



An Empirical Examination of the Concept of "Stress-Induced" Personality Disorders

James Reich, MD, MPH

Personality is considered to be stable or, at the very least, something that changes slowly over time. However, each person responds differently to stress. A person's reaction under stress represents varying degrees of modification of his or her normal personality style and sometimes exposes personality vulnerabilities that cause more radical changes in personality style.

Personality disorders have been conceptualized in a variety of ways. A review of all of the conceptualizations of personality disorder is beyond the scope of this article, but two of the current major definitions are mentioned. The current *DSM-IV* diagnosis of personality disorder is "An enduring pattern of inner experience and behavior that deviates markedly from the expectations of the individual's culture. . . ."1 The pattern is manifested in two or more of the following areas: cognition, affectivity, interpersonal functioning, and impulse control. The pattern is inflexible and pervasive across a broad range of situations, has an early onset, is stable, and leads to significant distress or impairment. According to the *ICD-10* diagnostic guidelines, personality disorders ". . . comprise deeply ingrained and enduring behaviour patterns, manifesting them-

selves as inflexible responses to a broad range of personal and social situations. They represent either extreme or significant deviations from the way the average individual in a given culture perceives, thinks, feels, and, particularly, relates to others. Such behaviour patterns tend to be stable and to encompass multiple domains of behaviour and psychological functioning. They are frequently, but not always, associated with various degrees of subjective distress and problems in social functioning and performance."²

The *DSM-IV* does not allow for the possibility of a stress-induced personality disorder. The *ICD-10* allows for a personality disorder to be created by stress. An enduring personality change is defined as "... a disorder of adult personality and behaviour that has developed following catastrophic or excessive prolonged stress, or following a severe psychiatric illness, in an individual with no previous personality disorder. There is a definite and enduring change in the individual's pattern of perceiving, relating to, or thinking about the environment and the self. The personality change is associated with inflexible and maladaptive behaviour that was not present before the pathogenic experience and is not a manifestation of another mental disorder or a residual symptom of any antecedent mental disorder."^{2,3} The *ICD-10* definition does not allow for a stress-induced personality disorder to reverse itself.

These two definitions of personality emphasize the stability of personality functioning over time. However, there is no question that measurements of personality characteristics can be

Dr. Reich holds appointments at the Harvard Medical School Combined Department of Psychiatry, Cambridge, Massachusetts; the Stanford Department of Psychiatry and Behavioral Health, Palo Alto, California; and the University of California Medical Center at San Francisco Department of Psychiatry, San Francisco, California. Address reprint requests to James Reich, MD, MPH, 2255 North Point Street, Suite 102, San Francisco, CA 94123.

elevated if taken when a patient is acutely ill with an Axis I disorder. These measurements return to baseline after resolution of the Axis I disorder.⁴⁻¹⁰ One must consider the possibility that this is a measurement artifact. If this were the case, traits distorted by the presence of an Axis I disorder would have no clinical value (ie, they would just be "noise" confusing the clinical picture). Taking this approach, some developers of tests for DSM personality disorder have worked to reduce this effect in their instruments. For example, Loranger et al.¹¹ have taken that approach and have eliminated much of this noise from their test results.

However, personality measurements taken during an acute Axis I illness predict the outcome of treatment of that illness.^{12,13} If a phenomenon predicts an important variable, such as outcome, we may be dealing with an important phenomenon in its own right and not an artifact. This would indicate that it is an area worthy of further study. Other researchers have speculated about the possibility of stress-induced personality disorders. After a review of the literature on personality and the anxiety and depressive disorders, Bronisch and Klerman¹⁴ concluded that a stress-induced personality disorder was a reasonable concept. They referred to it as "personality change."

This article examines the problem of stress-induced personality disorders empirically. Three different groups—state personality disorder, stress-induced personality disorder, and no personality disorder—are compared on clinical symptoms, functioning, and family history. If stress-induced personality disorders are a measurement artifact, the stress-induced personality disorder group will resemble the no personality disorder group. If the stress-induced personality disorder group forms a distinctive clinical and family history pattern, it may represent a clinical syndrome worthy of further study.

METHODS

Population

Subjects for this study were drawn from a free-standing Veterans' Administration outpatient clinic in a city in the northeastern United States with a population of approximately 300,000. The population was 100% male. Subjects were a random sample of nonpsychotic psychiatric outpatients.

