Clinical Teams Program Veterans Considered Together

Changes in adjustment, as assessed by changes in symptoms and social functioning, for the movement and stabilization

phases are presented in Table 19–4. All but one instance of significant change occurred during the first 4 months, and that significant change occurred in half (7 of 14) of the clinical domains assessed. Significant, but small, decreases in PTSD symptoms, and somewhat larger decreases in substance abuse, legal difficulties, and the propensity to violence, are evident. An increase was noted in the number of days worked for pay. These changes all indicate significant improvement in adjustment in a group of veterans who had been suffering from PTSD for an average of 21 years. There was also a significant increase in receipt of VA compensation.

The one significant change observed during the remainder of the year was a decrease in the number of days worked, back toward the baseline level. Thus, although no significant continued improvement occurred, little regression was noted either. With the exception of employment, veterans maintained the gains that they had achieved earlier. In general, then, these results confirm the characterization of the two follow-up periods as movement and stabilization phases, respectively.

Variables Moderating Change

The interactions between change and the six background and six treatment characteristics described earlier in this section were screened for the number of significant tests that could have occurred by chance. Because there were 15 adjustment areas, each of which was examined for two phases, there were a total of 30 tests for each stratification characteristic. To rule out significant tests that were likely to have occurred by chance, we insisted that at least three tests reach significance at $P < .05$ for any one characteristic before we considered the tests to indicate a nonchance relationship between that characteristic and the course of adjustment over time.

The vast majority of factors showed no relationship to measures of clinical change beyond those due to chance. The three characteristics that did meet the standard of three significant tests were 1) current substance abuse, 2) regularity of atten-

Table 19–4. Means and random regression analyses for changes in symptoms and social functioning over time in the clinical sample seen by Department of Veterans Affairs PTSD clinical teams

Adjustment index measure	Movement phase			Stabilization phase			
	Baseline	4 months	χ^2	4 months	8 months	12 months	χ^2
Mississippi Scale for Combat-Related PTSD[a]	122.67	121.24	5.11*	121.46	120.81	121.30	NS
Guilt Inventory[b]	2.66	2.67	NS	2.65	2.66	2.69	NS
Brief Symptom Inventory[c]	2.08	2.09	NS	2.09	2.11	2.13	NS
Suicide attempt	0.03	0.04	NS	0.04	0.06	0.04	NS
Addiction Severity Index[d]							
Psychiatric Symptoms Index	0.54	0.52	NS	0.51	0.51	0.51	NS
Alcohol Index	0.11	0.08	17.56**	0.07	0.07	0.07	NS
Drug Index	0.03	0.02	11.37**	0.02	0.01	0.02	NS
Medical Condition Index	0.49	0.49	NS	0.48	0.49	0.46	NS
Family Index	0.25	0.24	NS	0.24	0.21	0.22	NS
Legal Difficulties Index	0.09	0.06	5.46*	0.06	0.06	0.06	NS

Violence[e]	9.38	6.38	132.75**	6.29	6.24	6.11	NS
Days worked	6.33	7.55	10.17**	7.63	7.21	6.74	6.99*
Number of people close to	10.93	10.60	NS	10.72	10.67	11.03	NS
Social participation[f]	11.31	11.17	NS	11.12	11.39	11.20	NS
Service connection[g]	1.21	1.29	19.65**	1.31	1.31	1.34	NS

Note. The means for each time point are displayed, as are the chi-square (χ^2) values for those changes that were significant at the .05 level or .001 level. The means for the "4 months" time point differ slightly between the movement and stabilization phases because the difference in inclusion of other time points contributed slight variations to the imputation of missing values. NS = not significant.
*$P < .05$; **$P < .001$.
[a]Keane et al. 1988.
[b]Laufer and Frey-Wouters 1988.
[c]Derogatis and Melisaratos 1983.
[d]McLellan et al. 1985.
[e]Violent behavior measure from the NVVRS (Kulka et al. 1990b).
[f]Katz and Lyerly 1963.
[g]Compensation.

dance in therapy, and 3) duration of participation in treatment. To minimize the chance that differences found for the stratification of these characteristics were artifacts of differences in the initial level of psychopathology or social maladjustment, we repeated the analyses for these three characteristics, covarying the influence of prognostic status, and initial scores on the Mississippi Scale for Combat-Related PTSD, the Brief Symptom Inventory, and the ASI Alcohol and Drug Indices. Inclusion of these covariates, however, did not change the results of any of the analyses. Patterns of change stratified by these three characteristics, when the covariates mentioned above were controlled, are presented below.

