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Research report

New episodes and new onsets of major depression in borderline and other personality disorders ☆

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Abstract

Background: In the context of much literature and conjecture about the relationship of personality disorders (PD) and major depressive disorder (MDD), this paper uses longitudinal data to assess the frequency with which PD patients, and especially those with borderline personality disorder (BPD), have *recurrences* (for patients with lifetime histories), or *new onsets* (for patients without lifetime histories) of MDD.
Methods: A sample of 478 PD patients received reliable repeated follow-up assessments over a period of 6 years. The rates of *new onsets* and *recurrences* of MDD in all PD patients, and in BPD patients compared to OPD patients were analyzed. Whether age, gender, GAF score, or the number and types of BPD criteria predict *new onsets* or *recurrences* of MDD was also examined.
Results: Eighty-five percent of PD subjects had episodes of MDD during the 6 year follow-up; of those with lifetime MDD, 85% had *recurrences*. Of the PD subjects without lifetime MDD, 44% had *new onsets*. BPD subjects were significantly more likely ($p = .0036$) to have *recurrences* of MDD but were about equally likely to have *new onsets* compared to OPD subjects. The number and types of BPD criteria were predictive of *onsets* and *recurrences* for all PDs, but were not more predictive for the BPD than OPD subsamples.
Limitations: Longer term follow ups with a more epidemiologically representative sample of PDs would strengthen the generalizability of this study's findings.

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Conclusions: Having a comorbid PD confers significant risk for *recurrences* and for *new onsets* of MDD and confers a significantly negative effect on the course of MDD. BPD conferred more risk for *recurrence* than OPD.
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Keywords: Personality disorders; Major depressive disorder; Longitudinal course

A considerable literature has grown about the interface between major depressive disorder (MDD) and personality disorders, much of which has focused on the interface with borderline personality disorder (BPD) (Rosenbluth et al., 2005; Mulder, 2002; Gunderson et al., 1999). Most of this literature has focused on rates of comorbidity and the effect of personality disorders on pathogenesis and treatment of MDD. To this literature, the Collaborative Longitudinal Personality Disorder Study (CLPS) has added prospective longitudinal perspectives (Skodol et al., 1999; Shea et al., 2004; Gunderson et al., 2004; Grilo et al., 2005). A study based on the 2 year follow-up data showed some interaction between MDD and BPD, but not between MDD and other personality disorders (Shea et al., 2004). In that report, remissions of either MDD or BPD predicted improvements in the other, although this effect was stronger for BPD's effect on MDD than vice versa. A subsequent study on BPD and MDD based on 3 year data and using more detailed and elaborated analyses, showed that the effects were more unidirectional; i.e., change (improvement or worsening) of BPD predicted change in MDD but reciprocal effects of MDD changes on BPD were not very evident (Gunderson et al., 2004). A third study using 2 year data showed that personality disorders significantly prolonged the time to remission for MDD (Grilo et al., 2005). That study confirmed the results from earlier work (Ilardi et al., 1997). In general, this literature shows that comorbid personality disorders can negatively affect the course of MDD and that improvements of MDD do not usually affect the course of personality disorders.

This report utilizes 6 year data from the CLPS to evaluate the relationship between personality disorders and MDD in a different way. This is the first study to prospectively examine whether having a comorbid PD, and particularly whether having BPD, confers risk for MDD episodes. To do this we examine the frequency with which personality disorder patients with or without lifetime MDD have *recurrences* or *new onsets* of MDD. We then compare whether the risk for the development of *recurrences* or *new onsets* is greater in BPD than in patients with other personality disorders (OPD). We also examine whether age, gender, GAF score, or the number or types of BPD criteria is predictive of *recurrences* or *new onsets* of MDD.

1. Methods

Detailed description of the CLPS projects design (Gunderson et al., 2000) and sample (McGlashan et al., 2000) have been reported previously. All patients signed informed consents. Relevant methods for the current report follow.

1.1. Sample

This study used available data up to 6 years of follow-up (6, 12, 24, 36, 48, 60 and 72 months) from 573 treatment-seeking patients with personality disorders. Because of their independent effects on the course of MDD, those patients with either bipolar I, bipolar II, or schizoaffective disorders ($N=95$) were excluded. The final sample of 478 personality disorder patients included 129 with BPD and 349 with other personality disorders (OPD). The follow-up sample that involved all subjects with at least 6 month follow-up data included 453 of the 478 (95%) subjects.

1.2. Assessments

All subjects were evaluated at baseline with the Diagnostic Interview for DSM-IV Personality Disorders (DIPD-IV) (Zanarini et al., 1996) and the Structured Clinical Interview for DSM-IV Axis I Disorders (SCID-I) (First et al., 1996) by clinically experienced interviewers trained to pay particular attention to distinguishing Axis I mental state conditions from Axis II personality trait phenomena. The interrater reliability for MDD was kappa = 0.80 with a test–retest kappa of 0.64 (Zanarini et al., 2000). For all personality disorder subjects, the interrater kappa ranged from 0.58–1.0. For BPD, the interrater and test–retest kappa were 0.68 and 0.69, respectively (Skodol et al., 2005).