Instruments

The information used in this article was gathered by direct interview. The interview consisted of an established measure of Axis I disorders, the Structured Clinical Interview for DSM-III-R Diagnoses (SCID1)¹⁵; and an established measure of DSM-III-R personality disorders, the Personality Disorder Examination, version 2 (PDE).^{16,17} The PDE has been designed to be resistant to the effects of state.¹¹ The Personality Diagnostic Questionnaire-Revised (PDQ-R), a 152-item self-report by patient or informant(s) using DSM-III-R criteria, was the second personality instrument administered.^{18,19} This is a personality instrument that appears to be affected by state effects.⁶⁻⁹

The interview also included a measure of socioeconomic status by Hollingshead's method and the Global Assessment Scale (GAS).^{20,21} The Brief Symptom Inventory (BSI)²² was also administered. The BSI is a 50-item self-report measure of acute symptomatology. A dimensional self-report of family-home functioning was also used.

Two standardized, validated instruments were used to measure family history. The first was the Family History-Research Diagnostic Criteria (FH-RDC),^{23,24} which measures the psychotic and affective disorders. The second was the Family History for the DSM-III Anxiety and Personality Disorders (FHPD),^{25,26} which measures the DSM-III anxiety disorders and personality disorder clusters. In this study, patients were asked about first-degree relatives only.

Procedures

Patients in the psychiatric clinic were approached, either by mail or in person at the time of their visit, to take part in the study. Approximately 65% of those eligible to be in the study completed the interviews. No demographic or diagnostic differences were found between responders and nonresponders.

The interviews were performed by research assistants who had undergone extensive training on all of the instruments involved. This training included reading, watching videotapes, attending didactic sessions, and participating in supervised practice interviews. The interviews were performed in person, not over the telephone. The

research assistants were blind to the purpose of the study and did not know into which group a given patient would be placed. The developer of the PDE participated in training some of the research assistants on the PDE.

Patients were divided into three groups based on the results of their personality tests. The state personality disorder group consisted of patients who scored in the *DSM-III-R* cluster B grouping* on the PDE. Of the remaining patients, those with a *DSM-III-R* cluster B grouping on the PDQ-R were placed in the stress-induced personality disorder group and the rest (without a personality disorder diagnosis on either the PDE or the PDQ-R) were placed in the no personality disorder group.

Statistical Analyses

Statistical analyses were performed using SAS version 6.11 for personal computers.²⁷ Individual comparisons were made using Fisher's exact test where the variables were categorical and analysis of variance where the variables were continuous. Odds ratios were calculated using the Proc Logist in the SAS program.

When multiple statistical tests are performed, there is the possibility of findings appearing to be significant by chance alone. Only those statistical values at or above .001 were considered significant. Values between .01 and .001 were considered trends and are reported for interest.

RESULTS

There were 78 patients in the no personality disorder group, 63 in the stress-induced personality disorder group, and 24 in the state personality disorder group. The groups did not differ significantly regarding marital status or level of education. However, the groups did differ in mean age: 61.3, 54.8, and 47.2 years, respectively, for the no personality disorder group, the stress-induced personality disorder group, and the state person-

*The personality clusters referred to here are the *DSM* personality disorder clusters. The first cluster, cluster A or the schizoid cluster, includes the schizoid, schizotypal, and paranoid personality disorders. The second cluster, cluster B or the impulsive cluster, includes borderline, histrionic, antisocial, and narcissistic personality disorders. The third cluster, cluster C or the anxious cluster, consists of the avoidant, dependent, and compulsive personality disorders.

TABLE 1
Personality Disorders of the Three Groups as Measured by the Personality Disorder Examination*

Personality Disorder	Group		
	No PD (n = 78)	Stress-Induced PD (n = 63)	State PD (n = 24)
Schizoid	2.6%	1.6%	8.3%
Schizotypal	3.9%	3.2%	29.2%
Paranoid	2.6%	14.3%	50.0%
Antisocial	0%	0%	37.5%
Narcissistic	0%	0%	8.3%
Histrionic	0%	0%	12.5%
Borderline	0%	0%	62.5%
Avoidant	14.1%	23.8%	41.7%
Dependent	0%	4.8%	8.3%
Compulsive	5.1%	7.9%	16.7%

PD = personality disorder.
*Because the groups were determined by study design, no statistical procedures were performed.

ality disorder group ($F = 14.5, df = 2, P = .0001$). Duncan's post hoc test indicated that the groups were significantly different from each other. There was a trend for the groups to differ in mean socioeconomic status (4.0, 4.4, and 4.7, respectively, for the no personality disorder group, the stress-induced personality disorder group, and the state personality disorder group; $F = 6.5, df = 2, P = .002$). Duncan's post hoc test indicated that the no personality disorder group and the state personality disorder group were significantly different from each other.