Current substance abuse. Substance-abusing veterans improved more than non–substance-abusing veterans in terms of their alcohol and drug abuse during the movement phase and continued to improve more in terms of their drug abuse during the stabilization phase (Table 19–5). However, much of this difference between the two groups is a function of the fact that nonabusing veterans started at a "floor" level and had very little room to improve further.

In other areas of adjustment, the frequency of suicide attempts decreased among substance-abusing veterans to a level approximately the same as that among non–substance-abusing veterans during the stabilization phase. Also, substance-abusing veterans increased, overall, their frequency of participation in activities with others between 4 and 12 months, whereas the nonabusing veterans did not. In addition, from 4 to 12 months, substance-abusing veterans experienced a worsening in their PTSD symptoms, whereas nonabusing veterans did not. Guilt, general psychiatric distress, and legal problems distinctly increased in substance-abusing veterans between 4 and 8 months but declined again by 12 months. Although these findings might suggest that as veterans with active substance abuse problems reduce their use of alcohol or drugs they experience transient increases in PTSD and related symptomatology, empirical analysis did not support this interpretation since there was no signifi-

Table 19–5. Means and random regression analyses for significant changes in symptoms and social functioning over time in the clinical sample seen by Department of Veterans Affairs PTSD clinical teams by level of current substance abuse

Adjustment index measure	Substance abuse	Movement phase			Stabilization phase			
		Baseline	4 months	χ^2	4 months	8 months	12 months	χ^2
Mississippi Scale for Combat-Related PTSD[a]	Yes	125.59	123.02	NS	123.82	126.92	125.24	11.74**
	No	121.67	120.46		120.56	118.93	120.16	
Guilt Inventory[b]	Yes	2.85	2.78	NS	2.76	2.87	2.78	6.65*
	No	2.59	2.62		2.62	2.60	2.65	
Brief Symptom Inventory[c]	Yes	2.20	2.14	NS	2.17	2.31	2.21	8.56*
	No	2.04	2.07		2.07	2.05	2.11	
Suicide attempt	Yes	0.04	0.09	NS	0.09	0.10	0.03	6.97*
	No	0.03	0.03		0.03	0.05	0.04	
Addiction Severity Index[d]								
Alcohol Index	Yes	0.30	0.13	90.18**	0.12	0.15	0.15	7.13*
	No	0.05	0.06		0.06	0.05	0.04	
Drug Index	Yes	0.10	0.05	23.74**	0.05	0.03	0.03	9.17**
	No	0.01	0.01		0.01	0.01	0.01	

(continued)

Table 19–5. Means and random regression analyses for significant changes in symptoms and social functioning over time in the clinical sample seen by Department of Veterans Affairs PTSD clinical teams by level of current substance abuse *(continued)*

Adjustment index measure	Substance abuse	Movement phase			Stabilization phase			
		Baseline	4 months	χ^2	4 months	8 months	12 months	χ^2
Legal Difficulties Index	Yes	0.12	0.09	NS	0.08	0.13	0.10	6.57*
	No	0.07	0.05		0.05	0.04	0.04	
Social participation	Yes	11.04	11.23	NS	11.14	10.70	11.84	9.06**
	No	11.39	11.23		11.22	11.64	11.04	

Note. *$P < .05$; **$P < .001$.
[a]Keane et al. 1988.
[b]Laufer and Frey-Wouters 1988.
[c]Derogatis and Melisaratos 1983.
[d]McLellan et al. 1985.

cant correlation between reduced substance abuse and increased PTSD symptoms. These temporary changes may have been related to the constructive reduction in the use of chemicals to numb awareness, and a concomitant increase in self-awareness and subjective distress.

Regularity of attendance at therapy. Veterans who attended therapy regularly and those who did not both showed a reduction in violent behavior and an increase in the number of days worked in the movement phase (Table 19–6). Those who attended regularly, however, improved somewhat less than those who did not attend regularly. In the stabilization phase, however, veterans who did not attend therapy regularly showed a decline in the number of days worked, and by 12 months they worked no more days than veterans who attended therapy regularly.

Veterans who attended regularly showed a greater increase in the number of people they felt close to during the movement phase, whereas those who did not attend therapy regularly showed a decrease in the number of people they felt close to. At the end of the stabilization phase (1 year), however, the groups were comparable in this area as well.

Although regularity of attendance shows a statistically significant relationship with improvement in some areas, these findings vary from one measure to another, and their magnitudes are neither sustained nor impressive from a clinical perspective.

