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John G. Gunderson
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JOHN G. GUNDERSON, DONNA BENDER, CHARLES SANISLOW,
SHIRLEY YEN, JENNIFER BAME RETTEW,
REGINA DOLAN-SEWELL, INGRID DYCK, LESLIE C. MOREY,
THOMAS H. MCGLASHAN, M. TRACIE SHEA,
AND ANDREW E. SKODOL

THIS STUDY documents dramatic improvements in patients with borderline personality disorder (BPD) and explores their possible determinants. From a sample of the 160 carefully diagnosed borderline patients on whom prospective follow-along data was collected, a subsample of 18 was identified whose DSM-IV criteria count fell to two or fewer during the course of the first 6 months of the study and retained that improvement for the next 6 months. Follow-along data including month-by-month ratings of BPD criteria; week-by-week ratings of Axis I disorders, medication changes, and life events were then used to establish consensus ratings on four hypothesized causes: Axis I remissions, situational change, misdiagnosis, and treatment effects. Follow-up data collected at 2 years was examined to see whether the improvements persisted. The results were that 18 BPD patients underwent dramatic improvements in the first 6 months. Only one had relapsed by 2 years. Though one was judged to have been misdiagnosed at baseline, the most important determinants were judged to be situational changes ($n = 10$) and remissions of co-occurring Axis I disorders ($n = 7$). In 10 patients treatment appeared to have facilitated these situational or Axis I resolutions. In conclusion, patients with BPD can make significant improvements that are rapid and of sufficient duration to be considered remissions. Determinants were identified that warrant further prospective evaluation.

The present report derives from the Collaborative Longitudinal Personality Disorders Study (CLPS). This is a study designed

to investigate prospectively the stability of four personality disorders (Gunderson et al. 2000). This article reports on a subsample of

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Address correspondence to John G. Gunderson, MD, McLean Hospital, 115 Mill Street, Belmont, MA 02478. Fax: 617-855-3522.

patients with borderline personality disorder (BPD) who underwent dramatic decreases in psychopathology during the first 6 months. This report will document the plausibility and frequency of these unexpected sudden improvements, describe the subsequent course of these patients, and identify factors that appear to have been determinants.

In the background of this report lies the standard definition of personality disorders as a stable form of psychopathology. Several reviews on this subject have noted that follow-up studies on BPD samples show considerable instability (Grilo, McGlashen, and Skodol 2000; McDavid and Pilkonis 1996). Most of this literature has used the term "instability" to mean having fallen below the diagnostic threshold after a considerable length of time. None of these studies has described patients with BPD—or any other type of personality disorder—who underwent major reductions in psychopathology over a brief time interval. Given the standard definition of personality disorders, such patients would be expected to have been inaccurately diagnosed, or, if that were not the case, they would be expected to relapse. Thus, when in the course of the larger study of stability, we identified borderline patients who experienced what appeared to be sudden remissions, we undertook the present effort to document this phenomenon and attempt to understand it. To explore how such dramatic improvements occur, we examined four hypothesized possible determinants: (1) remissions of co-occurring Axis I disorders, (2) relief from stressful life situations, (3) inaccuracies in the baseline BPD diagnosis (i.e., false positives), and (4) dramatically effective therapies.

METHOD

The aims, design, ascertainment procedures, assessment methodology, and demographic characteristics of the CLPS study sample are described elsewhere (Gunderson et al. 2000). Briefly, subjects were treatment-seeking individuals between the ages of 18 and 45 who were in treatment within a wide range of clinical settings. Patients with active psy-

choses, substance intoxication or withdrawal, other confusional states, or a history of schizophrenia or schizoaffective disorders were excluded. All eligible patients signed written informed consents after the research procedure had been fully explained. The 668 participants in this study were required to have met criteria for one of four types of personality disorder (schizotypal, borderline, avoidant, or obsessive-compulsive) or for the control condition of major depressive disorder. From this sample, the present report is drawn from the subsample of 175 subjects who were diagnosed with BPD at baseline. Diagnoses were established by the Diagnostic Interview for Personality Disorders (DIPD-IV; Zanarini, Frankenburg, Sickel, and Yong 1996a). The DIPD identifies maladaptive personality traits and behaviors that characterize the patient currently and for the past 2 years or longer, and that cause impairment in functioning or subjective distress. All patients with BPD met at least five of nine *Diagnostic and Statistical Manual of Mental Disorders*, 4th edition (DSM-IV; American Psychiatric Association, 1994) diagnostic criteria at baseline. Diagnosis required convergent support from at least one of two contrasting methods: the Personality Assessment Form (PAF; Shea, Glass, Pilkonis, and Docherty 1987), or the Schedule for Non-adaptive and Adaptive Personality (SNAP; Clark 1993) was required.

