

ASSOCIATION OF BEING DISCHARGED WITH AN ANTIPSYCHOTIC ON ALCOHOL-RELATED READMISSIONS IN PATIENTS WITH BIPOLAR DISORDER



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BACKGROUND

- An estimated 2.8% of the United States population over the age of 18 suffer from bipolar disorder (BD)¹. Studies have shown that patients with bipolar disorder have higher rates of comorbid alcohol use disorder (AUD) compared to patients without BD².
- Dual diagnosis patients, those suffering from both a psychiatric and substance abuse disorder, tend to have a worse prognosis due to increased rates of medication non-adherence, relapse, and hospitalizations³.
- According to the CDC, 88,000 deaths/year occur in the United States due to excessive alcohol consumption. In 2010, excessive alcohol use cost the US economy \$249 billion⁴.
- While there are well-established treatment options for BD and AUD independently, treatment options for comorbid BD/AUD have been less studied.
- A previous, preliminary single-site study conducted at a Los Angeles County Department of Health Services (LA County DHS) hospital showed a significant association between patients discharged with an antipsychotic medication and a reduction in future alcohol-related readmissions. The current study expands to include additional DHS facilities.

STUDY OBJECTIVES & HYPOTHESIS

OBJECTIVES: The objective of this study was to determine the association between being discharged on an antipsychotic medication and future alcohol-related readmissions at three LA County DHS hospitals. The primary outcome was the number of alcohol-related readmissions in patients with bipolar disorder who were discharged with an antipsychotic medication compared to patients discharged without. The secondary outcome was the average days until first alcohol-related readmission between patients discharged with or without an antipsychotic medication. Other risk factors will also be examined to determine if there was an association with future alcohol-related readmissions.

HYPOTHESIS: Discharging patients suffering from bipolar disorder with a prescription for an antipsychotic medication will be associated with a reduction in the number of future acute alcohol-related readmissions.

METHODS

- A retrospective cohort study was conducted at a publicly-supported, academic teaching hospital in Sylmar, CA. Institutional review board approval was obtained by both Olive View-UCLA Medical Center and Western University of Health Sciences.
- A query based on ICD-9/10 codes for BD and BD was performed to identify hospital admissions related to AUD and BD between 1/1/2016 and 12/31/2019. Data was obtained from three LA County DHS facilities (Olive View-UCLA Medical Center, Harbor-UCLA Medical Center, LAC-USC Medical Center).
- Inclusion criteria: inpatient admission with documented diagnosis of bipolar disorder in adults > 18 years of age.
- Exclusion criteria: psychiatric emergency department visit without inpatient admission, undocumented diagnosis of bipolar disorder, or < 18 years of age.
- A total of 625 patients were reviewed: 371 patients met inclusion criteria.
- Primary and secondary endpoints were compared in two groups: those who received an antipsychotic medication upon discharge (Cohort 1) versus those who did not receive an antipsychotic medication upon discharge (Cohort 2).
- Statistical analysis was conducted using Chi-square and unpaired t-tests from GraphPad R Prism® with a P-value < 0.05 considered statistically significant.

RESULTS

Table 1. Baseline characteristics and demographics between patients discharged with an antipsychotic and patients discharged without an antipsychotic.

	Discharged w/ Antipsychotic (N= 337)	Discharged w/o Antipsychotic (N=34)	P-value
Average Age ± SD	41.1 ± 14.6	39.02 ± 12.3	0.42
Gender			
Male	40.9%	50.0%	0.31
Female	59.1%	50.0%	
Homelessness	29.7%	35.3%	0.46
Race			
White	24%	17.6%	0.93
Black	26.7%	23.5%	
Hispanic	23.7%	23.5%	
Other/Unknown	25.6%	35.4%	
Smoking	43.9%	64.7%	0.02
Marijuana Use	42.1%	47.0%	0.58
Average # of Comorbidities ± SD	1.8 ± 1.6	2.5 ± 1.7	0.03