There were no significant differences among the no personality disorder group, the stress-induced personality disorder group, and the state personality group for lifetime Axis I disorders: schizophrenia (0%, 0%, and 0%); bipolar (1.7%, 2.2%, and 14%); major depression (44.3%, 53.2%, and 66.7%); alcohol dependence (23.0%, 42.6%, and 46.7%); panic disorder (11.5%, 14.9%, and 26.7%); and posttraumatic stress disorder (27.9%, 46.8%, and 40.0%).

The personality disorders for the three groups, as measured on the PDE, are shown in Table 1. Because these were determined by study design, no statistical procedures were performed. As

TABLE 2
Symptom and Functioning Scores of the Three Groups

Symptom- Functioning	Group		
	No PD (n = 78)	Stress- Induced PD (n = 63)	State PD (n = 24)
Suicide attempts (% lifetime)	5.3	7.9	58.0*
BSI drug use	65.0	82.7	84.8 [†]
BSI psychotic thinking	38.3	60.7	72.9 [‡]
BSI interpersonal sensitivity	0.9	2.0	2.1 [§]
BSI hostility	0.7	1.6	1.9
GAS	70	65	56 [†]
Family-home functioning	2.3	3.6	5.0 [#]
Hamilton depression score	9.0	12.0	18.5**
Hamilton anxiety score	11.0	13.7	19.5 ^{††}

PD = personality disorder; BSI = Brief Symptom Inventory; GAS = Global Assessment Scale.
 *Chi-square = 45.2, df = 2, P = .001.
[†]F = 17.8, df = 2, P = .0001. Post hoc test indicates no PD significantly different from other groups.
[‡]F = 17.9, df = 2, P = .0001. Post hoc test indicates no PD significantly different from other groups.
[§]F = 25.9, df = 2, P = .0001. Post hoc test indicates no PD significantly different from other groups.
^{||}F = 33.8, df = 2, P = .001. Post hoc test indicates no PD significantly different from other groups.
^{††}F = 11.2, df = 2, P = .0001. Post hoc test indicates state PD is significantly different from other groups. (Higher scores indicate better functioning.)
[#]F = 10.7, df = 2, P = .0001. Post hoc test indicates no PD significantly different from other groups. (Lower scores indicate better functioning.)
^{**}F = 16.2, df = 2, P = .0001. Post hoc test indicates that state PD is different from all other groups.
^{†††}F = 13.7, df = 2, P = .0001. Post hoc test indicates that state PD is different from all other groups.

measured by the PDE, in the state personality disorder group, 62.5% of the patients had borderline personality disorder, 37.5% had antisocial personality disorder, 12.5% had histrionic personality disorder, and 8.3% had narcissistic personality disorder. (These numbers are not mutually exclusive.)

When the total amount of personality pathology is measured dimensionally using the PDQ-R, the mean scores are 23.2, 40.7, and 44.3 for the no personality disorder, stress-induced personality disorder, and state personality disorder groups, respectively (F = 75.8, df = 2, P = .0001). Duncan's

TABLE 3
Family Histories of the Three Groups

Diagnoses of Relatives	Group		
	No PD (n = 627)	Stress- Induced PD (n = 430)	State PD (n = 169)
Schizophrenia	0%	0%	0%
Major depression	4.3%	7.4%	7.1%
GAD	2.2%	6.2%	11.2%*
Alcoholism	11.3%	8.1%	13.6%
Schizoid cluster PD	5.5%	8.0%	16.5% [†]
Dramatic cluster PD	21.6%	27.2%	45.0% [‡]
Anxious cluster PD	11.3%	15.6%	32.0% [§]

PD = personality disorder; GAD = generalized anxiety disorder.
 *Chi-square = 25.9, df = 2, P = .0001.
[†]Chi-square = 24.2, df = 2, P = .0001.
[‡]Chi-square = 37.2, df = 2, P = .0001.
[§]Chi-square = 42.9, df = 2, P = .0001.

post hoc test indicated that the no personality disorder group had a lower score than the other two groups, which were not significantly different from each other.

