# Measuring Outcome in Posttraumatic Stress Disorder

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This article summarizes the features of posttraumatic stress disorder (PTSD) that may affect treatment outcome and discusses the areas in which treatment outcome can be productively evaluated. PTSD is a complex psychiatric condition that tends to run a chronic course. Measurement of treatment outcome in PTSD is confounded by multiple factors, including a high prevalence of comorbid disorders, reactivation of the syndrome by ongoing environmental stressors, spontaneous recovery of the early disorder, and a fluctuating course of the chronic disorder. Four principal domains of treatment outcome may be evaluated in PTSD: core symptom severity, comorbid conditions (particularly depression), adverse practices (e.g., violence or alcohol consumption), and social/vocational disability. To gain an accurate assessment of these domains, a comprehensive assessment battery is needed. The relevant instruments and their yield in studies of PTSD are reviewed.

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Posttraumatic stress disorder (PTSD) is one of the few psychiatric disorders for which the onset of the chronic stage is formally defined: chronic PTSD is diagnosed in individuals who express the syndrome for 3 months. This time lag is shorter than those used to define chronicity in other chronic psychiatric disorders, and its choice may reflect a widespread and erroneous view that PTSD quickly becomes unremitting and resistant to change.

The negative results of the first treatment studies, most of which concerned patients who had had PTSD for decades, may have created this view.[1,2] Inaccurate measurements of treatment effect may have further reinforced such early impressions. For example, some of the earlier rating scales for PTSD evaluated incomplete sets of symptoms (e.g., the original version of Horowitz's Impact of Event Scale[3] did not measure symptoms of hyperarousal). Moreover, we know now that not all PTSD symptoms are equally amenable to change.[4] Finally, treatment effect in PTSD may become apparent only after longer periods of time than those used in treatment studies.

This is not to say that measuring outcomes in PTSD is easy. In psychiatry, assessments are mostly performed in the context of a specific question. Reducing reality to selected and measurable components, however, will ultimately affect outcome. In PTSD particularly, outcome measurements that are limited to core PTSD symptoms (reexperiencing, avoidance, and hyperarousal) may not capture other clinically relevant effects of treatment. For example, a remission of comorbid syndromes, such as depression and alcohol abuse, has important clinical implications that may escape a narrow approach to measuring outcome. Similarly, the effect of treatment on impairment and disability (e.g., social avoidance, low tolerance of frustration) can not be directly derived from change in symptoms. Adverse living conditions, ongoing traumatization, and exposure to reminders of the traumatic event can confound the effect of treatment and should be monitored as well.[5]

In this article, the following questions related to the assessment of improvement in patients with PTSD are addressed: What are the clinically relevant features of PTSD, beyond its syndromal definition by DSM-IV[6]? What are the confounding factors to measurement of such features? What are the relevant targets for treatment? What instruments are available to facilitate the evaluation of treatment outcome? How did these instruments fare in previous studies of PTSD?

## MEASURING TREATMENT EFFECT

### What Are the Pertinent Features of PTSD?

As currently defined, PTSD itself consists of a complex combination of co-occurring symptoms and mental processes. PTSD symptoms of anxious avoidance have been linked with biological mechanisms of fear conditioning and harm avoidance.[7] Intrusive and distressful recollections of the traumatic event have been previously described in acute grief[8] and may be related to elements of loss and separation. Loss of interest in pleasurable activities and sense of foreshortened future are clearly depres-

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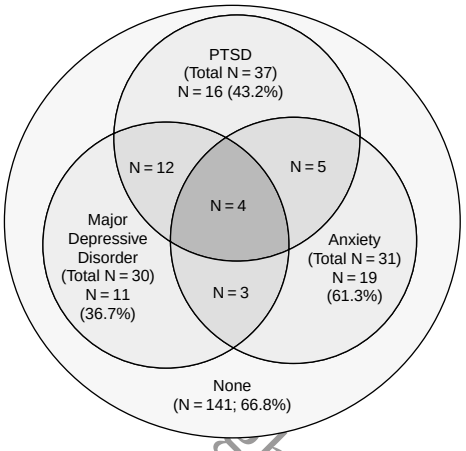
**Figure 1. Anxiety, Depression, and Posttraumatic Stress Disorder (PTSD) 4 Months After Trauma[a]**




[a]Data from Shalev et al.[11]

sive symptoms. Hypervigilance and hyperarousal, as well as impaired cognitive function (which may even precede the traumatic event[9]), may also be independent dimensions of this disorder.

