PERSONALITY DISORDERS

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# Psychotropic medication use in hospitalized patients with borderline personality disorder

Karen E. Moeller, PharmD, BCPP[1]; Amad Din, MD, MPH[2]; Macey Wolfe, PharmD[3]; Grant Holmes, PharmD[3]

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## Abstract

**Introduction:** Use of medications to treat symptoms of borderline personality disorder (BPD) is controversial. The purpose of this study was to describe psychotropic medication use in hospitalized patients with BPD and compare with a control group.

**Methods:** A retrospective chart review was conducted on hospitalized patients aged 18-65 years having a diagnosis of BPD and compared them with a control group of patients with a diagnosis of major depressive disorder (MDD) without a personality disorder. Patients were excluded from the BPD group if other personality disorders were recorded. Charts were reviewed for demographics and psychotropic medication usage both prior to admission and at discharge.

**Results:** This study included 165 patients (85 in BPD; 80 in MDD). Prior to admission and upon discharge, patients in the BPD group were prescribed significantly more psychotropic medications than patients with MDD (3.21 vs 2.10; $P < .001$ and 2.87 vs 2.35; $P < .05$, respectively). Patients in the BPD group were significantly more likely to be prescribed antipsychotics, mood stabilizers, and miscellaneous agents compared with the MDD group. On admission, significantly more BPD patients were prescribed multiple sedative agents (37.6% vs 21.3%; $P < .05$), but because of the discontinuation of sedative agents, this difference was nonsignificant upon discharge.

**Discussion:** This study found increased medication utilization among patients with BPD. Polypharmacy may increase the risk of side effects, drug interactions, and drug toxicity for BPD patients. Clinicians need to carefully evaluate the efficacy and risk of medications prescribed in patients with BPD.

**Keywords:** borderline personality, medications, polypharmacy, treatment

[1] (Corresponding author) Clinical Associate Professor, Departments of Pharmacy Practice and of Psychiatry and Behavior Science, University of Kansas Medical Center, Kansas City, Kansas, kmoeller@kumc.edu; [2] Clinical Assistant Professor, Department of Psychiatry and Behavior Science, University of Kansas Medical Center, School of Medicine, Kansas City, Kansas; [3] Pharmacy Student, School of Pharmacy, University of Kansas, Lawrence, Kansas

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## Introduction

Borderline personality disorder (BPD) is a complex psychiatric disorder characterized by poor self-image, emotional volatility, self-injurious behavior, and instability in one's mood and interpersonal relationships.[1] Admissions to psychiatric hospitals by patients with BPD usually occur after a failed suicide attempt or intentional act of self-injury.[2] It is overall estimated that BPD is present in 15% to 20% of patients in psychiatric hospitals and outpatient clinics and is the most commonly diagnosed personality disorder.[1]

Treatment of BPD is controversial as there are no approved medications for BPD. Most evidence for the treatment of BPD supports the use of psychotherapy as the main treatment. Dialectical behavior therapy (DBT), a

therapy designed to help people change their patterns of behavior, is the most widely studied for BPD treatment.[3] The United Kingdom's National Institute for Health and Care Excellence guidelines recommend psychotherapy as the primary treatment for BPD and discourage the use of medications.[4]

For acute management of BPD symptoms, medications may warrant consideration. Limited studies support the use of atypical antipsychotics and mood stabilizers for treatment of BPD patients needing crisis stabilization.[2,5,6] The 2001 American Psychiatric Association guidelines for the treatment of BPD recommend psychotherapy, along with adjunctive pharmacotherapy (antidepressants, mood stabilizers, and antipsychotics) for specific symptoms of BPD such as mood lability, impulsivity, and aggression.[7] Although current evidence finds minimal benefits of medication treatment for BPD, patients are often prescribed multiple psychiatric medications including antidepressants, antipsychotics, mood stabilizers, and sedative hypnotics for long-term management of their BPD symptoms.[5,8-12]

Several studies have characterized medication treatment patterns in patients with personality disorders. However, most of these studies looked at longitudinal treatment patterns and occurred in the outpatient setting.[8,10,11] Only a few studies have evaluated psychotropic medication use in the inpatient setting.[9,13,14] Nevertheless, there are several disparities between these studies with respect to treatment setting (eg, acute care, state hospital), methodology (eg, retrospective chart review, survey of prescribers), and overall medication trends.