Follow-along assessments of MDD were evaluated by Psychiatric Status Ratings (PSR) of the Longitudinal

Interval Follow-Up Evaluation (LIFE) (Keller et al., 1987) that records weekly variations in DSM IV major depressive criteria. New *onsets* of MDD were defined as a PSR of 5 or 6 for two or more successive months in patients without lifetime histories of MDD at baseline recruitment. *Recurrences* of MDD required the same 2 month algorithm for those personality disorder patients who had lifetime but not current MDD at baseline.

1.3. Analyses

Kaplan–Meier survival analyses were used to demonstrate rates of new *onsets* and of *recurrences*. In order to examine MDD recurrence without the confound of the variable duration of the baseline episode, the survival analyses excluded the 206 personality disorder subjects with MDD at baseline (whose variable duration of the baseline episodes would confound the analyses of recurrence). Cox time varying regression analyses were used to examine possible predictors of *onsets* or *recurrences*, i.e., age, gender, GAF score, and the total number or subtypes of the BPD criteria (using age, gender, and GAF score as covariates). As in prior CLPS predictor analyses (Gunderson et al., 2006), the three subtypes of criteria were grouped to reflect the affective (anger, affective instability), impulsive (impulsivity, self-harm) and interpersonal (intense unstable relationships, abandonment, emptiness) components of BPD.

2. Results

We had at least 6 month follow-up data on 95% (453) of the eligible personality disorder patients. The 25 subjects without follow-up data were similar to the remaining sample on age, gender, and both marital and employment status, but were slightly biased towards including more BPD (8.2% vs. 3.4% for OPD; $p=0.023$).

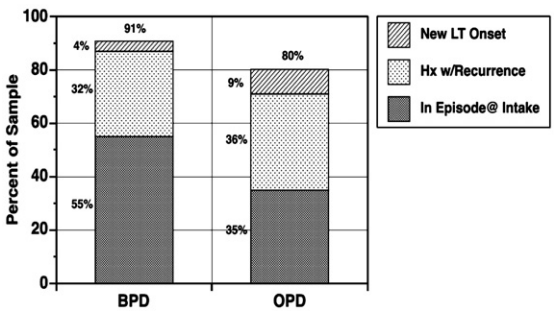

Fig. 1. Total burden of major depression over 6 years of follow-up, by borderline PD vs. other PD.

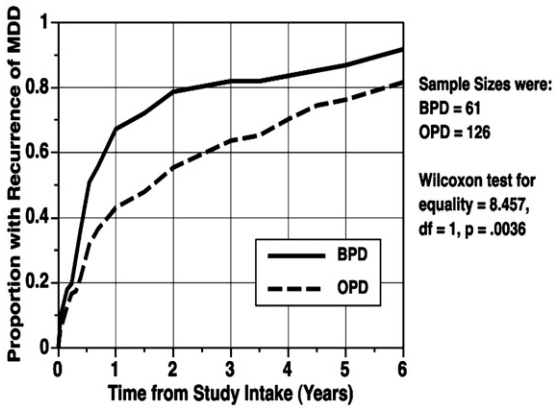

Fig. 2. Recurrences of major depression in subjects having a history of depression but not in episode at intake, for borderline PD subjects vs. other PD subjects.

We examined what proportion of our total personality disorder sample had or developed MDD episodes during the course of the study. Forty-three point one percent were in episode of MDD at baseline, 16.1% were without current/lifetime MDD, and 40.8% had prior lifetime MDD (but not current at baseline). Of the 16.1% who entered the study with no history of major depression, Kaplan–Meier survival analyses estimated that 44% experienced a new onset of MDD by year six. Multiplying 44% onset by 16.1% yields a total of 7.1% of new cases of major depression as a proportion of the total sample. Of the 40.8% who entered the study with a past history of major depression, lifetable analyses estimated that 85% experienced recurrences. This recurrence rate corresponded to another 34.7% of the total sample experiencing major depression. Summing across the three groups, the overall estimate for personality disorder patients having MDD episodes by year six was

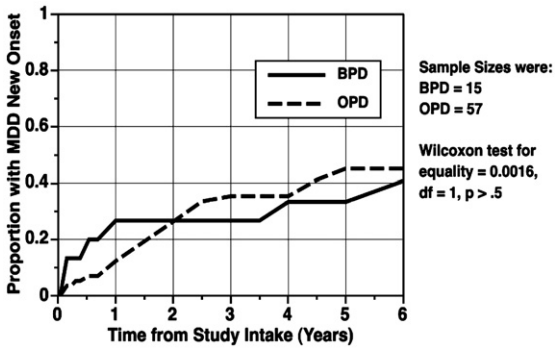

Fig. 3. New onsets of major depression in subjects with no history of depression at intake for borderline PD subjects vs. other PD subjects.

84.9%. It should be noted that as we follow cases past year six the burden of depression can only increase as additional new onsets and recurrences continue to occur. Fig. 1 shows the breakdown of BPD and OPD samples. The main difference was that BPD had a higher percent of current MDD at baseline (chi square = 18.572, $df = 1$, $p < .0001$).

