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Demographic and clinical characteristics associated with comorbid cannabis use disorders (CUDs) in hospitalized patients with bipolar I disorder

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Abstract

Background: Published data suggest that cannabis use is associated with several negative consequences for individuals with bipolar disorder (BD), including new manic episode onset, psychosis, and functional disability. Yet much less is known about cannabis use disorders (CUDs) in this population, especially in more acutely symptomatic groups.
Methods: To evaluate correlates of CUD comorbidity in BD, a retrospective chart review was conducted for 230 adult patients with bipolar I disorder (BDI) who were admitted to a university-affiliated private psychiatric hospital. Using a computer algorithm, a hospital administrator extracted relevant demographic and clinical data from the electronic medical record for analysis.
Results: Thirty-six (16%) had a comorbid CUD. CUD comorbidity was significantly associated with younger age, manic/mixed episode polarity, presence of psychotic features, and comorbid nicotine dependence, alcohol use disorder (AUD), and other substance use disorders, but was associated with decreased likelihood of anxiety disorder comorbidity. With the exception of manic/mixed polarity and AUD comorbidity, results from multivariate analyses controlling for the presence of other SUDs were consistent with univariate findings.
Conclusion: Patients with BD and comorbid CUDs appear to be a complex population with need for enhanced clinical monitoring. Given increasing public acceptance of cannabis use, and the limited availability of evidenced-based interventions targeted toward CUDs in BD, psychoeducation and other treatment development efforts appear to be warranted.

1. Introduction

The elevated prevalence of substance misuse in bipolar disorder (BD) has been well documented [1], with evidence that rates of comorbid substance use disorders (SUDs) are among the highest in BD relative to the other major psychiatric disorders [2,3]. As in the general population, tobacco and alcohol represent the most widely abused substances in BD, with cannabis representing the most common illicit substance of abuse [2,4]. Rates of lifetime cannabis use have been reported in up to 64% of individuals with BD [5], and data from the National Epidemiologic Survey on Alcohol and Related Conditions (NESARC) [2] reveal a 12-month prevalence rate of 7.2% for cannabis use disorders (CUDs) among those with a lifetime BD diagnosis [6]. This figure represents a 6-fold increased risk for CUDs in BD compared to the general population estimate of 1.2%, and increased risk relative to the other major psychiatric disorders, with CUD comorbidity rates ranging from 2.9–5.7% [6,7]. Among those with a more recent history of bipolar disorder (i.e., 12-month diagnosis), CUD comorbidity has been reported to be even higher, with rates as high as 9.4% [7].

There is an emerging literature focused on the correlates of cannabis use in BD, with some evidence that cannabis users are more likely to be male, to abuse alcohol and other substances, to experience greater overall illness severity, and to evidence poorer treatment adherence when compared to non-users [8–10]. Particularly alarming, cannabis use in BD has also been associated with significantly increased risk for

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new onset [10–15] and longer duration [9,16,17] of manic episodes, as well as incidence of psychosis [8,10]. Data have also revealed a dose–response relationship between the degree of cannabis use and first onset of BD, with heavier users (i.e., >10 times within one month lifetime) reporting significantly earlier age of disorder onset compared to non-users [18].

Despite the growing literature on cannabis use in BD, less is known about CUDs in this population, especially in more acutely ill samples. Within community samples, as in the general population, a 12-month CUD diagnosis within BD has been linked to male sex and younger age [6,7,19]. CUD comorbidity in BD has also been associated with earlier age of BD onset, more frequent mood cycling, and greater rates of comorbid other SUDs, including nicotine dependence, alcohol use disorders (AUDs), and non-cannabis drug use disorders [6]. Additional data reveal greater rates of disability [20] and poorer physical quality of life [6] in community samples of individuals with BD and comorbid CUDs, and some [20], but not all [6,21], have demonstrated elevated risk for suicide attempt among those with BD and a comorbid CUD.

Although informative at the population level, epidemiologic and other community studies may be limited in generalizability to the clinical setting. Yet within clinical samples, there is limited research focused on CUD comorbidity in BD. Among the few published studies within patient populations, results support associations between CUD comorbidity and male sex [17,22] and increased incidence of psychosis [17,22]. However, these studies have relied upon primarily manic [17] or mixed euthymic and symptomatic [22] samples, thus limiting an ability to evaluate features that may be more relevant to acute bipolar depression, in particular. Building upon this growing literature, the aim of this exploratory study was to further advance an understanding of CUD comorbidity in BD, utilizing a sample of acutely ill patients with bipolar I disorder (BDI) presenting for psychiatric hospitalization. Use of this sample allowed for the evaluation of demographic and clinical correlates of CUD diagnosis within the context of routine clinical care, and across the full spectrum of BD mood symptomatology (i.e., current manic and depressive symptomatology).

2. Method

2.1. Participants

A retrospective chart review was conducted for patients with BDI admitted to the inpatient or partial hospitalization programs at Butler Hospital in Providence, RI, USA during the 2010 calendar year [23]. To be considered eligible for inclusion, patients must have been 18 years or older and given a primary diagnosis of BDI at both hospital admission and discharge. There were no other study inclusion criteria. For those patients with more than one hospitalization during this time period, we selected the first hospitalization within the calendar year as the index hospitalization. The resulting sample included 230 cases for analysis. Prior to initiating the study, a Protected Health Information waiver and approval to conduct the chart review were obtained from the Butler Hospital IRB.

2.2. Procedure

Relevant demographic and clinical information was extracted from electronic medical records by a hospital administrator and provided to the study first author in a single Microsoft Excel file. Using standard form fields from the hospital admission report, the hospital administrator used a computer algorithm to extract the following data: patient age, sex, race, ethnicity, civil status, history of prior psychiatric hospitalization, type of index hospitalization (i.e., inpatient vs. partial), self-reported pharmacotherapy for BD at hospital admission (i.e., yes/no), history of suicide attempt, and global assessment of functioning (GAF). DSM-IV-TR diagnostic codes were extracted from the admission and discharge reports in order to confirm the presence of a BDI diagnosis, and were further quantified into the following variables: polarity of BD mood episode (depressive vs. manic/mixed), presence of psychotic features (e.g., hallucinations and/or delusions) at hospital admission, and presence of any current anxiety disorder, cannabis use disorder (CUD), nicotine dependence, alcohol use disorder (AUD), or any other substance use disorder (SUD). ICD diagnostic codes, also extracted from the discharge report, were used to establish the presence of any comorbid medical condition. All diagnoses were made by attending psychiatrists within the context of routine clinical care. Categorical variables were dummy coded (0 = absent, 1 = present) by the study research assistant and checked for errors by the study first author prior to being imported into SPSS v.22 for analysis.

2.3. Data analysis

Consistent with the DSM-IV-TR diagnostic structure and coding, descriptive data for overall prevalence rates of comorbid cannabis abuse and dependence in the study sample were first evaluated. All subsequent study analyses utilized a composite variable representing the presence vs. absence of any CUD, to be consistent with the existing literature [6,7,19,20] and recent collapsing of substance abuse and dependence diagnoses into singular substance use disorders in DSM-5. Independent *t*-test and chi-square analyses were used to evaluate demographic and clinical differences between patients with a CUD and those without. For any significant differences identified in the univariate analyses, multivariate logistic regression analyses were used to evaluate which characteristics remained significantly associated with a comorbid CUD diagnosis, controlling for the presence of other SUDs. Within these multivariate models, the presence of AUDs and nicotine dependence were combined with non-cannabis drug use disorders in the coding