Beyond PTSD symptoms, other clinically relevant phenomena are often associated with the disorder. Among the better studied is the association between PTSD and major depression. According to the National Comorbidity Survey (NCS), a community-based study of more than 5800 individuals, 7.8% of the population will experience PTSD at some point in their lives.[10] Almost half of these individuals will experience depression at the same time. Figure 1 shows the results of a prospective evaluation of 211 trauma survivors 4 months after the initiating event,[11] demonstrating that even at this early stage, more than 40% of the patients who met DSM-III-R criteria for PTSD also had major depression. Moreover, depressive symptoms, seen early on after traumatization, are powerful predictors of the development of chronic PTSD.[12] The high prevalence of comorbid depression in PTSD has, therefore, important implications for the expected outcome of treatment in PTSD.

Another accompanying feature of PTSD is affective dyscontrol, expressed both as numbing and detachment and as bursts of anger and violence. Low tolerance of frustration in PTSD may lead to difficulties in sustaining stable employment, to marital strife, and to troubles with the law. Improvement in impulse control is, therefore, an important, independent, and achievable goal of treatment. For example, in an analysis of the outcome of a 4-month intensive inpatient program for combat-related PTSD among Vietnam veterans, Johnson et al.[13] found a decrease in violent actions and thoughts and in legal problems. Paradoxically, these results were associated with an increase in PTSD symptoms from admission to follow-up. Patients' evaluations similarly indicated that the most desirable effects of the treatment program were improved morale and interpersonal relationships.

Biased stimulus recognition,[14] difficulties in discriminating threatening stimuli from innocuous ones, and impaired habituation of autonomic responses to loud tones[15] represent other clinically relevant phenomena. Often unbeknown to the patient, these implicit features of PTSD may lead to inappropriate vigilance, arousal, and irritability. Intolerance of intense stimuli is probably behind much of the avoiding lifestyle led by some PTSD patients and thereby behind their social isolation and alienation.

Finally, PTSD is often associated with misuse of psychotropic agents, including prescribed medication, illicit substances, and alcohol. PTSD patients are also prone to engage in risky behavior (e.g., excess mortality among PTSD patients has been attributed to violent causes of death).[16] An indirect result of proper therapy for PTSD may be a reduction in such adverse health practices.

An improvement in PTSD patients' health status may, therefore, be expressed in many different ways. Importantly, core PTSD symptoms may not be the first ones to respond to treatment, and some may not respond at all. Intrusive and distressful recall of traumatic events, for example, can be found in trauma survivors regardless of the presence of PTSD (e.g., in up to 91% of holocaust survivors).[17] Several PTSD programs have reported improvement on "auxiliary" symptoms and interpersonal behavior.[4,13,18] The assessment of treatment effect in PTSD should therefore be comprehensive and inclusive.

## What Are the Confounding Factors?

The measurement of PTSD symptoms may be confounded by 3 major factors: (1) nonspecific and uncontrolled effect of treatment interventions, (2) intercurrent environmental demands on the patient, and (3) factors related to the natural course of the disorder.

First among the nonspecific effects of treatment is the often-observed placebo effect. Being enrolled in a standardized treatment program, being given attention, and being given a pill are powerful modulators of one's feelings. Moreover, the patient's appraisal of his or her symptoms may be affected by being asked about them time and again during assessment sessions of a drug trial. In PTSD, the action of being repeatedly interviewed about one's trauma and the ensuing feelings may, indeed, simulate the effect of desensitizing exposure. Given the frequent use of self-report instruments in psychiatry, a change in self-evaluation will significantly affect the reported effect of treatment.