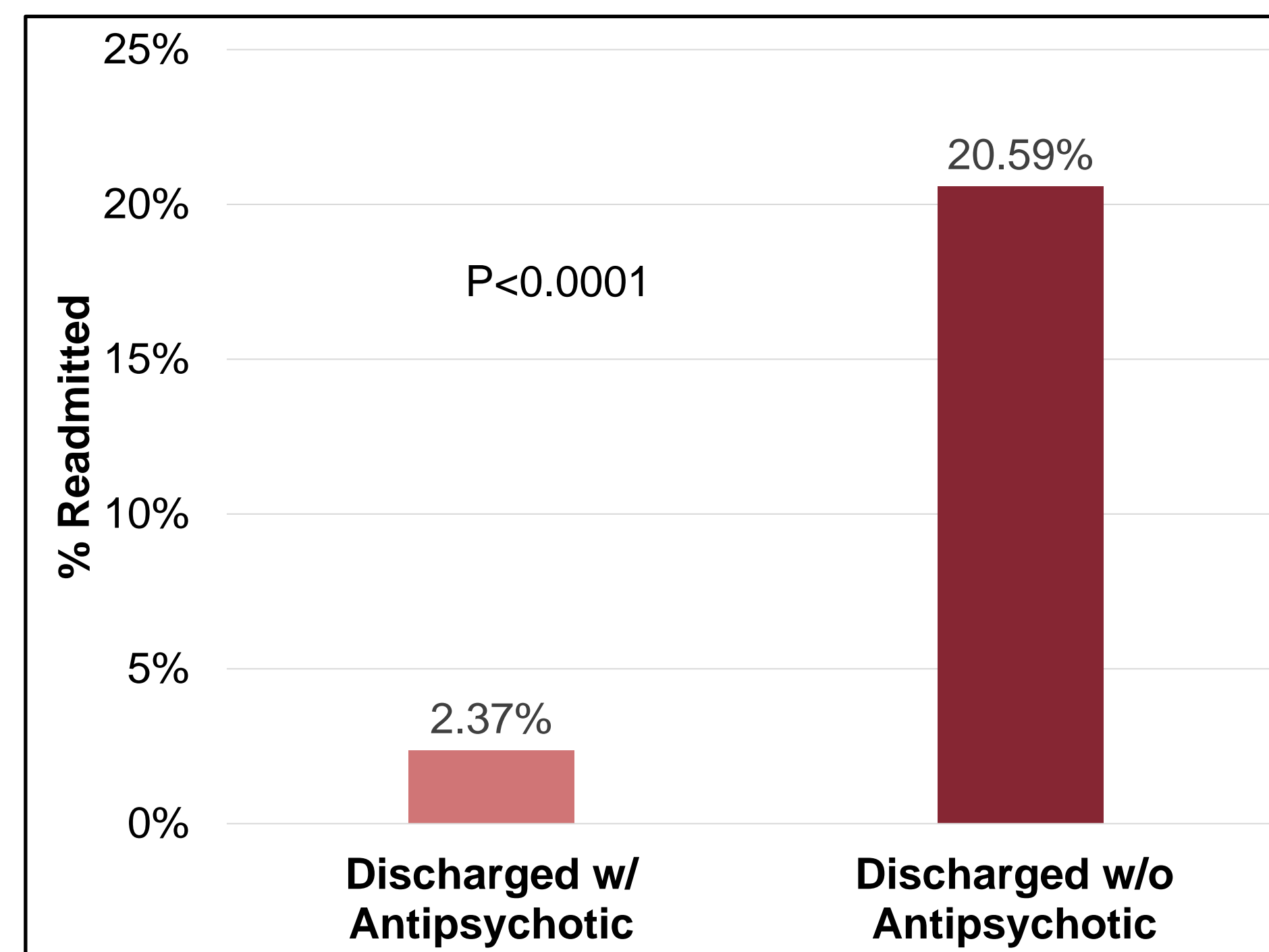


Figure 1. Hospital readmission rates due to alcohol abuse. Approximately 3% of those discharged with an antipsychotic were readmitted due to alcohol-related events while 21% of those discharged without an antipsychotic were readmitted due to alcohol-related events. The percentage of patients readmitted was significantly lower in patients discharged with an antipsychotic than those who were discharged without an antipsychotic.