The Axis I diagnoses were assessed by the Structured Clinical Interview for DSM-IV (SCID-I; First, Gibbon, Spitzer, and Williams 1996). Trained masters or doctoral-level interviewers (or equivalent training) conducted all diagnostic assessments; median interrater kappas for Axis I disorders ranged from 0.57 to 1.0 (Zanarini et al. 2000). Interrater reliability for BPD was $k = 0.69$ and test-retest was $k = 0.69$. Notably, though interviewers were not blind to Axis I disorders when they were assessing personality disorder criteria, they were specifically trained to inquire and judge whether subjects' responses about these personality criteria could be accounted for by coexisting Axis I disorders.

All subjects were evaluated again after 6 months, 1 year, and 2 years with the Longitudinal Interval Follow-up Evaluation (LIFE-

PS; Keller et al. 1987) and with the Life Events Assessment (LEA; Holmes and Rahe 1967). The LIFE provides week-by-week ratings of Axis I disorders and a discussion of all intervening treatment. The LEA assesses significant life events and their severity. Participants were also given the Follow Along version of the Diagnostic Interview for Personality Disorders (DIPD-FAV; Zanarini et al. 1996b). This assessment provides month-by-month ratings of personality disorder criteria. A reliability study was done on the DIPD-FAV personality disorder ratings to assess the effect of retrospective recall. At the 12-month interviews, interviewers were asked to assess month 6 (in addition to months 7–12). Hence month 6 was rated twice. Based on 453 cases the diagnostic agreement for BPD was $k = 0.70$. After each assessment, a written narrative of several pages is prepared by the interviewer to summarize diagnostic changes and how they seem to relate to life events, treatment, or other factors. Because significant life events were often stress relieving rather than stressful (e.g., leaving an abusive partner, finding a better job), our ratings of life events for purposes of this study were further qualified as positive or negative.

This report is drawn from the 160 BPD patients (from the initial 175) on whom we have full follow-up data at 6 months and 1 year. There were no significant demographic differences in age, gender, or socioeconomic status (SES) between these 160 subjects and the 15 who were lost to follow-up at 1 year. To operationally define the subsample with dramatic resolution of their presenting borderline psychopathology, we borrowed from a precedent established for defining remission in patients with major depression: that is, 2 consecutive months with two or fewer criteria for the disorder (Frank et al. 1991). When applied to BPD, this is a deliberately rigorous definition requiring most aspects of borderline psychopathology to be absent, rather than merely becoming subthreshold or having very temporary lulls in the manifestations of the disorder. More detailed accounts of stability for the BPD sample and other diagnostic groups are reported elsewhere (Shea et al. 2002). For purposes of this report, only those BPD sub-

jects who met the preceding definition (i.e., less than or equal to two BPD criteria for 2 consecutive months) in the first 6 months and who sustained this reduction for the following 6 months (prior to the 1 year assessment) are included. Obviously, between this standard for inclusion and the five of nine criteria required to meet the DSM-IV threshold for BPD are a significant number of subjects who became subthreshold.

Four possible determinants for dramatic improvements in borderline psychopathology were identified as hypotheses: (1) Axis I disorder remissions, (2) situational change, (3) baseline misdiagnosis of BPD, and (4) treatment. Each of these hypotheses was rated on a scale from 0 (no causality apparent) to 3 (causality seemed to be definite and strong). A “strong” rating (rating = 3) was assigned to treatment (Hypothesis 4) only if it appeared to directly address BPD psychopathology (e.g., psychotherapy, dialectical behavior therapy [DBT]). When treatment affected an intermediary factor—either an Axis I disorder (Hypothesis 1) or a stressful situation (Hypothesis 2)—whose alleviation then seemed to be the more direct determinant of the patient's improvement, “strong” causality (rating = 3) would be assigned to the more direct factor (i.e., Axis I or situational change), and the role of treatment would be rated as 2. With these guides in mind, the lead author and the project coordinators from each of four collaborating sites independently reviewed the full complement of diagnostic, psychosocial, life event, and narrative data for each subject and developed a consensus rating. Disagreements occurred rarely and were easily reconciled by clarifying the scoring guidelines. To buttress the ratings made on situational change, data from the LEA was used. Ratings of the validity of the baseline diagnoses were also examined via validity scales from the NEO and SNAP. The stability of the improvements was tested by subsequent examination of 2-year follow-up data.