Other confounds related to enrolling patients in a treatment study are related to sampling bias and patient selection. For example, PTSD patients who are not receiving psychotropic medication or who can discontinue current treatment without major negative effects may not repre-

sent the population of patients regularly seen in psychiatric clinics. Similar sampling bias may occur when patients are selected on the basis of presence (or absence) of comorbid disorders. Keeping a detailed record and an initial evaluation of patients who are subsequently excluded from a study can identify potential selection bias.

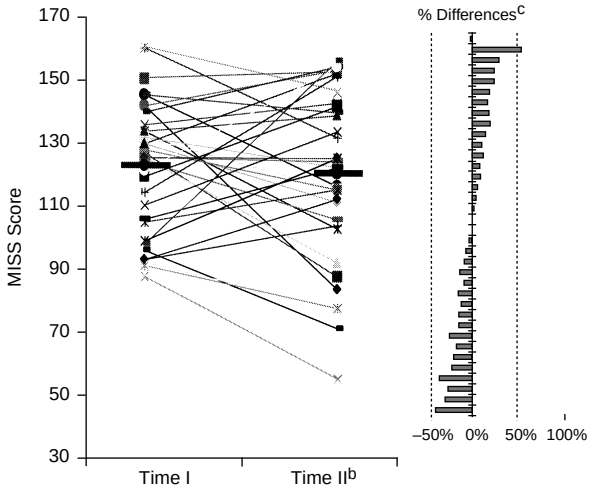
Importantly, the expression of PTSD symptoms is extremely sensitive to ongoing environmental demands, particularly to events and situations that resemble the original traumatic experience. The presence of negative life events, ongoing traumatization, or harsh living conditions may negatively affect the results of treatment studies.[2,5] This is particularly true for study participants who continue to live in a high-risk environment, such as inner cities or war-prone areas of the world. Monitoring the presence and severity of ongoing stressors during treatment studies makes a lot of sense.

Despite the comparable expression of PTSD across traumatic events, the severity and duration of the traumatic event and the age at which it occurred may affect the response to treatment. Patients who have suffered from prolonged traumatizations (e.g., captivity and torture) or from early-life adversities (e.g., child abuse) may differ from those meeting the same PTSD diagnostic criteria whose syndrome has followed shorter events (e.g., road traffic accidents). The underlying biological mechanisms of exposure to prolonged or repeated traumatization (e.g., surrender and exhaustion) may differ from that of acute traumatization (mostly fear), and such differences may affect the response to treatment. There is preliminary evidence that PTSD that has resulted from a more recent event may have a better treatment response than complex and chronic PTSD[19]; however, this area has not received enough attention and is worthy of further study.

Complicating matters further, some patients may have partial or subsyndromal forms of PTSD[20] yet show a substantial degree of disability.[21] Moreover, formal recovery from PTSD (i.e., not meeting the full criteria for PTSD) is often confounded with losing only the avoidance element of the syndrome, while intrusive memories and hyperarousal may remain. Claims in treatment studies of inducing "recovery" from PTSD should therefore be tested against the specific nature of such recovery.

Finally, the course of PTSD is often fluctuating and unstable. Spontaneous recovery occurs in more than 60% of patients with recent PTSD between 1 and 6 years after trauma.[10] This poses a problem of attributing an improvement to the specific effect of treatment. In order to address this problem, treatment studies should optimally include patients at a similar stage of their response to trauma. Chronic PTSD may also run a fluctuating course, as shown by a change of up to 50% in individual symptom intensity occurring between 2 measurement sessions.[22] Figure 2 demonstrates the spontaneous fluctuations of PTSD symptoms (Mississippi Scale for Combat-Related Posttraumatic Stress Disorder [MISS] total scores) in a population of veterans from the Vietnam War. Interestingly, the group mean MISS score remained constant, while individual scores showed large variation. The origin of such fluctuations is unknown, and they might be related to the above-mentioned environmental stressors.

**Figure 2. Spontaneous Fluctuations of Severity of Symptoms in Chronic PTSD Patients (N = 36)[a]**




[a]Data from Niles et al.[22] The horizontal bar in each Time column designates the mean Mississippi Scale for Combat-Related Posttraumatic Stress Disorder (MISS) score for all subjects.
[b]One year after Time I.
[c]Values shown are percent changes in MISS score for each patient.

