

ASSOCIATION OF BEING DISCHARGED WITH AN ANTIDEPRESSANT ON FUTURE ALCOHOL-RELATED READMISSIONS IN PATIENTS WITH DEPRESSION



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BACKGROUND

- Major depressive disorder (MDD) is the most common psychiatric disorder, affecting an estimated 10-15% of people in their lifetime¹.
- MDD is also the most common co-occurring psychiatric disorder among those with alcohol use disorder (AUD). Data has shown that those with AUD are 2.3 times more likely to also have major depressive disorder compared to those without AUD².
- Comorbid AUD and MDD has also been shown in some studies to lead to a worsened prognosis and severity of either disorder³.
- In the United States alone, about 88,000 people die from alcohol-related causes annually, causing an economic burden of at least \$249 billion annually (2010 data)⁴.
- There is literature that reveals evidence of a bidirectional causal relationship between mental illness and alcohol abuse, showing that alcohol abuse can worsen the course of a mental illness, and conversely, mental illness can worsen alcohol abuse⁵.
- A previous retrospective cohort study conducted at a single Los Angeles County Department of Health Services (LA County DHS) hospital showed a lower but non-significant reduction in subsequent alcohol-related readmissions in patients discharged with an antidepressant medication. The current study expanded to include additional DHS facilities.

STUDY OBJECTIVES & HYPOTHESIS

OBJECTIVES: The study objective was to determine the association between patients discharged on an antidepressant medication and future alcohol-related readmissions at three Los Angeles County Department of Health Services (DHS) hospitals. The primary outcome was the number of alcohol-related readmissions in patients suffering from MDD who were discharged with an antidepressant medication compared to patients discharged without an antidepressant medication. The secondary outcome was the average days until first alcohol-related readmission between patients discharged with or without an antidepressant. Other risk factors will also be examined to determine if there is an association with future alcohol-related admissions.

HYPOTHESIS: Discharging patients suffering from depression with a prescription for an antidepressant medication will be associated with a reduction in the number of future 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 MDD was performed to identify hospital admissions related to AUD and MDD between 1/1/2016 and 12/31/2018. 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 MDD in adults > 18 years of age.
- Exclusion criteria: psychiatric emergency department visit without inpatient admission, undocumented diagnosis of MDD, or < 18 years of age.
- Primary and secondary endpoints were compared in two groups: those who received an antidepressant medication upon discharge (Cohort 1) versus those who did not receive an antidepressant 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 antidepressant and patients discharged without an antidepressant.

	Discharged w/ Antidepressant (N=157)	Discharged w/o Antidepressant (N=61)	P-value
Average Age ± SD	44.7 ± 16.03	45.5 ± 13.2	0.75
Gender			
Male	48.4%	59.0%	0.16
Female	51.6%	41.0%	
Homelessness	30.6%	42.6%	0.09
Race			
White	15.9%	16.4%	0.81
Black	19.7%	23.0%	
Hispanic	29.3%	23.0%	
Other/Unknown	35.1%	37.6%	
Smoking	31.2%	41.0%	0.17
Marijuana Use	26.8%	59.0%	0.94
Average # of Comorbidities ± SD	3.1 ± 1.6	3.07 ± 1.6	0.65

