Functional Assessment in Veterans with Posttraumatic Stress Disorder

Jeanne Varrasse, RN, MSN, Steven M. Silver, PhD, Susan Rogers, PhD,
James Goss, RN, BSN, Albert Kovaks, RN, and Nancy Steenhusen, RN

In order to enhance understanding of the widely used Global Assessment of Functioning scale, these investigators compared it with a validated, self-report symptom scale in a sample of patients undergoing inpatient PTSD treatment.

Ongoing U.S. military combat operations and recent natural disasters in the United States and worldwide have focused increased attention over the past several years on posttraumatic stress disorder (PTSD). One of the most significant effects of PTSD is the way it interferes with a person's daily functioning, affecting his or her ability to work, conduct healthy relationships with family and friends, and respond appropriately to his or her environment. Currently, there is a growing body of evidence documenting poorer social, occupational, and psychological functioning among people with PTSD—both compared with people with other mental disorders and the public as a whole.[1–5] As such, assessing functioning in patients with PTSD before and after treatment appears to be at least as important as measuring symptoms.

In the VA, the Global Assessment of Functioning (GAF) scale plays a substantial role in the provision of mental health services. This 100-point scale was established to measure psychological, social, and occupational functioning along a continuum of mental health and mental illness. It was first included in the revised third edition of the *Diagnostic and Statistical Manual of Mental Disorders*, published in 1987.[6] VA mental health clinicians are required to complete the GAF scale for all psychiatric inpatients (upon admission and again at discharge) and all psychiatric outpatients (at each mental health appointment).

As a result of this policy, a very large number of veteran patients are evaluated with the GAF scale throughout the VA health care system. This scale, however, has not been studied extensively. In 1996, Roy-Burne and colleagues published a study showing limited validity for the GAF scale,[7] but little research has been conducted since then. Consequently, many questions about the scale, such as whether it separates social and occupational functioning from symptoms and psychological functioning, remain unanswered.

To learn more about the value of the GAF scale in the setting of PTSD, we performed a retrospective study of data from veterans admitted to an inpatient PTSD treatment program at the Coatesville VA Medical Center (CVAMC), Coatesville, PA. Specifically, we compared patients' scores on the GAF scale administered at program entry and at program exit with their scores on a self-reported measure of PTSD symptoms administered during a similar timeframe. The purpose was to determine whether there were any correlations between patients' scores on these two instruments, which would suggest that the GAF is of some value in the assessment of PTSD patients.

STUDY DESIGN

Founded in 1982, the inpatient PTSD program at the CVAMC is run by a multidisciplinary treatment team. All of the team's members have volunteered to work on the unit. The program includes a mix of individual and group therapy and education. Each patient in the program is assigned a primary therapist, who is charged with providing and coordinating all therapy for the duration of the program. The duration of the program varies for each patient and is determined by the primary therapist. A typical stay is 10 weeks, though patients who have gone through the program before may have shorter stays.

For our study, we retrospectively reviewed data on veterans who were admitted to the PTSD program between June 1, 2004 and June 30, 2005. In addition to demographic data (age, sex, and race/ethnicity) from patients' medical records, we collected their scores on the GAF scale and the PTSD Symptom Scale Self-Report (PSS-SR). The PSS-SR, which evolved from the PTSD Stress Scale, is a 17-item, self-report tool that asks patients to rate their symptoms on a five-point Likert scale

Ms. Varrasse is a psychiatric clinical specialist, **Dr. Silver** is the program director, **Dr. Rogers** is a staff psychologist, **Mr. Goss** is the unit manager, and **Mr. Kovaks** and **Ms. Steenhusen** are staff nurses, all in the posttraumatic stress disorder unit of the mental health product line at the Coatesville VA Medical Center, Coatesville, PA.

(with higher ratings corresponding to more severe symptoms).[8]

Patients were asked to complete the PSS-SR prior to PTSD program admission (pretreatment PSS-SR) and again at program completion (posttreatment PSS-SR), though they were not required to do so. According to VA policy, the GAF scale was recorded as part of the behavioral assessment by the patient's primary therapist within 48 hours of program admission (entry GAF) and repeated at the time of program completion (exit GAF).