RESULTS

Twenty-three (14.4%) of the 160 BPD subjects fell to two or fewer criteria for 2 consecutive months in the first 6 months. The 18

BPD subjects who sustained this reduction from 6 months to 1 year (11.2% of the larger sample) became the subjects for this study. These 18 subjects did not differ from the other BPD subjects on race, age, gender, or education. Twelve (67%) remitted in the first month, one in month 2, three in month 4, and two in month 5 of the follow-up period. In the subsequent blind assessment of outcome at 2 years, 14 of the subjects continued to have two or fewer criteria, two had three or four criteria, one had relapsed (five or more criteria), and one was missing 2-year follow-up.

Possible Determinants

Axis I Remissions. Our subsample of 18 BPD patients had 49 (average 2.72 per subject) Axis I disorders co-occurring at baseline. Table 1 shows whether sudden reductions of BPD criteria occurred before, after, or at about the same time as the Axis I conditions. Nine patients (having 28 of the 49 Axis I disorders) had Axis I disorders that remitted *after* the BPD improvements (this includes the 18 Axis I disorders that had not remitted by 1 year). Five patients (cases 3, 4, 8, 9, and 14) (having 15 Axis I disorders) had the dramatic reduction of BPD criteria *at the same time* as the remission of a coexisting Axis I disorders. In these five cases, the remission

of the Axis I disorder was judged to be the most likely cause for the sudden BPD improvement.

In four patients (having six Axis I disorders) the remission of the Axis I disorders occurred *before* the BPD improvement: twice this involved panic disorder; twice, drug abuse; and once each for major depressive disorder (MDD) and bipolar disorder. In two of these four patients (cases 2 and 7), the remission of both the Axis I and BPD disorders were associated with the same independent factor (discontinuation of a drug and relocation, respectively). In the other two (cases 13 and 18), the Axis I remission seemed likely to explain the subsequent BPD improvement.

Altogether then, as shown in Table 2, we concluded that in 7 of the 18 cases, Axis I remissions were the most important determinants for the dramatic reduction of BPD psychopathology. Four times the Axis I condition involved cessation of a substance abuse pattern; for example, one woman had stopped drinking and her problems at home resolved. The other three cases involved mood disorders: twice an incomplete resolution of a bipolar disorder, and once the remission of MDD.

Situational Change. Eleven of the 18 patients made significant changes in their life situations preceding their improvements. For 9 of these 11 subjects, the situational changes were

TABLE 1
Sequence of Remissions for the 49 Concurrent Baseline Axis I Disorders
Vis-à-Vis BPD Improvements

Concurrent Axis I Disorder	N at Baseline	Remission Vis-à-Vis BPD			Unremitted at 1 Year
		Before	Same	After	
Bipolar disorder	2	1	0	0	
Major depressive disorder	10	1	2	5	2
Panic disorder	7	2	4	0	1
Posttraumatic stress disorder	7	0	1	2	4
Generalized anxiety disorder	6	0	2	1	3
ETOH Abuse	4	0	2	1	1
Drug abuse/dependence	6	2	0	1	3
Eating disorder	7	0	3	0	4
		6	15	10	18

TABLE 2
Hypothesized Determinants of Dramatic Improvements: Likelihood Ratings^a

Case	Axis I ^b	Situational Change	Invalid Assessments	Treatment
1	1	<u>2</u>	0	0
2	1	<u>2</u>	1	<u>3</u>
3	<u>3</u> (MDD) ^c	0	0	<u>2</u>
4	<u>3</u> (Drugs)	0	0	0
5	0	1	<u>3</u>	0
6	0	<u>2</u>	0	0
7	1	<u>2</u>	0	0
8	<u>2</u> (Drugs)	1	1	0
9	<u>3</u> (Bipolar)	0	1	0
10	1	<u>2</u>	0	2
11	1	<u>2</u>	0	1
12	1	<u>2</u>	0	0
13	<u>3</u> (Drugs, MDD)	1	0	2
14	<u>2</u> (Bipolar)	1	2	2
15	1	<u>2</u>	0	2
16	0	<u>3</u>	1	1
17	0	<u>3</u>	0	2
18	<u>2</u> (Drugs, MDD)	2	0	1

^aConcerns judgments on the likelihood of causing the BPD improvements: 3 = strong, 2 = reasonable, 1 = possible, 0 = no evidence. (Ratings are underlined when this variable was rated most likely to account for the BPD improvement.)