As shown in Fig. 2, the subgroup of 61 BPD subjects with lifetime MDD were significantly more likely to have *recurrences* (92%), than were the 126 OPD subjects with prior lifetime MDD (82%) (Wilcoxon test for equality, $p = 0.0036$). Fig. 3 shows that the 15 BPD patients without prior MDD, had a 41% rate of *new onsets*, which was not significantly different from the 45% rate of *new onsets* observed in the 57 OPD patients without lifetime MDD (Wilcoxon test for equality $p = 0.9683$).

Examination of whether age, gender, GAF score, or the number and subtypes of BPD criteria predicted *new onsets* in the overall sample of all personality disorders without lifetime/current MDD yielded an effect for total number of BPD criteria predicting increased risk after covarying for age, gender, and GAF (hazard ratio [HR] = 1.249, chi square = 7.528, $df = 1$, $p = .0061$). In follow-up analyses we separately tested for effects of number of relational criteria, affective criteria, and impulsive criteria. Of these, only the affective criteria achieved statistical significance (chi square = 4.411, $df = 1$, $p = 0.0357$). In the overall personality disorder sample with lifetime MDD (but not current at baseline), the number of BPD criteria was a strong predictor of *recurrences* (hazard ratio = 1.252, $p < .0001$), as were each of the subtypes of the BPD criteria, i.e., for affective criteria the HR = 1.638, $p < .0001$; for impulsive criteria the HR = 1.751, $p = .0005$, and for relational criteria the HR = 1.689, $p < .0001$. There was no evidence that age, gender, baseline GAF, or either the number or subtypes of BPD criteria were more predictive of *onsets* or of *recurrences* in BPD subjects than in OPD subjects.

3. Discussion

The 84.9% of the overall personality disorder sample who had *episodes* of MDD during the 6 year follow-up indicates that having a personality disorder confers very high risk for MDD. As expected, the rate of *recurrences* was much higher than the rate of *new onsets*. Of further note was that 44% of the personality disorder patients without prior MDD had *new onsets*.

For the personality disorder subjects with lifetime (but not current) MDD, the rate of *recurrences* was 85%. The comparable sample with lifetime (but not current) MDD from the Collaborative Depression Study had a 67% rate of recurrence over 5 years (Keller et al., 1992) — some of which may have been predisposed to by comorbid PD. Thus the 85% rate found in this study indicates that personality disorders add considerable risk. Together with the prior reports that personality disorders greatly prolong the duration of MDD episodes (Grilo et al., 2005; Ilardi et al., 1997), this study prospectively demonstrated that comorbid personality disorders add clinically significant morbidity for patients with MDD in the form of *recurrences*, especially for BPD, and for *new onsets*, especially for OPD.

These findings may be attributed to the predisposing effects of having less adaptive behaviors, more interpersonal handicaps, more cognitive deficits, and the greater subjective distress that characterize personality disorders. With regard to specificity, it is notable that we elsewhere found that comorbid personality disorder does not significantly affect the course of eating disorders (Grilo et al., 2007). Requiring further study is whether having any personality disorder or only specific types conveys this added risk for more frequent or longer episodes of other axis I disorders, such as substance abuse or anxiety disorders. Nonetheless, our results suggest that personality disorders share underlying pathologies with depression.

BPD patients with prior MDD were significantly more apt to have *recurrences* than were the OPD patients with prior MDD. This may be because patients with BPD are generally more severely dysfunctional than patients with OPDs (Skodol et al., 2002) and because they tend to have more frequent negative life stressors (Lovev and Jackson, 2006; Pagano et al., 2004). It is consistent with our finding that BPD slows the time to remission and increases the likelihood of relapses of MDD more that OPD (Gunderson et al., 2004). It is also consistent with clinical theories in which the interpersonal neediness and fearfulness of borderline patients predisposes to the onsets and recurrence of their depressions (Gunderson, 2001; Young et al., 2003). On the other hand, BPD patients without prior MDD did not appear to be more apt to have new onsets.

The analyses of predictors revealed that the number and the types of BPD criteria increased the risk of *recurrence* of MDD in the overall personality disorder sample. But they did not predict vulnerability for *new onsets* nor did they have more predictive strength in BPD subjects than in OPDs. However, these analyses were limited by the size of the BPD sample, especially those with *new onsets*. And, although we know that the BPD sample received more antidepressant medications than the OPDs (Bender et al., 2006), our naturalistic study

design does not allow us to determine whether their use, types or dosages affected the rates. Moreover, level of treatment utilization is often a proxy for severity.

As shown in this study, the very significant effect that comorbid personality disorders have on the course of MDD indicate that future studies of the course or treatment of MDD should assess for their presence and type. Future studies may also address personality characteristics that predispose to MDD by examining criteria counts, cognitive schema, or interpersonal style. While all personality disorders add sufficient morbidity, this may be particularly true for BPD and BPD-related psychopathology. Understanding the mechanism of these effects could help to clarify unexplained treatment resistance in MDD (Dunner et al., 2006).

Role of funding source

The role of funding source is listed on the cover page.

Conflict of interest

No conflict declared.

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