Duration of participation in treatment. Veterans who stayed in treatment more than 4 months showed a decline in their family adjustment problems during the movement phase, whereas veterans who left treatment by 4 months showed an increase in family adjustment problems (Table 19–7). In the stabilization phase, however, veterans who stayed in treatment showed no further reduction in family stress, whereas those who had left treatment showed substantial improvement in family adjustment. In the realm of legal difficulties, veterans who left treatment by 4 months recorded significant improvement during the

Table 19–6. Means and random regression analyses for significant changes in symptoms and social functioning over time in the clinical sample seen by Department of Veterans Affairs PTSD clinical teams by regularity of attendance in therapy

Adjustment index measure	Regular attendance	Movement phase			Stabilization phase			
		Baseline	4 months	χ^2	4 months	8 months	12 months	χ^2
Violence[a]	Yes	8.49	5.96	4.62*	6.00	5.85	5.62	NS
	No	10.69	7.01		6.78	7.02	7.00	
Days worked	Yes	6.58	7.04	6.11*	6.97	7.30	6.50	8.45*
	No	5.89	8.30		8.55	6.95	6.77	
Number of people close to	Yes	10.55	10.97	8.23**	11.02	10.85	11.00	NS
	No	11.50	10.11		10.40	10.36	11.17	

Note. *$P < .05$; **$P < .01$.
[a]Violent behavior measure from the NVVRS (Kulka et al. 1990b).

movement phase, whereas veterans who stayed in treatment manifested no change. Neither group had additional changes in clinical problems during the stabilization phase. These patterns suggest that veterans with legal difficulties may have come to a PCT for help in resolving these difficulties and then left treatment shortly after the resolution of these problems.

Patterns of change in employment in the two groups are quite different. Veterans who left treatment by 4 months increased their days worked substantially during the movement phase, whereas those who stayed in treatment made no change. This increase in the number of days worked observed among those who had left treatment tended to erode in the stabilization phase, although the number of days worked remained higher at the end of the year than at the beginning. Those who stayed in treatment continued to make no change in their employment during the stabilization phase. It is possible that being in treatment is negatively associated with employment, because work schedules conflict with attendance at therapy sessions. It is also possible that having an orientation of solving one's problems oneself contributes to both working more and leaving treatment.

Discussion and Conclusions

In this chapter we have examined the course of clinical change in a subgroup of veterans who suffer from severe PTSD as well as many other adjustment problems, and who have suffered from these problems for more than 20 years in the majority of cases. The analyses of clinical change revealed modest, but statistically significant, improvements during the first 4 months following program entry in 6 of 14 clinical domains: PTSD symptoms, alcohol abuse, drug abuse, legal problems, violent behavior, and employment. We have called this period the movement phase because of the diversity and significance of the changes observed. In contrast, the next 8 months were marked by a maintenance of gains, although there was some

Table 19–7. Means and random regression analyses for significant changes in symptoms and social functioning over time in the clinical sample seen by Department of Veterans Affairs PTSD clinical teams by length of treatment

Adjustment index measure	Length of treatment	Movement phase			Stabilization phase			
		Baseline	4 months	χ^2	4 months	8 months	12 months	χ^2
ASI–Family Index	Up to 4 mo	0.24	0.28	5.18*	0.27	0.21	0.18	9.83*
	>4 mo	0.26	0.22		0.22	0.22	0.24	
ASI–Legal Difficulties Index	Up to 4 mo	0.12	0.07	3.82*	0.06	0.09	0.07	NS
	>4 mo	0.06	0.06		0.06	0.05	0.05	
Days worked	Up to 4 mo	5.79	9.19	15.59**	9.32	7.60	7.11	8.21*
	>4 mo	6.67	6.87		6.84	6.94	6.43	

Note. ASI = Addiction Severity Index (McLellan et al. 1985).
*$P < .05$; **$P < .001$.

decline in employment effort back to baseline levels. We have, accordingly, termed this period the stabilization phase.

On the one hand, these results are impressive in that a group of veterans who had been seriously troubled for many years showed a significant improvement in response to treatment. On the other hand, the results are somewhat disappointing in that the magnitude of improvement was modest and did not extend to all of the domains examined. We believe these modest gains reflect more on the severity and chronicity of the problems faced by these veterans than on the quality of the treatment they received. As noted above, four of the six teams were led by nationally recognized experts in the treatment of PTSD, and the majority of clinicians on these teams had considerable experience in treating veterans with PTSD.

Interaction analyses undertaken to identify specific patient and treatment factors moderating improvement revealed few differences among veteran subgroups. Contrary to expectations, no relationship was identified between clinical change and 1) Vietnam War service, 2) the possibility for secondary gain from VA compensation payments, 3) good clinical prognosis, 4) history of child abuse, 5) current social support, 6) the number of therapy sessions attended, 7) attention to war trauma in treatment, 8) attainment of treatment goals according to the primary clinician's judgment, or 9) veteran's satisfaction with services. Veterans who had recently been abusing substances did show a somewhat different pattern of change from that found in non–substance-abusing veterans, including greater improvement in substance abuse problems and suicidality, but also some exacerbation of PTSD symptoms. Veterans who attended therapy regularly and who participated for more than 4 months also showed some significant differences in pattern of improvement, but these differences were generally small in magnitude and tended to dissipate by the end of the year.