^bAxis I disorders whose remission occurred before or during the BPD improvement and were thought to have accounted for the BPD improvement.

^cMMD, major depressive disorder.

judged to have been the most important cause of the sudden improvement (see Table 2).

For eight patients, the changes involved gaining relief from severely stressful situations they were in at or before the baseline assessment. For example, one subject (case 16) reported that the stress of an unexpected divorce and custody struggle led to anger, substance abuse, and the revival of early abandonment trauma. Three times subjects stabilized when they established new cohabiting partners (cases 12, 15, and 17). Four times, subjects improved after relocating from very intense, conflicted, and tight cohabitation situations (cases 7, 10, 16, and 18). In three patients, the improvements followed self-initiated changes in their relational situations (cases 1, 6, and 12). Two patients (cases 1 and 6) became isolated and actively avoided relationships. A third patient was an 18-year-old whose life settled down after disclosing to her family and partner what had been for her shameful secrets.

We rated whether the life events recorded on the LEA (Holmes and Rahe 1967) prior to baseline and during the first 6 months had positive or negative effects. The data showed a significant valance (positive/negative) by time (baseline/6 month) interaction; a far higher ratio of positive life events occurred during the 6 months when the improvement occurred (1.6/0.94) than in the period prior to baseline (0.44/2.1) ($F [2,32] = 11.55$; $p = 0.001$). Still, it was clear that the value of the LEA data was handicapped insofar as some of the positive life events that we had judged as strong determinants of the patients' improvements had occurred just before the baseline assessment (e.g., leaving an abusive relationship, or making a medication change), and because some of the life events in the first 6 months of follow-up occurred after the remission had occurred. Moreover, the LEA did not always record "events" that we had judged

to be significant from the narrative reports, for example, a decision not to adopt a child, or the resolution of a conflict with one's parents.

Treatment. The types, frequency, and duration of treatment varied greatly, ranging from none, to Narcotics Anonymous four times per week, to twice-weekly private psychotherapy. The most dramatic improvement following a treatment intervention occurred when a subject *discontinued* a psychostimulant she had used the year prior to baseline for purposes of weight loss (case 2). Discontinuation was followed by a dramatic reduction of her depression, panic, abandonment fears, and self-destructiveness. As noted in Table 2, in five of the seven instances where Axis I remissions were implicated as being a significant determinant for the BPD improvement, a notable factor may have been effective psychopharmacological treatment for the Axis I disorder. Almost all subjects were on medications for part of the year, but their presence or absence did not have a clear or strong correspondence with the course (except in the instances where their mediating effect on the Axis I disorder was inferred). In 7 of the 11 instances where situational stress was implicated as being a significant determinant for the BPD improvement, the narrative reports indicated that therapies had helped the subjects make adaptive adjustments.

Assessment Validity. As shown in Table 2, questions about the validity of the baseline diagnostic assessments were raised in six cases. In one case (case 5), this involved willful misrepresentation; that is, the subject had fabricated answers at baseline to justify hospitalization. Thus, the baseline BPD diagnosis was clearly invalid. Not surprisingly, that case (i.e., case 5) remained without criteria during the subsequent follow-up. In all of the other patients we concluded that clear and significant borderline psychopathology was present, and the validity questions were due to confounding effects of severe situational stress at the time of assessment, and/or coexisting Axis I disorders (MDD in case 2, drug abuse in case 8, and bipolar disorder in case 14). In one (i.e., case 14) we concluded that the baseline diagnoses of BPD and unresolved bipolar dis-

order were both valid and were inextricably connected.

DISCUSSION

The major finding from this study is that a subgroup of carefully diagnosed borderline patients underwent dramatic reductions in their psychopathology that, on blinded follow-up 2 years later, were sustained. After excluding the two patients whose borderline diagnosis may have been invalid (one certain, one possibly), the rate is 10% ($n = 16$). This finding, unreported in the many previous longitudinal studies (Grilo et al. 2000), was made possible by virtue of this study's prospective naturalistic design and by its use of reliable, short-interval, detailed assessments of change. It provides an important counterpoint to the estimated rate of nearly 10% of patients with BPD who commit suicide (Gunderson 2001), and it introduces the idea that patients with BPD can undergo "remissions," a concept previously reserved for Axis I conditions.