We also gathered data on participants' total percentage of service connection, which is a measure of the degree to which a veteran has health problems that are related to or were aggravated by military service, according to the VA's determination. The VA uses the service connection percentage to determine the amount of monetary disability compensation a veteran may receive and considers this information in deciding a veteran's eligibility for VA health care services. The purpose of analyzing service connection data in this study was to explore possible connections between assigned service connection percentages and veterans' self-reported symptoms and functional assessments. Therapists in the VA often wonder whether veterans who have been assigned low levels of service connection might report higher levels of symptoms or functional impairment in an attempt to increase their service connection and, thus, their benefits.

Data analysis was performed using Statview version 5.0 (SAS Institute, Cary, NC). We calculated mean values for participants' age, percentage of service connection, entry GAF scores, pretreatment PSS-SR scores, posttreatment PSS-SR scores, exit GAF scores, change in PSS-SR scores, and change in GAF scores. Next, we used simple regression to determine whether there were any correlations between entry GAF and pretreatment PSS-SR scores, changes in GAF and PSS-SR scores from program admission to program completion, and exit GAF and posttreatment PSS-SR scores. We used the same method to look for correlations between the percentage of service connection and GAF and PSS-SR scores. Finally, we performed a regression analysis, using analyses of variance, to explore possible relationships between the intensity of PTSD symptoms at program admission (as measured by the pretreatment PSS-SR) and the level of improvement on both instruments at program completion.

OUR FINDINGS

A total of 273 patients—all of whom were male—were admitted to the CVAMC inpatient PTSD program during the study period. These veterans had participated in a wide range of military conflicts, including the Vietnam War, Bosnian peacekeeping operations, and the ongoing Opera-

Table 1. Age, PTSD[a] Symptom Scale Self-Report (PSS-SR) scores, Global Assessment of Functioning (GAF) scores, and service connection for study patients

Variable	No. of patients with data available[b]	Mean value	SD	Minimum value	Maximum value	Variance
Age	263	53.475	7.367	22.000	64.000	54.273
Pretreatment PSS-SR score	267	37.652	7.872	0.000	60.000	61.972
Posttreatment PSS-SR score	153	31.248	9.726	4.000	59.000	94.596
Change in PSS-SR scores	152	6.645	10.941	–41.000	42.000	119.714
Entry GAF score	260	40.362	5.073	15.000	54.000	25.738
Exit GAF score	140	49.813	5.187	25.000	61.000	26.901
Change in GAF scores	140	9.500	6.135	–20.000	25.000	37.633
Service connection (%)	129	60.000	30.491	0.000	100.000	929.688

[a]PTSD = posttraumatic stress disorder. [b]Total number of patients in the program during the study period was 273. Ten patients were missing data for age, six were missing a pretreatment PSS-SR score, 120 were missing a posttreatment PSS-SR score, 121 were missing either the pretreatment or posttreatment PSS-SR score (so the change in PSS-SR score could not be determined), 13 were missing an entry GAF score, 133 were missing an exit GAF score, 133 were missing either the entry or exit GAF score (so the change in GAF score could not be determined), and 144 were missing data on service connection.

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Table 2. Correlations between PTSD[a] Symptom Scale-Self Report (PSS-SR) and Global Assessment of Functioning (GAF) scores

Comparison	No. of patients[b]	Correlation	*z* score	*P* value	95% confidence limit (lower, upper)
Entry GAF and pretreatment PSS-SR scores	260	0.201	–3.261	.001	–0.315, –0.081
Exit GAF and posttreatment PSS-SR scores	140	0.900	–1.060	.289	–0.252, 0.77
Changes in PSS-SR and GAF scores	140	0.148	1.747	.08	–0.018, 0.307

[a]PTSD = posttraumatic stress disorder. [b]The maximum number of study patients for whom data were available on both variables being compared.