## Defining Relevant Targets for Treatment

Areas of potential interest include PTSD symptoms, comorbid disorders, associated behavior, disability, and quality of life. PTSD symptoms are the first obvious target for treatment, but it is unclear whether all or just some symptoms should be measured. Some symptoms are more likely to change with treatment, and specific rating scales, described later in this review, have been developed for this purpose. A broad global assessment of severity is a third option for measuring treatment effects.

Among PTSD symptoms, insomnia and uncontrolled anger are of particular impact on the patient's life and may respond to specific treatment (e.g., mood stabilizers in the case of anger and irritability).[23,24] Avoidance in PTSD includes both fearful avoidance of trauma-related cues and recollection and generalized avoidance of social situations and avoidant lifestyle. These different facets of avoidance may be targeted by specific treatment interventions (e.g., exposure for specific avoidance and social skills groups for generalized avoidance). Finally, the presence of dissociative symptoms is often particularly troublesome and worth addressing in therapy.

More often than not, PTSD is accompanied by major depression.[10,11,25] Importantly, depression and anxiety may lead to suicidal behavior in PTSD.[26,27] Improvement in depressive symptoms may or may not follow that of PTSD symptoms, hence the need to monitor these 2 symptom domains independently.

Associated behavior patterns are difficult to measure. Substance abuse, isolation, violence, and impaired social and interpersonal function are dimensions of PTSD that are not "formal" symptoms but are extremely disturbing for the patient and his or her environment. As mentioned above, there is some evidence that these associated behaviors may be as reactive to treatment as much as some "core" PTSD symptoms. Moreover, specific treatment interventions may target each of these areas. Disability and quality of life are other areas of interest for which generic rating scales are widely available.

Beyond choosing an appropriate dimension to measure, a gauge of the expected efficacy of the intervention is often desirable. The length and the impact of previous treatment trials is an important factor to consider when planning a treatment study in PTSD. PTSD is a chronic disorder, and many patients would previously have been in treatment when entering a novel study. *Treatment resistance*, however, has not been properly defined in PTSD. Yet, as we know all too well, many PTSD patients have failed to improve in several trials of various pharmacologic and nonpharmacologic therapies. Recognizing treatment resistance is particularly important because it may lead to enlightened use of augmentation techniques, such as the ones used in other mental disorders. Knowledge of the expected effect size of therapies in PTSD may also lead to predefining criteria for success and failure in the treatment of specific patient populations.

## INSTRUMENTS USED TO ASSESS PTSD

Table 1 lists instruments that have been used in previous clinical studies of PTSD. The list is not meant to be comprehensive, but rather to point to directions in evaluating the severity of the disorder and treatment outcome. The rating scales can be divided into those that determine PTSD diagnostic status, those that assess PTSD symptoms, those that make global clinical assessments, and scales that rate the severity of associated conditions, level of disability, and quality of life.

### PTSD and Comorbid Disorders: Formal Diagnoses

Accurate diagnosis of PTSD is a sine qua non for conducting treatment studies. The Structured Clinical Interview for DSM-IV (SCID-IV)[28] is the ex officio structured clinical interview for DSM-IV Axis I disorders. The SCID-IV yields detailed diagnoses of PTSD and comorbid disorders, current and lifetime. The algorithmic and modular structure of the SCID-IV allows for quick exclusion of disorders that are not present. It is also possible to use portions of the SCID-IV to evaluate one or more pertinent disorders (e.g., PTSD, depression, other anxiety disorders). The instrument includes a thorough evaluation of alcohol and substance misuse disorders. The SCID-IV has to be administered by trained clinicians and requires clinical judgment and experience. The main advantage of using the SCID-IV in studies of PTSD is the instrument's ability to detect concurrent (comorbid) disorders. The SCID-IV does not evaluate the severity of mental disorders.