The symptom and functioning scores for the groups are shown in Table 2. The stress-induced personality disorder group and the state personality disorder group had a significant amount of symptom morbidity when compared with the no personality disorder group. These two groups had higher levels of BSI drug use, psychotic thinking, interpersonal sensitivity, and hostility. They also had higher levels of dysfunction on the self-report family-home functioning scale. There were four areas of dysfunction for which the state personality disorder group had scores that were higher than those for both the no personality disorder group and the stress-induced personality disorder group: suicide attempts (over the patients' lifetimes), GAS (where lower scores indicate higher levels of dysfunction), Hamilton depression scale, and Hamilton anxiety scale.

The results regarding family history for the three groups are presented in Table 3. There were significant differences in family history, with the state personality disorder group having the highest values in all three DSM personality clusters (A, B, and C). There was also a significant difference in family loading of generalized anxiety disorder (GAD), with the state personality disorder

group having the highest level (11.2%), the stress-induced personality disorder group being intermediate (6.2%), and the no personality disorder group having the lowest level (2.2%).

DISCUSSION

The initial hypothesis was that certain individuals have personality vulnerabilities that make them appear to have a personality disorder when under stress. This effect is reversible with the removal of stress. If this were a real finding and not just an artifact of measurement, individuals with these stress-induced personality disorders would differ in important clinical respects from individuals who have lifelong personality disorders and from individuals who do not have personality disorders. According to the literature, stress-induced personality disorders predict a poor outcome of Axis I disorders.^{12,13} If stress-induced personality disorders have a distinct clinical picture and family history, the hypothesis that we are dealing with a separate clinical syndrome worthy of further study would be strengthened. The phenomenon would be important to our conceptualization of personality disorders and our clinical decision making. This is because it would expand our conceptualization of personality disorders to include the stress-induced (reversible) type and because there would likely be different treatments for stress-induced and state personality disorders.

The highlights of the results are that the state personality disorder group differed from the other two groups in having a higher lifetime rate of suicide attempts, higher scores on the Hamilton anxiety and depression scales, and greater family histories of GAD and all of the DSM personality disorder clusters. (A relationship between GAD and borderline personality disorder has been previously reported.²⁸) The patients of the state personality disorder group also had a lower socioeconomic status and were younger. Both the state personality disorder group and the stress-induced personality disorder group had higher dimensional levels of the following symptoms than did the no personality disorder group: BSI drug use, psychotic thinking, interpersonal sensitivity, and dimensionally measured family-home functioning. Both the state

personality disorder group and the stress-induced personality group had lower GAS scores, which indicate higher levels of dysfunction.

Clearly, we are dealing with a separate clinical group with important clinical implications. If the stress-induced personality disorders could be easily separated from the enduring personality disorders, a group at far greater risk for suicide attempts (the state personality disorders) could be more easily recognized. This would represent an important clinical advance. Because stress-induced disorders affect the outcome of treatment of an Axis I disorder, it will be important to learn how to modify treatment approaches so as to ameliorate this problem.

The younger age of individuals with enduring personality disorders also raises interesting questions. Instead of examining different groups, are we examining the same group at different ages? In other words, is this a developmental issue? Do state personality disorders become stress-induced personality disorders as patients age (the "mellowing out" hypothesis), or do most individuals who have state personality disorders commit suicide at a young age so that there are fewer of them who are older? The differences in family history give some indication that this may not be a developmental phenomenon. This is because the stress-induced personality disorder group has a family history of personality disorders that is fairly close to that of the no personality disorder group and very different from that of the state personality disorder group. We would not expect this if the stress-induced group consisted merely of survivors of the state group.

Do the higher levels of anxiety and depression indicate that the state personality disorder group is the stress-induced personality disorder group under higher levels of stress? Probably not. The instrument used to identify the state personality disorder group, the PDE, has been reported to have resistance to distortions from the effects of state.¹¹ The definitive answers to the questions raised above will have to await further empirical research.

There are limitations to all studies. This research was performed on a male population; it is crucial that a population including females and

groups from different clinical settings be examined as well. This study will require replication.

An important clinical subgroup, with a distinct symptom profile and family history, has been identified. Future research will involve replication in cross-sectional clinical studies using the family history method and, eventually, prospective studies, family interview studies, biologic studies, and populations at risk studies. An important first step will be to find an easier way to identify these patients in the clinical population.

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