Demographic and clinical factors associated with benzodiazepine prescription at discharge from psychiatric inpatient treatment

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ABSTRACT

Objective: We sought to characterize diagnostic and treatment factors associated with receiving a prescription for benzodiazepines at discharge from a psychiatric inpatient unit. We hypothesized that engaging in individual behavioral interventions while on the unit would decrease the likelihood of receiving a benzodiazepine prescription at discharge.
Method: This is an observational study utilizing medical chart review (n=1007) over 37 months (2008–2011). Descriptive statistics characterized patient demographics and diagnostic/prescription frequency. Multivariate regression was used to assess factors associated with receiving a benzodiazepine prescription at discharge.
Results: The sample was 61% female with mean age=40.5 (S.D.=13.6). Most frequent diagnoses were depression (54.7%) and bipolar disorder (18.6%). Thirty-eight percent of participants engaged in an individual behavioral intervention. Benzodiazepines were prescribed in 36% of discharges. Contrary to our hypothesis, individual behavioral interventions did not influence discharge benzodiazepine prescriptions. However, several other factors did, including having a substance use disorder [odds ratio (OR)=0.40]. Male sex (OR=0.56), Black race (OR=0.40) and age (OR=1.03) were nonclinical factors with strong prescribing influence.
Conclusion: Benzodiazepines are frequently prescribed at discharge. Our results indicate strong racial and sex biases when prescribing benzodiazepines, even after controlling for diagnosis.

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1. Introduction

Benzodiazepines are powerful anxiolytics and, for short-term use, are effective in reducing anxiety [1]. When patients are admitted to a psychiatric inpatient unit, they may often be given a benzodiazepine at the beginning of their stay in order to decrease their anxiety. Hallahan, Murray and McDonald [2] found that benzodiazepines are prescribed to 51% of patients on the unit on a routine basis and to 66% of patients on an "as-required" basis. Later, when being discharged from the unit, over a third of patients may receive a prescription for a sedative-hypnotic medication in order to continue taking the medication after leaving the hospital [3].

Benzodiazepine side effects include sedation, memory impairment and emotional blunting and they can also have the paradoxical effect of increasing one's anxiety [1]. The primary hazard with benzodiazepines, however, is the risk of abuse and dependence. Individuals can become dependent on benzodiazepines within a few weeks and withdrawal from the medication can be difficult [1]. Moreover, patients with anxiety disorders — some of the individuals most likely to be prescribed benzodiazepines — are also at higher risk for alcohol dependence, a dangerous combination [4]. The American Psychiatric Association's Clinical Practice Guidelines for panic disorder state, "The benefit of more rapid response to benzodiazepines must be balanced against the possibilities of troublesome side effects (e.g., sedation) and physiological dependence that may lead to difficulty discontinuing the medication" [5]. International Clinical Practice Guidelines recognize these adverse side effects and state that benzodiazepines should not be taken for longer than 4 weeks at one time [6,7]. Given that a primary goal of acute psychiatric hospitalization is "instituting effective psychopharmacologic treatment" [8], there are a number of advantages to reduce the prescription of benzodiazepines at discharge (BAD)[1], including that it could reduce the risk of abuse or dependence. While many studies have examined administering benzodiazepines to patients currently on an inpatient unit [9,10], there is a scarcity of studies examining BAD. Wheeler et al. [3] examined BAD as part of a larger study. They reported that female patients and those who stayed 28

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[1] The obvious connotation between the acronym and our study is not intended to offend or be dogmatic, but it is to encourage critical thinking about the study subject.

days or less were more likely receive a BAD, but these findings were statistically insignificant. Looking more broadly at prescribing practices, bias based on patient demographics can lead to inappropriate prescribing and discrepancies in treatment [11,12].

Cognitive therapy has been modified for inpatient units in order "to provide a greater frequency of contact with the patient, increased structure, intensive psychoeducational tools, a behavioral emphasis early in treatment and frequent opportunities for learning cognitive therapy skills" [13]. Psychotherapy interventions on inpatient units have been found to be beneficial both in the short term and in the long term. Jahangard et al. [14] found that inpatients with depressive disorder and borderline personality disorder who received emotional intelligence skills training reported lower levels of depression than those who received no psychotherapy at a 4-week follow-up. Zobel et al. [15] found that inpatients who received interpersonal psychotherapy in conjunction with pharmacotherapy had significantly lower depression scores than inpatients receiving only pharmacotherapy and case management for a year after discharge and had a significantly higher remission rate at a 5-year follow-up.