It may be objected that the methodology used was insensitive to more impressive changes that may actually have taken place. Pre-post measures on instruments that are psychometrically sound are often quantitatively modest and may reflect only

small increments of improvement when compared with patient or therapist global impressions of improvement. A recent demonstration of this phenomenon appeared in an important series of articles on the KOACH program, a treatment developed for Israeli soldiers of the Lebanon War (Shalev et al. 1992; Z. Solomon et al. 1992a, 1992b). In that program, reports indicate that treated soldiers were actually somewhat more symptomatic on psychometric measures after treatment, even though the soldiers themselves and their clinicians globally judged that they were feeling better and had improved. We believe that there is an important place for different types of outcome measures. Pre-post psychometric measures, however, are the most rigorous indices of change, as well as the most conservative.

The finding that treatment parameters (e.g., intensity and/or duration of treatment) were not associated with greater degrees of improvement might be taken as suggesting limited specific impact of treatment on clinical status. That improvement was observed through the first 4 months but not thereafter also suggests an attenuating impact of treatment. We believe that these data illustrate, above all else, the tenacity and severity of PTSD that has lasted for an average of 20 years. We also believe these findings have important implications for treatment.

First, these data confirm the existence of a group of veterans with severe and persistent PTSD who need treatment that is responsive to their unique clinical circumstances. It is often assumed that because PTSD is the result of a traumatic experience, it should be resolved or be resolvable by another intense, healing experience and that acceptance of the fact that symptoms may never dissipate amounts to defeatism. It must be remembered, however, that in the NVVRS, 98.9% of veterans diagnosed with current PTSD also met the criteria for another lifetime psychiatric disorder (Kulka et al. 1990, p. VI-19-1); a recent genetic study suggested that as much as one-third of the variance in PTSD symptomatology among Vietnam War veterans may be genetically determined (True et al. 1993). The data presented here and elsewhere (Friedman and Rosenheck, in press) suggest that for some PTSD patients, clinical expectations

should be lowered and that a long-term supportive approach should be adopted, according to the principles outlined earlier in this chapter (see Table 19–2).

Second, because most improvement occurs early in treatment, it is possible that the intensity of treatment can or should be reduced after the first 4 months of involvement. This is, in fact, what happened in the PCT sample presented here. Using data from the subgroup with four completed interviews (n = 331), we found that these individuals had 13.4 PCT sessions in the first 4 months, 11.5 in the second 4 months, and 9.5 in the third 4 months. When total outpatient services were examined (PCT plus other psychiatric services), we again found a decline in use, from 26.3 to 21.9 to 18.5 sessions. These veterans thus continue to use services but at a reduced level, perhaps in response to their clinical improvement and/or their greater degree of clinical stability. Although it is possible that the reduction in intensity could be even greater, it is important to remember that vulnerable patients need to have support readily available to deal with the myriad crises that seem to erupt in their lives. We believe continuity and consistency of care are of paramount importance with these patients but that the exact intensity of treatment must be a matter of clinical judgment and negotiation with the client.

Third, and finally, it is time to turn our attention to considering the applicability of rehabilitative programs, such as those developed for the chronically mentally ill or for patients with severe substance abuse, to these veterans (Anthony et al. 1989; Leda et al. 1993; Liberman 1988; Stein and Test 1980). Social skills training, intensive case management, and vocational rehabilitation approaches developed for the treatment of schizophrenic or homeless mentally ill patients may be of value for veterans with chronic PTSD. This is not to deny that these veterans have PTSD or to minimize the impact on them of traumatic war experiences. It is, however, to recognize that after 20 years, a new set of treatment approaches may be of particular value to them.

As with many other efforts to treat people with severe and

persistent illnesses, we appear to be faced, once again, with the question, "Is the glass half empty or half full?" The best answer to this question is, of course, that from either perspective, there is not as much water in the glass as we would have liked. In this chapter, we have shown that there exists a population of veterans who do not recover from war-zone trauma and who need sustained assistance. We do not have and cannot realistically expect to have clinical tools powerful enough to fully or even largely relieve these veterans of their sufferings. But we have also shown that multimodal treatment delivered by committed specialists is associated with clinical improvement. Effecting such improvement is surely no small accomplishment, but it is also an accomplishment that suggests that there may be alternative avenues in the treatment of these veterans that have yet to be explored. Alertness to chronic, long-term PTSD in veterans of the Persian Gulf War in particular and of future wars in general should be increased.

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