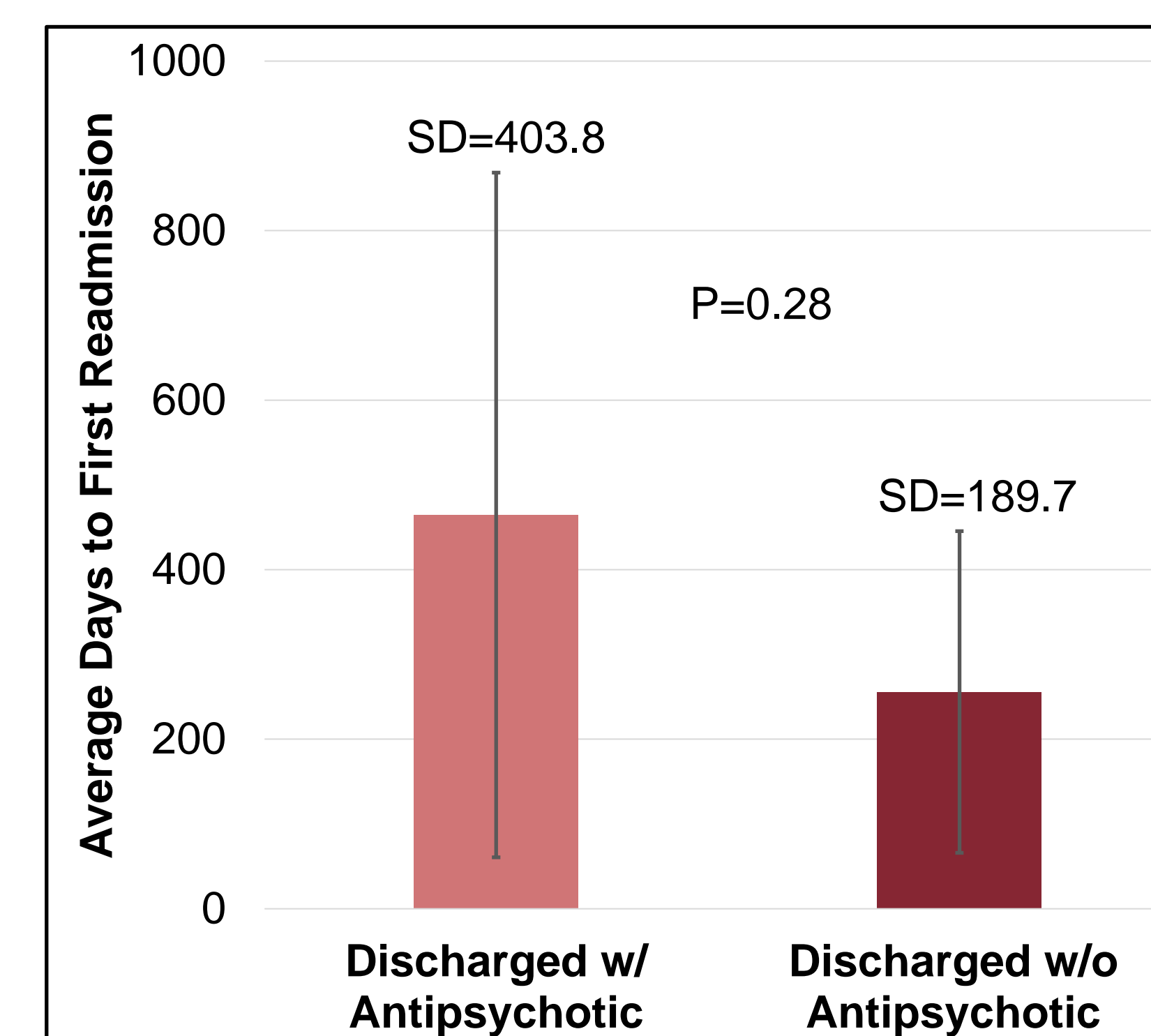


Figure 2. Average time (days ± SD) between index admission and 1st alcohol-related readmission. Of those that got readmitted, the use of an antipsychotic did lengthen the time to readmission. Patients discharged with an antipsychotic had more days (non-significant) in between index admission and first alcohol-related readmission.