**Table 1. Rating Scales for Use in Studies of PTSD**

| Evaluation | Assessor |
|---|---|
| Diagnosis of PTSD | |
| Structured Clinical Interview for DSM-IV (SCID-IV) | Clinician |
| Clinician Administered PTSD Scale (CAPS) | Clinician |
| Posttraumatic Diagnostic Scale (PTDS) | Patient |
| PTSD symptoms | |
| Clinician Administered PTSD Scale (CAPS) | Clinician |
| Posttraumatic Diagnostic Scale (PTDS) | Patient |
| Impact of Event Scale (IES) | Patient |
| Davidson Trauma Scale (DTS) | Patient |
| Mississippi Scale for Combat-Related Posttraumatic Stress Disorder (MISS) | Patient |
| Treatment-Outcome PTSD scale (TOP-8) | Clinician |
| Global clinical assessment | |
| Clinical Global Impressions scale (CGI) | Clinician |
| Severity of Illness scale | Clinician |
| Global Improvement scale | Clinician |
| Duke Global Rating of PTSD (DGRP) | Clinician |
| Comorbid disorders and symptoms | |
| Structured Clinical Interview for DSM-IV (SCID-IV) | Clinician |
| Dissociative Experiences Scale (DES) | Patient |
| Beck Depression Inventory (BDI) | Patient |
| Montgomery-Asberg Depression Rating Scale (MADRS) | Clinician |
| Spielberger State-Trait Anxiety Inventory (STAI) | Patient |
| Hamilton Rating Scale for Depression (HAM-D) | Clinician |
| Hamilton Rating Scale for Anxiety (HAM-A) | Clinician |
| Disability and vulnerability to stress | |
| Global Assessment of Functioning (GAF) | Clinician |
| Sheehan Disability Scale | Patient |
| Sheehan Vulnerability to Stress (VS) scale | Patient |
| Quality of life | |
| Quality of Life Enjoyment and Satisfaction Questionnaire (Q-LES-Q) | Clinician |

The Clinician Administered PTSD Scale (CAPS)[29,30] is a structured clinical interview dedicated to PTSD. The CAPS has been widely used in clinical studies of PTSD, including treatment studies. The CAPS examines all 3 symptom clusters of PTSD, quantifying symptom frequency and intensity for each PTSD symptom during the past month or past 2 weeks, depending on the version used. The CAPS yields both a continuous measure of symptom severity and a dichotomous diagnosis of PTSD. As with the SCID-IV, the administration of the CAPS requires clinical skills, judgment, and experience. The CAPS has been used effectively to evaluate change in symptom intensity over time.

Complementing these 2 structured clinical interviews, the Posttraumatic Diagnostic Scale (PTDS)[31] is a self-report measure of posttraumatic stress disorder that yields

both a diagnosis of PTSD and a measure of PTSD symptom severity. The instrument's items follow DSM-IV diagnostic criteria for PTSD and ask about symptoms expressed during the past month. The PTDS also addresses the nature of the stressful event, the duration of the disturbance, and the resulting impairment. It contains, therefore, all the required criteria for making the diagnosis of PTSD. The instrument has been validated against the SCID and was found to have good sensitivity and specificity. Its time resolution (1 month) should be considered when planning for repeated assessment sessions.



### PTSD: Symptom Severity

The Impact of Event Scale (IES)[3] is arguably the oldest and the most widely used self-report rating scale of trauma-related symptoms. Although it does not strictly follow DSM diagnostic criteria, the IES does evaluate the 3 main symptom domains: intrusion, avoidance, and hyperarousal.[32] The IES quantifies 22 current (past week) symptoms, each on a severity rating of 0 to 5, and is fairly sensitive to changes in symptoms between 2 timepoints. The IES yields a total score but can also be subdivided into 3 subscales, corresponding to the above-mentioned symptom domains. The factor structure of the IES is indeed robust and has been shown to be consistent across studies.[5] The IES has been translated into many languages and validated in several studies.[33] It has been used extensively in treatment studies.

The Davidson Trauma Scale (DTS), a 17-item clinician-administered scale, is a self-report instrument that measures both the frequency and severity of each DSM-IV PTSD symptom.[34] The DTS has been shown to have good predictive properties for response to treatment and is sensitive to treatment effect.