The present investigation sought to characterize diagnostic and treatment factors associated with receiving a BAD from a psychiatric inpatient unit. We were specifically interested in the influence of general demographics, clinical characteristics, engagement in individual behavioral interventions and prescriber effects. It is common in inpatient settings for multidisciplinary teams including social workers, occupational therapists, nurses, psychiatrists and psychologists to develop treatment plans that include behavioral interventions for depressive and anxiety-related disorders. At our study site, there was an explicit process in which treatment plans were likely to prioritize behavioral intervention over prescribed-as-needed anxiolytics as a first-order response to patient anxiety for many patients. Thus, a relevant treatment-related question addressed whether targeted individual behavioral interventions while on the unit would lead to less utilization of BAD. We hypothesized that engaging in an individual behavioral intervention while on the unit would decrease the likelihood of receiving BAD.

2. Methods

2.1. Data

The present investigation was an observational study reviewing medical charts from a psychiatric inpatient unit at a large academic medical hospital. We requested information from patient charts that met specific inclusion criteria, discussed below, over a 37-month period (from June 2008 to July 2011). We then reviewed the charts and excluded any data that may have been received in error (i.e., did not match inclusion criteria).

2.1.1. Engagement in behavioral intervention

Our study site included numerous behavioral interventions, both in group and in individual formats. Unit staff assigned patients to participation in a daily group Cognitive Behavior Therapy (CBT) intervention. Most patients were assigned to group CBT with the primary exception being cognitive factors, such as active psychosis or severe developmental disabilities. For this study, in order to rule out individuals with active, severe mental illness or cognitive impairment, we used participation in at least one group CBT session as the primary inclusion criteria. Therefore, the range of severity for patients included in this study could vary from minimal symptoms to nonpsychotic affective symptoms. We operationalized engagement in individual behavioral intervention as whether or not a patient received a one-on-one targeted intervention delivered by a psychology trainee. Unlike outpatient psychotherapy, these interventions were designed to be self-contained (1 session, although there could be more) and centered on distress tolerance and emotion regulation skills. Due to limited resources (i.e., trainees), not all patients could receive an individual behavioral intervention. Trainees

prioritized these interventions based on several factors, which included treatment team preferences and perceived need of brief individual behavioral interventions.

2.1.2. Clinical characteristics

Patient data included diagnoses listed as primary, secondary, tertiary and so on. We considered the first diagnosis listed in the chart as the principal diagnosis and utilized the patient's principal diagnosis to analyze the impact of clinical presentation on BAD. However, given the obvious concerns related to substance use disorders (SUDs) and benzodiazepine use, we coded the presence of any SUD based on all diagnoses listed in the chart. We also used patient's length of stay as a marker of clinical severity. Similarly, we used the number of *Diagnostic and Statistical Manual of Mental Disorders* (*DSM*), *Fourth Edition*, Axis-I diagnoses as a proxy for clinical complexity.

2.2. Statistical analysis

We used the Statistical Package for the Social Sciences (SPSS) [16] and R 3.12 [17,18] to conduct both descriptive and inferential statistical analyses of the data. We conducted descriptive statistics to gather information about patient demographics, number of group CBT sessions attended, whether or not a patient had an individual behavioral intervention, frequency of assigned diagnoses, presence of a SUD diagnoses and frequency of receiving a BAD. Potential predictors of BAD included demographics, diagnoses, severity, prescriber effects and engaging in an individual behavioral intervention with a psychology trainee. We planned bivariate logistic regressions with 19 potential predictors, a multivariate logistic regression with all significant bivariate predictors, and two interactions (sex by diagnosis; race by diagnosis) for a total of 22 comparisons. Although exploratory in nature, we applied Bonferroni-corrected significance criteria of $P = .05/22 = .002$. All regression models were evaluated using the *glm* function in the R "stats" package [18].

3. Results

3.1. Sample demographics

We received deidentified patient data from 1077 charts extracted from the electronic medical record by staff at the large academic hospital used in this study. We reviewed these charts and excluded 6.5% ($n = 70$) due to missing data or failure to meet full inclusion criteria. Thus, 1007 charts were used in our analyses. All 1007 patients had attended at least one group CBT session, displayed minimal to no psychotic symptoms and had an assigned diagnosis at time of discharge. The majority, 61.1% ($n = 615$), were female. The mean age was 40.5 years (S.D. = 13.6). The youngest patient was 18 years old and the oldest patient was 99 years old. The majority, 74.0% ($n = 745$), were White. There were 88 (8.7%) patients who had an unknown or undocumented race (see Table 1 for details).

3.2. Diagnoses

A total of 26 distinct principal diagnoses were organized into nine categories (Fig. 1). A majority of patients (54.7%, $n = 551$) had a principal diagnosis of Depression/Dysthymia (Table 1). The modal number of Axis-I diagnoses was 2 (33.3%, $n = 335$), with the maximum being 7 ($n = 4$). Many secondary diagnoses lacked conformity to *DSM* criteria and had ambiguous entries (e.g., "cluster A"). Given concerns over the quality of secondary diagnoses, we excluded them from the analysis with the exception of SUDs. As it is common for SUDs to be included as secondary diagnoses and because these disorders should have a strong influence on prescribing of benzodiazepines, we coded for "any SUD" as positive if it occurred anywhere within the Axis-I designation.