Haw and Stubbs[13] interviewed inpatient prescribers at a large psychiatric hospital in the United Kingdom to evaluate medications prescribed for patients with BPD and identify target symptoms for their use. The results of their study found that 70% of BPD patients received antipsychotic medications for treatment of arousal, aggression, impulsivity, and self-harm. Antidepressants were prescribed in 39% of the patients for depressed mood and anxiety. Clozapine, an atypical antipsychotic, was the most commonly prescribed medication in their study with 38% of BPD patients receiving clozapine. Because of clozapine's limited distribution and strict monitoring guidelines for agranulocytosis in the United States, it is difficult to extrapolate these results to patients with BPD in the United States.

Leontieva and Gregory studied characteristics of 20 patients with BPD through a chart review at a state hospital in central New York. Medication received during hospitalization was documented, and it was found that 90% of patients with BPD received antipsychotics and 70% were prescribed antidepressants.[14] An additional chart review of 29 patients with BPD at an acute-care university hospital found antidepressants to be the most commonly prescribed medication at admission and discharge, followed by antipsychotics.[9] These findings are consistent with outpatient studies of patients with BPD.[8,10,11]

To our knowledge, no large study (more than 30 patients) in hospitalized patients with BPD in the United States has been conducted describing medication use on admission and discharge and patient characteristics. The goal of our study was to describe psychotropic pharmacotherapy in hospitalized patients in an acute-care setting with a diagnosis of BPD in comparison with a control group of patients admitted for major depressive disorder (MDD) without a personality disorder. We hypothesized that patients with BPD would receive more psychotropic medications compared with a control group.

## Methods

### Study Design

The study design was a retrospective chart review evaluating trends in pharmacotherapy among inpatients on the general psychiatry unit with a diagnosis of BPD. Medical records from an acute care Midwest academic medical center were reviewed for patients admitted during 2011-14. If a patient had multiple admissions during this time period the latest admission was reviewed for study inclusion. The University's Human Subjects Committee approved this study, and then patients were identified through an internal university research database.[15]

Charts were reviewed by 2 pharmacy students in their fourth professional year. The first 10 charts were reviewed by the 2 pharmacy students, an attending psychiatrist, and a pharmacist specializing in psychiatric pharmacy to minimize discrepancies between chart reviewers. Random audits were conducted to ensure accuracy.

### Study Subjects

Patients aged 18 to 65 years with a diagnosis of BPD, who had been admitted to the inpatient psychiatry unit during 2011-14, were evaluated for study inclusion in the BPD group. Patients with more than one personality disorder or who had cluster B traits written as their diagnosis were excluded from the BPD group. Additionally, if the subject in the BPD group had a current diagnosis of MDD, recurrent, severe, the patient was excluded as that was the comparator group.

The control group consisted of patients aged 18 to 65 years diagnosed with major depression, severe, without

psychosis, who had no history of any personality disorder and had been admitted to the psychiatry unit during the same time period. Patients with a history of psychosis, schizophrenia, and schizoaffective disorder were excluded from the control group. The control group of severe major depression was chosen because of the severity of the illness and the expectation that they would be receiving multiple and similar classes of medications (eg, antidepressants, antipsychotics, and mood stabilizers) as are used in treating BPD. Patients with psychosis were excluded to help identify the use of antipsychotics specifically for adjunctive treatment of depression. Additionally, other studies evaluating treatment trends in patients with personality disorders have used patients with major depression and no personality disorder as a comparator group.[8]

Patients' diagnoses were also verified by reviewing inpatient history, physical notes, and discharge summary, in addition to billing diagnosis.

### Data Collection

Patients' inpatient charts were reviewed for the following: basic demographics, psychotropic medication records (prior to admission medications and discharge medications), number of prior psychiatric hospitalizations, and admission and discharge diagnoses.

Psychotropic medications were classified into 5 groups: antidepressants, antipsychotics, mood stabilizers, sedatives, and miscellaneous agents. Mood stabilizers included lithium, lamotrigine, valproic acid, oxcarbazepine, carbamazepine, and topiramate. If a patient had a coexisting seizure disorder, charts were further evaluated for anticonvulsant indication. Additionally, if patients had a coexisting headache disorder, topiramate and valproic acid charts were further evaluated. If no indication was documented for topiramate with cooccurring headache disorder, it was not counted as a mood stabilizer; however, if no indication was documented for valproic acid it was counted as a mood stabilizer.

Sedative medications included benzodiazepines, hypnotic agents (eg, zolpidem), melatonin, ramelteon, and trazodone. Mirtazapine was classified as an antidepressant. Miscellaneous agents included benztropine, buspirone, diphenhydramine, donepezil, hydroxyzine, prazosin, and stimulant medications. Gabapentin and pregabalin are commonly used for anxiety in our hospital and were classified as miscellaneous agents if the patient had no coexisting seizure disorder, pain disorder, or headache disorder.