Table 2. Potential factors affecting hospital readmission. Subgroup analysis showed that there were many risk factors associated with statistically higher readmission rates, such as male gender, homelessness, smoking, substance use, and suicidal ideation on admission. Those who received inpatient psych evaluations, behavioral/social work assessments, and outpatient referrals were associated with statistically lower rates of readmissions.

Risk Factor	Readmitted (N=15)	Not Readmitted (N=356)	P-Value	RR (95% CI)	OR (95% CI)
Gender					
Male	80.0%	40.0%	0.003	5.57 (1.72-18.17)	5.57 (1.72-18.17)
Female	20.0%	60.0%			
Homelessness	46.7%	29.5%	0.03	2.81 (1.073-7.25)	2.93 (1.11-8.27)
Smoking	86.7%	44.1%	0.001	7.69 (1.98-30.22)	8.24 (2.11-37.02)
Marijuana Use	66.7%	41.6%	0.06	2.70 (0.98-7.42)	2.81 (1.03-7.49)
Substance Use	86.7%	44.1%	0.001	7.69 (1.98-30.22)	8.24 (2.11-37.02)
Suicidal Ideation	40.0%	18.0%	0.03	2.87 (1.084-7.42)	3.04 (1.04-8.43)
Inpatient Psych Evaluation	86.7%	98.6%	0.03	0.13 (0.045-0.47)	0.093 (0.017-0.51)
Outpatient Referral	33.3%	54.8%	0.012	0.43 (0.16-1.17)	0.41 (0.15-1.13)
BH/SW Assessment	60.0%	89.0%	0.007	0.21 (0.082-0.54)	0.18 (0.064-0.56)

DISCUSSION

- Patients discharged with an antipsychotic medication had a significantly lower alcohol-related readmission rate compared to those discharged without an antipsychotic (p<0.0001, Figure 1).
- Time between index admission and first alcohol-related readmission was longer (non-significant) in patients discharged with an antipsychotic medication compared to without (p=0.28, Figure 2).
- This supports the hypothesis of this study by establishing an association between the use of antipsychotics in BD to reduce the burden of subsequent admissions due to AUD.
- Single studies exist with aripiprazole and olanzapine as potential treatment options. Quetiapine is the most studied medication in this population, however negative results occurred across randomized trials⁴.
- Sub-analysis showed that factors such as male gender (p=0.003), homelessness (p=0.03), smoking (p=0.001), substance use (p=0.001), and suicidal ideation on admission (p=0.03) were associated with a statistically significant increase in readmission rates.
- These results were consistent with a different study which completed a regression analysis and found that males and those with additional substance use disorders were associated with an increased prevalence of comorbid AUD⁶.
- The presence of inpatient psychiatric evaluation (p=0.03), behavioral/social worker assessment (p=0.007), and outpatient referral upon discharge (p=0.012) were associated with statistically significant reduction in readmission. This demonstrates the value of these services and supports their continued use in all inpatient admissions related to psychiatric disorders.

LIMITATIONS

- This study was a retrospective cohort study, hence dissemination of variable information between medical records could not be accounted for.
- The study is subject to self-reporting bias from patients and selection bias from reviewers.
- The sample size was small and a power analysis was not performed.
- ICD-9/10 codes did not always reflect an accurate diagnosis of the patient's active disease states at each hospital admission.
- A multivariate regression analysis was not performed.
- Medication adherence and other treatments such as outpatient psychotherapy follow-up were not assessed.

CONCLUSION

In patients suffering from bipolar disorder, discharge with an antipsychotic was associated with a significant reduction in future alcohol-related readmissions. Future studies include a multivariate regression analysis and also examining only patients who refill their antipsychotic medications at DHS outpatient pharmacies to assess medication adherence and its subsequent association with alcohol-related readmissions.

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