The unexpected improvements raised questions about assessment reliability and validity. We examined this issue in a variety of ways. As noted, from our review of the narrative reports we could conclude that for only one patient had the baseline diagnosis been invalid. It is worth noting that the risk of false positives shown here seems far less than the risks of false negatives when standardized assessments are not used (Zimmerman and Mattia, 1999). We also examined validity in ways that did not rely on our judgments. One consideration was whether the reductions in psychopathology could be accounted for by interviewer unreliability, that is, measurement error. While some "regression to the mean" might be expected in an acutely disturbed sample, the projected rate of reductions in criteria from five or more to below two, based on our test-retest reliability data (Zanarini et al. 2000), is well outside the 99% confidence interval. To examine the possibility that the less reliable BPD criteria were implicated (i.e., might be a cause for baseline overestimation of BPD or subsequent underestimation of BPD),

we looked at patterns of criterion change. All criteria showed similarly dramatic decreases from baseline to 6 months. We next explored whether the 12 subjects whose remission began immediately in the first month had given the interviewers false baseline impressions—either by exaggerations of their psychopathology at baseline or by minimization of their psychopathology in subsequent reports—by looking at the follow-up data to see whether this subsample was more apt to relapse. In only one instance (case 12) did one of these patients show recurrence of some borderline criteria at 2 years. Finally, our overall impression that our subjects did not consciously misrepresent themselves was confirmed by examining the validity scales for the SNAP (Clark 1993) and the three validating items from the NEO (Costa and McCrae 1989). There were no differences from the full BPD sample.

In contrast to the usual variables that are examined as predictors of course (e.g., demographics and comorbidity), which will be examined as a major aim of the CLPS study, this report has focused on process variables. The conclusions we reached about the causal effects of these variables—that is, Axis I remission, situational changes, and treatment—were based on consensus judgements. As such, our conclusions should be considered empirically substantiated hypotheses that future studies can transform into solid findings by developing and using reliable prospective assessments of these variables. The suggestion that either co-occurring Axis I disorders or stressful life situations can exacerbate DSM-IV criteria for patients whose borderline psychopathology would otherwise have been nascent is consistent with the concept of underlying borderline personality organization (Kernberg 1967). Put otherwise, our results suggest that amelioration of Axis I disorders or stressful life situations—particularly highly conflicted relationships—may lead to dramatic reductions of manifest BPD psychopathology, but they do not allow conclusions about whether more fundamental changes in the internal psychopathology also occurred.

In 7 of our 18 subjects, the remission of a concurrent Axis I disorder seemed to be

related to the dramatic BPD improvement. Of note, the rate of Axis I co-occurrence and the rate of individual Axis I disorders in our subsample were comparable to the rates found in the full sample of BPD subjects (McGlashan et al. 2000). These seven instances are exceptions when viewed in the context of the extensive number of coexisting Axis I disorders; that is, the concurrent Axis I disorders usually remitted without affecting BPD stability. Most notably rare, given the extensive literature suggesting that BPD is an atypical form of depressive disorder (Akiskal 1992; Klein 1977), was the finding that remission of MDD led to the subsequent improvement of BPD only once. Future reports from the full CLPS BPD sample will use risk ratios to examine how reductions in BPD criteria relate to remissions of concurrent Axis I conditions and vice versa. Of note, our reliance here on clinical narratives twice identified instances where we related the remission of both disorders to earlier and independent changes in life situations. The mediating effects of situational change would not be found in studies that looked only at diagnostic changes.

Though only twice did we judge a treatment intervention to be the critical factor in bringing about the improvements (once by initiation of a helpful medication; once by the discontinuation of a harmful medication), the overall conclusion about the role of treatment was more broadly reassuring. Interventions that were neither heroic nor extended seemed to have a significant role in facilitating the relief from situational stressors or Axis I conditions—with surprisingly dramatic benefits on the borderline psychopathology—for 10 of the 15 cases where these factors were the putative causes. This conclusion must be considered tentative given the level of inference required, but it does underscore the importance of examining the mediators of therapeutic change (Huey, Henggeler, and Brondino 2000; Kazdin 2000): The therapeutic interventions deemed to be effective often were not directed at the patients' psychopathology *per se*.

The results of this study provide a hopeful message for clinicians who treat bor-

derline patients. Rapid and sustained improvements, akin to what is called a remission, are possible. Both Axis I and stress emerge as factors that can greatly exacerbate and sustain

borderline psychopathology and whose alleviation sometimes may bring about such improvements.

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