## Statistical Analysis

Means and SDs were computed for continuous variables and frequency or percentages for discrete variables. Independent *t* test was used for numeric values and $\chi^2$-squared analysis was used for nominal values. Data manipulation and statistical analysis were conducted using IBM SPSS 22 (SPSS Inc, Chicago, IL). Statistical significance was defined as $P < .05$.

## Results

A total of 214 patients were identified based on billing records (100 for BPD and 114 for MDD group). Overall, 85 BPD patients were included in the study analysis. Eight patients were excluded owing to having additional personality disorders, 6 patients had a comorbid diagnosis of severe MDD, and 1 patient was greater than 65 years of age. For the MDD group, 80 patients met study inclusion criteria. Thirty-four patients were excluded, with 27 patients excluded for having a personality disorder or traits of a personality disorder documented in the chart. Other reasons for exclusion in the MDD group included 5 patients greater than 65 years of age and 2 patients not having a hospital admission during that time period.

Baseline characteristics are reported in Table 1. Patients in the BPD group were on average 10 years younger (mean, 33.9 years) compared with patients in the MDD group (mean, 43.8 years), and over 80% of patients in the BPD group were female compared with only 51% in the MDD group. Primary hospital diagnosis (discharge diagnosis) for the BPD group was depressive disorder (38%) or an adjustment reaction (37%). Patients in the BPD group were more likely than the MDD group to have a current or previous history of attention deficit hyperactivity disorder, bipolar disorder, eating disorder, or post-traumatic stress disorder (see Table 1 for values). History of sexual abuse was more prevalent in patients with BPD compared with patients in the MDD group (39% vs 18%; $P = .002$).

Patients in the BPD group were more than twice as likely to have 2 or more hospitalizations in the past year compared with patients in the MDD (32% vs 15%, respectively). However, hospital lengths of stay were significantly shorter in the BPD group by 1.5 days compared with the MDD group ($3.82 \pm 3.38$ vs $5.26 \pm 5.67$).

Medication usage is reported in Table 2 with BPD patients receiving 1 additional psychotropic medication documented prior to admission to the psychiatry unit than patients with MDD (3.21 vs 2.10; $P < .05$). However, on discharge the average number of medications for the BPD group decrease to 2.87, while the MDD group number increased to 2.35 psychotropic medications ($P < .05$ between

**TABLE 1: Baseline characteristics**

| | BPD, n = 85 | MDD, n = 80 | Statistical Value 95% CI |
|---|---|---|---|
| Age (y), mean ± SD | 33.89 ± 10.54 | 43.78 ± 12.41 | −13.4 to −6.4[a] |
| Length of stay (d), mean ± SD | 3.82 ± 3.38 | 5.26 ± 5.67 | −2.9 to −.01[a] |
| | | | *P* Value |
| Female, n (%) | 71 (83.5) | 41 (51.2) | <.001[a] |
| Race, n (%) | | | .43 |
| Black | 6 (7.1) | 9 (11.3) | |
| Hispanic | 3 (3.5) | 3 (3.8) | |
| White | 68 (80.0) | 65 (81.3) | |
| Other | 8 (9.4) | 3 (3.8) | |
| Married, n (%) | 13 (15.3) | 32 (40.0) | <.001[a] |
| Suicidal ideation, attempt, or gesture on admission, n (%) | 72 (84.7) | 63 (78.8) | .32 |
| Primary Axis 1 diagnosis on discharge[b] | | | |
| Depression[c] | 32 (37.6) | 80 (100) | |
| Adjustment Rx | 31 (36.5) | . . . | |
| Substance use disorder | 10 (11.8) | . . . | |
| Bipolar mood disorder | 6 (7.1) | . . . | |
| Other[d] | 5 (7.1) | . . . | |
| Current or past history of | | | |
| ADHD | 12 (14.1) | 4 (55) | .05[a] |
| Bipolar disorder | 40 (47.1) | 6 (7.5) | <.001[a] |
| Eating disorder | 7 (8.2) | 1 (1.3) | .04[a] |
| Anxiety disorder | 29 (34.1) | 42 (52.5) | .02[a] |
| Major depression | 48 (56.5) | 80 (100) | <.001[a] |
| PTSD | 27 (31.8) | 14 (17.5) | .03[a] |
| Schizophrenia | 3 (3.5) | 0 | .09 |
| History of sexual abuse | 33 (38.8) | 14 (17.5) | .002[a] |
| History of physical abuse | 25 (29.4) | 14 (17.5) | .07 |
| Current or past alcohol abuse or dependence | 32 (37.6) | 25 (31.3) | .388 |
| Current or past substance abuse or dependence | 48 (56.4) | 38 (47.5) | .249 |
| Number of psychiatric admissions in last y, n (%) | | | .02[a] |
| 1 | 58 (68.2) | 68 (85.0) | |
| 2 | 17 (20.0) | 10 (12.5) | |
| ≥3 | 10 (11.8) | 2 (2.5) | |
| Number of psychiatric admissions in last 3 y, n (%) | | | .001[a] |
| 1 | 46 (54.1) | 64 (80.0) | |
| 2 | 17 (20.0) | 11 (13.8) | |
| ≥3 | 22 (25.9) | 5 (6.3) | |