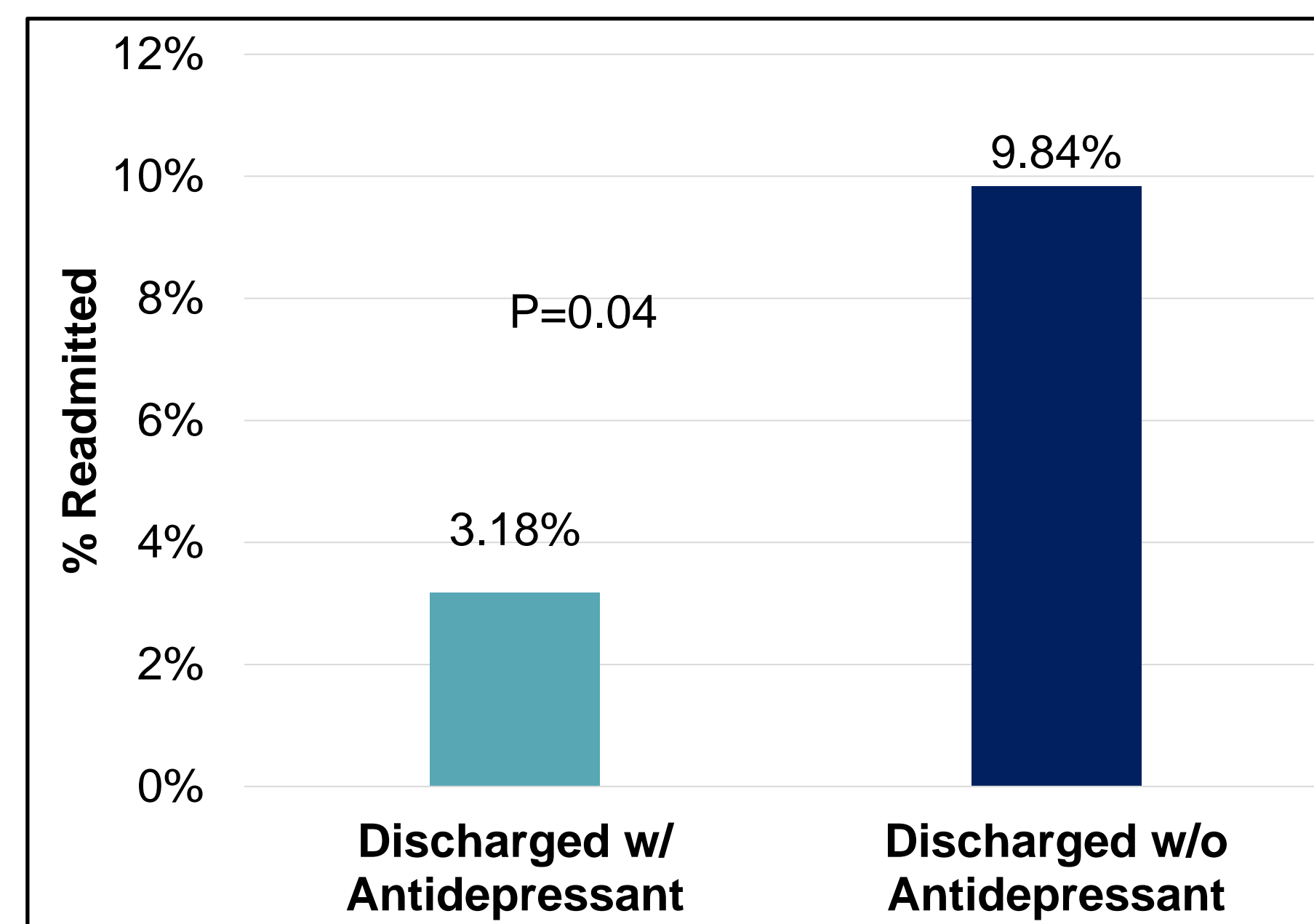


Figure 1. Hospital readmission rates due to alcohol abuse. Approximately 3% of those discharged with a prescription for an antidepressant were readmitted due to alcohol-related events while 10% of those discharged without a prescription for antidepressant were readmitted due to alcohol-related events. The percentage of patients readmitted was significantly lower in patients discharged with a prescription for an antidepressant than those who were discharged without an antidepressant.