Finally, the Mississippi Scale for Posttraumatic Stress Disorder[35] is a 35-item self-report questionnaire that focuses on the symptomatology found specifically after trauma. The MISS has both civilian[36] and combat-related versions. It does not follow DSM-IV symptoms yet has been used in numerous epidemiologic studies of PTSD from which a cutoff score has been derived to define "caseness" (i.e., the presence or absence of PTSD).

### PTSD: Selected Symptoms

There are 2 approaches to measuring selected symptoms in drug trials. One is to evaluate change in specific symptom domains, such as intrusion or avoidance. The other is to evaluate symptoms that are more likely to be affected by treatment. The first approach uses one or several parts of a PTSD rating scale, such as the intrusion or avoidance subscales of the IES. The second approach is exemplified by Davidson's 8-item treatment-outcome PTSD scale (TOP-8).[4] The TOP-8 is a brief interview based on 8 PTSD symptoms that have been shown to respond well to treatment interventions. It was developed from a larger (19-item) PTSD evaluation scale (the Structured Interview for PTSD [SI-PTSD][37]) by selecting items that occur frequently in patients with PTSD and respond well to treatment. The 8 items belong to all 3 symptom clusters for PTSD and have been shown to detect drug/placebo differences better than the original scale. The TOP-8 has been shown to correlate significantly with a self-rated measure of PTSD and can distinguish between responders and nonresponders on the Clinical Global Impressions scale (CGI).

### Global Measures of Improvement

Clinical observation may capture dimensions of behavior that are not readily reduced to specific symptoms. Global assessment scales quantify such observations. The most widely used is the CGI.[38] The CGI asks the clinician to refer to his or her "total clinical experience" to assess the severity of the patient's current mental illness (1 item) and to evaluate improvement from the patient's baseline condition as previously observed (1 item). The CGI, therefore, captures and quantifies a global impression by the clinician regarding both severity and improvement. It offers a crude, yet very useful measure of change in patients with mental disorders that can be used across disorders and in states of high comorbidity. The CGI has been used extensively to provide outcome measures in treatment studies of PTSD, depression, and anxiety disorders.

Specifically designed for PTSD, the Duke Global Rating of PTSD (DGRP) offers a global evaluation of PTSD by an observing clinician. As does the CGI, the DGRP refers to the clinician's "total clinical experience with this particular population" as a basis for a global evaluation of 4 items: intrusive phenomena, avoidant behavior, hyperarousal, and overall severity. Each item is rated on a severity scale of 1 to 7.

### Comorbid Disorders and Associated Symptoms

Depression, anxiety, and dissociation are among the most frequently evaluated comorbid symptoms in PTSD. Dissociative symptoms may be evaluated using the Dissociative Experience Scale (DES),[39] although this instrument is rather long and not specifically designed to evaluate change over time.

Improvement in symptoms of anxiety and depression is often, yet not always, associated with improvement in PTSD symptoms. There are several widely used instruments that allow an evaluation of depressive symptoms and anxiety in PTSD (e.g., the Beck Depression Inventory [BDI],[40] the Montgomery-Asberg Depression Rating Scale [MADRS],[41] the Spielberger State-Trait Anxiety Inventory [STAI]).[42] The use of these measures in studies of PTSD is recommended since they capture frequent features of the clinical syndrome that the "pure" PTSD scales do not. The Hamilton Rating Scale for Depression (HAM-D)[43] and Hamilton Rating Scale for Anxiety

(HAM-A)[44] have been widely used in clinical studies of PTSD.

### Disability and Vulnerability to Stress

Included in the SCID-IV is a revised Global Assessment of Functioning scale (GAF). The GAF adapts a numeric score (on a scale of 10–100) to levels of personal and social functioning that are described verbally in the instrument. As part of the SCID, this scale is designed to be used across mental disorders and to capture all levels of disability, from chronic hospitalization with care for daily activities to undisturbed functioning in the community. The GAF is not syndrome specific and therefore may be used in the presence of complex comorbid psychopathology.

Used in drug studies of PTSD and other mental disorders, the Sheehan Disability Scale[45] is a self-report instrument (3 items, rated 1–10) used to assess the degree to which mental symptoms have disrupted the patient's work, social life, and family/home responsibilities. An additional stress and social support scale (also referred to as "Vulnerability to the Effect of Stress," or VS[46]) addresses the degree to which co-occurring stressors could interfere with one's work, leisure, social, health, and financial situations (1 global item scored 1–10) and the degree of support received from others, relative to needs, during the past week (1 item, identical).