ADHD = attention deficit hyperactivity disorder; BPD = borderline personality disorder; CI = confidence interval; MDD = major depressive disorder; PTSD = post-traumatic stress disorder; Rx = prescription.

[a]*P* < .05, between BPD group and MDD group.

[b]The control group comprised patients with a diagnosis of major depression, recurrent, severe.

[c]Depression includes diagnoses of major depression, dysthymia, or mood disorder, not otherwise specified.

[d]Other includes anxiety disorders, schizoaffective, and dissociative amnesia.

**TABLE 2: Psychotropic medications use prescribed prior to admission and at discharge**

| | Prior to Admission Medications | | | Discharge Medications | | |
|---|---|---|---|---|---|---|
| | BPD, n = 85 | MDD, n = 80 | Statistical Value 95% CI | BPD, n = 85 | MDD, n = 80 | Statistical Value 95% CI |
| Total No. medications | 273 | 169 | | 244 | 193 | |
| Mean ± SD medications per patient | 3.2 ± 2.3 | 2.1 ± 1.6 | .51-1.7[a] | 2.87 ± 1.7 | 2.35 ± 1.2 | .06-.98[a] |
| Mean ± SD medication classes per patient | 2.4 ± 1.4 | 1.7 ± 1.2 | .20-.39[a] | 2.33 ± 1.2 | 1.86 ± .85 | .14-.79[a] |
| | | | *P* Value | | | *P* Value |
| Medication classes: No. of patients prescribed, n (%) | | | | | | |
| Antidepressants | 55 (64.7) | 59 (73.8) | .21 | 59 (69.4) | 76 (95)[a] | <.001[a] |
| Antipsychotic | 40 (47.1) | 11 (13.8) | <.001[a] | 40 (47.1)[a] | 12 (15) | <.001[a] |
| Miscellaneous agents[b] | 21 (24.7) | 10 (12.5) | .05[a] | 14 (16.5) | 7 (8.8) | .14 |
| Mood stabilizers | 32 (37.6) | 9 (11.3) | <.001[a] | 33 (38.8) | 9 (11.3) | <.001[a] |
| Sedatives | 58 (68.2) | 43 (53.8) | .06 | 52 (61.2) | 45 (56.3) | .52 |
| Medication combinations, n (%) | | | | | | |
| ≥2 Antidepressants | 12 (14.1) | 13 (16.3) | .70 | 8 (9.4) | 23 (28.8) | .001[a] |
| ≥2 Antipsychotics | 6 (7.1) | 1 (1.3) | .06 | 6 (7.1) | 1 (1.3) | .06 |
| ≥2 Sedatives | 32 (37.6) | 17 (21.3) | .02[a] | 21 (24.7) | 12 (15) | .12 |
| Antidepressant + antipsychotic | 30 (35.3) | 10 (12.5) | .001[a] | 33 (38.8) | 12 (15) | .001[a] |
| Antidepressant + mood stabilizer | 21 (24.7) | 8 (10) | .01[a] | 23 (27.1) | 8 (10) | .005[a] |
| Antidepressant + sedative | 42 (49.4) | 40 (50) | .94 | 39 (45.9) | 44 (55) | .24 |

BPD = borderline personality disorder; CI = confidence interval; MDD = major depressive disorder.

[a]*P* < .05, between BPD group and MDD group.

[b]Miscellaneous agents included benztropine, buspirone, diphenhydramine, donepezil, hydroxyzine, prazosin, and stimulant medications.

groups). With respect to medication classes, patients in the BPD group were significantly more likely to be prescribed antipsychotics, mood stabilizers, and miscellaneous agents compared with the MDD group. The majority of patients in both groups were receiving at least 1 sedative medication.