Table 3. Correlations between pretreatment PTSD[a] Symptom Scale-Self Report (PSS-SR) scores and change in PSS-SR and Global Assessment of Functioning (GAF) scores

Comparison	No. of patients[b]	*R*	*df*	Sum of squares	Mean square	F statistic	*P* value
Pretreatment PSS-SR scores and change in PSS-SR scores	152	0.509	1	2,472.22	2,472.22	52.52	< .0001
Pretreatment PSS-SR scores and change in GAF scores	140	0.222	1	30.48	30.48	1.13	.29

[a]PTSD = posttraumatic stress disorder. [b]The maximum number of study patients for whom data were available on both variables being compared.

tions Enduring Freedom and Iraqi Freedom. The majority (61%) of the participants who provided demographic data were white, 36% were African American, and 3% were Hispanic. Among the 263 patients whose age had been recorded in their medical record, the mean age was 53 years (Table 1).

We found a statistically significant, positive correlation between the mean entry GAF score and the mean pretreatment PSS-SR score for the 260 patients for whom both scores were available (Table 2). Unfortunately, posttreatment PSS-SR scores were available for only 153 patients and exit GAF scores were available for only 140. As such, our ability to assess correlations between score changes and discharge scores for the two instruments was somewhat limited. Even so, there was a trend toward a positive correlation between the change in GAF scores and the change in PSS-SR scores from program admission to program completion—though it did not attain statistical significance.

Further analysis revealed a statistically significant, positive correlation between pretreatment PSS-SR scores and the change in PSS-SR scores—meaning that more severe symptom scores at program entry were associated with greater symptom improvement at exit (Table 3). There was a nonsignificant trend toward a positive correlation between pretreatment PSS-SR scores and the change in GAF scores. There were no relationships between patients' percentage of service connection assigned by the VA and either the initial GAF and PSS-SR scores or the changes in these scores from program entry to exit.

STUDY IMPLICATIONS

Our study showed a significant, positive correlation between GAF and PSS-SR scores when those instruments are used to evaluate patients entering an inpatient PTSD treatment program. While this type of correla-

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tion is not sufficient to validate the GAF scale, it does shed some light on the scale's usefulness in this setting. Because the criteria for diagnosing PTSD include some types of functional impairment, there is a degree of overlap between the two instruments and there is reason to suspect that more severe PTSD symptoms would produce more extensive functional impairment. As such, the positive correlation between the two instruments in our study lends support to the widespread belief that the GAF is an accurate measure of functional ability in patients with PTSD.

The positive correlation between change in PSS-SR and GAF scores between program admission and program completion did not attain statistical significance. Nevertheless, the improvement in mean scores for both scales between program admission and program completion suggests that patients are deriving some benefit, in terms of both symptom relief and functional improvement, from the CVAMC inpatient PTSD treatment program.

There was no meaningful or significant correlation between GAF and PSS-SR scores at program completion. A possible reason for this lack of correlation is the fact that we could not obtain data on posttreatment PSS-SR and exit GAF scores for a substantial number of patients (120 for the posttreatment PSS-SR and 133 for the exit GAF). Therefore, the numbers of patients included in the analysis of the change in scores and in the analysis of exit scores were much smaller than the number included in the analysis of entry scores. In addition, the PSS-SR contains references to historical occurrences of symptoms, which could result in less overall change in PSS-SR scores following treatment.

We found no relationships between a veteran's percentage of service connection and his responses on the PSS-SR and GAF instruments, before or after PTSD treatment. This argues against the theory that veterans overreport symptoms or level of functional impairment in order to gain increased compensation.

Our findings cannot be generalized outside the VA inpatient setting or to other mental health disorders beyond PTSD. The study should be replicated and further research conducted to validate the results and explore their applicability in other settings. Of particular interest would be a study focusing on veterans of OIF and OEF, given that this group is younger overall and would be less likely, at this point in time, to have developed chronic PTSD than veterans of earlier conflicts.

Another limitation of the current study was the decreased numbers of patients with exit assessment data. A study with a prospective design and a larger number of participants might be able to illuminate better the relationship between the GAF and the PSS-SR following PTSD treatment. Finally, it would be useful to explore correlations between the GAF and other valid, reliable psychiatric instruments.

Our study lends support to the widespread belief that the GAF is an accurate measure of functional ability in patients with PTSD.

Author disclosures

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