### Quality of Life

Improvements in the patient's quality of life is what treatment is, ultimately, trying to achieve. Quality of life has been defined in different ways, and many instruments have been derived from such definitions, mostly for use in basic research and epidemiologic studies. The effect of treatment of PTSD on quality of life has been evaluated using Endicott's Quality of Life Enjoyment and Satisfaction Questionnaire (Q-LES-Q).[47,48] The Q-LES-Q is a self-report measure designed to investigate the degree of enjoyment and satisfaction experienced by subjects in various areas of daily functioning. In the above-mentioned study, this instrument was shown to be sensitive to treatment effects (Table 2).

### Rating Scales in Practice

This last section addresses the usefulness of rating scales from another perspective: it looks at the degree to which rating instruments were able to differentiate active treatment from placebo effect in previous clinical trials. The results from treatment studies using various PTSD rating scales are presented in Table 2. The difference in response rate between active study drug and placebo and the ratio between these response rates give an indication of the amount of the active drug's effect that can be accounted for by a placebo response. With the majority of PTSD rating scales used in these studies, up to two thirds of the active treatment response could be attributed to placebo response. Importantly, significant treatment/placebo effect has been shown for most area studies, including symptom severity, global evaluation of outcome, quality of life, and vulnerability to stress. These data demonstrate the usefulness of comprehensive evaluation of outcome in treatment studies of PTSD.

**Table 2. Active Drug/Placebo Response Rates Using PTSD Rating Scales**

| Rating Scale | Mean Improvement, % of Patients: Active Drug | Mean Improvement, % of Patients: Placebo | Drug/Placebo Ratio | Reference |
|---|---|---|---|---|
| IES total | 47 | 19 | 0.40 | Davidson et al[49] |
| IES total | 65 | 28 | 0.43 | Kosten et al[50] |
| IES total | 68 | 25 | 0.37 | Kosten et al[50] |
| CAPS total | 60 | 40 | 0.67 | Baker et al[51] |
| CAPS total | 52 | 29 | 0.56 | Katz et al[52] |
| CGI | 85 | 62 | 0.73 | van der Kolk et al[19] |
| IES intrusion | 53 | 35 | 0.66 | Davidson et al[53] |
| IES avoidance | 47 | 35 | 0.72 | Davidson et al[53] |
| CAPS avoidance | 47 | 34 | 0.72 | Davidson et al[53] |
| CAPS occupation | 47 | 25 | 0.53 | Davidson et al[53] |
| DTS | 43 | 27 | 0.63 | Davidson et al[53] |
| DTS | 39 | 24 | 0.62 | Brady et al[48] |
| Q-LES-Q | 22 | 6 | 0.27 | Brady et al[48] |

## CONCLUSION

As shown in this brief overview, some PTSD symptoms may react better to treatment than others. Residual symptoms are also found in trauma survivors without PTSD and in functionally remitted PTSD patients. When designing strategies to measure PTSD outcome, it is essential to remember that PTSD is often complicated by comorbid anxiety and depression, substance misuse, uncontrollable anger and resulting violence, and interpersonal and vocational dysfunction. In the chronic phase of this illness, the intensity of PTSD symptoms fluctuates, mostly in response to social pressures and cues that remind patients of the trauma. Furthermore, a placebo effect, related to providing attention and support and following structured inquiry about the patient's condition, is likely to happen—even when no other specific treatment is provided.

Treatment outcome measures should focus on those dimensions of PTSD that one wishes to change by providing treatment. These dimensions may range from a global assessment of personal, social, and vocational functioning to specific PTSD symptom domains, associated depression and anxiety, or more specific areas of functioning (e.g., avoidance or violence). The assessment of treatment effect on PTSD may also include criteria such as environmental stability and concurrent psychological stressors.

Long-term studies and appropriate measures of the relevant dimensions of PTSD are needed to evaluate the sta-

bility of the results beyond the shorter active phase of treatment studies.

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