Over twice the number of patients in the BPD group received combinations of antidepressant/antipsychotic (35.3% vs 12.5%; *P* < .05) or antidepressant/mood stabilizer (24.7% vs 10%; *P* < .05) compared with MDD groups on admission, respectively. Additionally, patients in the BPD group were more likely to be on 2 or more sedatives compared with the MDD group on admission (37.6% vs 21.3%; *P* < .05); however, due to medication discontinuation, this finding was not significant at discharge. Overall, 79% of BPD patients were receiving 2 or more psychotropic medications, with 55% receiving 3 or more medications.

We also looked at whether medications on admission were increased, decreased, or discontinued, and if patients were started on new medications during hospitalization. Overall, 93 new medications were started in the MDD group compared with only 40 medications in the BPD group. Only 38.8% of the medications in the BPD group were adjusted (increased, decreased, or discontinued) compared with 53.3% in the MDD group.

## Discussion

The results of this study found that patients with BPD had a higher utilization of psychotropic medications compared with patients in a control group with MDD without any personality disorders. Patients with BPD were significantly more likely to be prescribed antipsychotics, moods stabilizers, and combination medications (antidepressants with antipsychotics; antidepressants with mood stabilizers) both on admission and discharge compared with the control group. Overall, patients with BPD received approximately 1 additional psychotropic medication prior to admission compared with the control group (mean, 3.21 vs 2.10; *P* < .05, respectively).

Prior findings assessing utilization of medications in hospitalized patients have been conflicting. The results of this study are similar to a small study conducted at an Eastern acute-care academic medical center in which antidepressants were the most commonly prescribed medications on discharge.[9] This finding is similar to outpatient studies where patients with BPD are most commonly prescribed antidepressants.[8,10,11] Nonetheless,

patients in our study utilized more psychotropic medications prior to admission (mean, 3.21) compared with the previous study with an average of 2.31 medications. This difference may be owing to the small sample size of their study (29 patients), reflect regional differences, or be secondary to their classification of psychotropic medications. In contrast, a study conducted at a state psychiatric hospital in central New York found patients with BPD received on average 4.45 psychotropic medications. This higher number may reflect a more complex and treatment-resistant patient population in a state psychiatric hospital.[14]

The most commonly prescribed medications on discharge in the BPD group were antidepressants, with selective serotonin reuptake inhibitors (SSRI) being the most commonly used antidepressants. SSRIs are commonly used to help BPD patients with depressive symptoms.[16] However, a Cochrane review found little benefit from SSRIs in BPD patients.[5] This review found mood stabilizers and atypical antipsychotics to be more effective for emotional dysregulation and other symptoms of BPD.

Antipsychotic medications were used in 47% of our patients on admission and discharge. This high use of antipsychotics has been shown in other studies of hospitalized patients with BPD.[13,14] Leontieva and Gregory[14] found 90% of the patients with BPD received an antipsychotic medication at a state hospital. Studies involving olanzapine and aripiprazole have produced positive results with respect to decreasing mood instability, anger, psychosis, and impulsivity in patients with BPD.[17,18] While these medications are an important tool for symptom-targeted management of BPD in crisis situations, clinicians need to consider the long-term risks of weight gain, diabetes, and hyperlipidemia with chronic use of atypical antipsychotics and routinely monitor for these adverse effects.

A promising result of this study was the discontinuation of medications during hospitalization for the BPD group. Patients in the BPD group were discharged on fewer psychotropic medications than upon admission. In particular, sedative medications and miscellaneous medications were discontinued most frequently during hospitalization. This result was encouraging because sedatives agents may lead to unwanted adverse events such as falls, accidents, decreased cognition, or overdose.[19]

This study has several limitations. First, data were retrospective, and information may not have been recorded in the chart accurately. It is possible that some patients in the control group may have had a personality disorder that was not recorded in the chart or billing data. Additionally, it is unclear how patients were diagnosed with BPD and whether a specific diagnostic instrument or structured interview was used. Last, these data were only collected at one institution and cannot be readily extrapolated to other regions and outpatient settings.

## Conclusion

This study found a significant higher use in medication utilization among patients with BPD in comparison with a control group without a personality disorder. Based on current evidence, this high use of psychotropic medications may be unnecessary for the treatment of BPD. Polypharmacy may increase the risk of side effects, drug interactions, and drug toxicity for BPD patients. It is important that pharmacists educate BPD patients on the specific goals of pharmacotherapy and adverse effects of medications. Pharmacists should assess the need for quantity limitations on medications (eg, weekly supply) or recommend daily medication visits in BPD patients with a history of medication overdose. Clinicians need to routinely evaluate the risk and benefit of each medication prescribed and use caution in prescribing medication lethal in overdose. Further studies are needed to assess pharmacists' roles in medication management of BPD patients and appropriate prescribing strategies for patients.

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