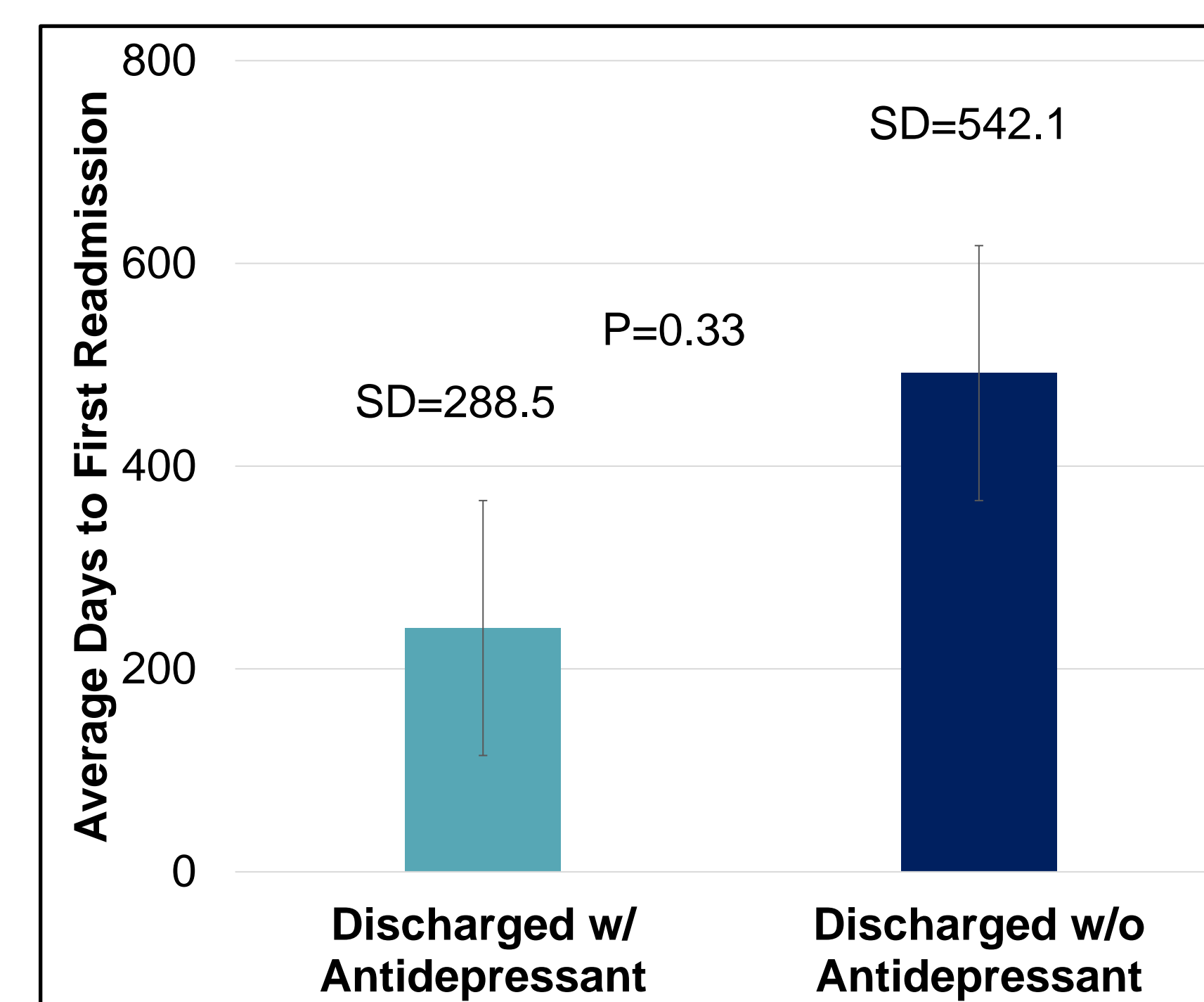


Figure 2. Average time (days +/- SD) between index admission and 1st alcohol-related readmission. Of those that got readmitted, the use of an antidepressant did not lengthen the time to readmission. Patients discharged with an antidepressant had less days (non-significant) in between index admission and readmission.

Table 2. Potential factors affecting hospital readmission. Subgroup analysis showed homelessness was a risk factor associated with statistically higher alcohol-related readmission rates.

Risk Factor	Readmitted (N=11)	Not Readmitted (N=207)	P-Value	RR (95% CI)	OR (95% CI)
Gender					
Male	72.7%	73.4%	0.22	2.52 (0.75-7.61)	2.64 (0.78-9.38)
Female	27.3%	26.6%			
Homelessness	63.6%	32.4%	0.05	3.41 (1.1-10.6)	3.66 (1.11-11.41)
Smoking	45.5%	33.3%	0.41	1.62 (0.54-4.83)	1.67 (0.55-5.92)
Marijuana Use	36.4%	26.1%	0.49	1.58 (0.5-4.82)	1.62 (0.51-5.4)
Substance Use	45.5%	31.4%	0.33	1.76 (0.58-5.24)	1.82 (0.6-6.48)
Suicidal Ideation	81.8%	72.5%	0.73	1.67 (0.43-6.77)	1.71 (0.43-8.08)
Inpatient Psych Evaluation	81.7%	94.2%	0.15	0.31 (0.09-1.23)	0.28 (0.057-1.41)
Outpatient Referral	45.5%	23.7%	0.10	2.53 (0.84-7.47)	2.69 (0.88-9.66)
BH/SW Assessment	63.6%	69.6%	0.74	0.78 (0.25-2.43)	0.77 (0.23-2.4)

DISCUSSION

- Patients discharged with an antidepressant medication was associated with a significantly lower alcohol-related readmission rate compared to those discharged without an antidepressant (p=0.04, Figure 1).
- Discharging a patient with an antidepressant did not have a significant effect on average time to first readmission (p=0.33, Figure 2).
- Serotonin (5-HT) deficiency has been associated with increased alcohol consumption and vulnerability to alcohol dependence. Alcohol has a direct effect on the serotonergic system and elevates 5-HT levels in several brain regions associated with the reward circuitry⁶.
- Antidepressants normalize serotonin levels in the brain to control the symptoms of depression. Thus, patients with MDD not on antidepressants will have constantly low levels of serotonin, which may lead to increased alcohol consumption.
- A systematic review supports the clinical use of antidepressants among this patient population. However, the reviewers concluded that due to inconsistent results, antidepressants are not a stand-alone treatment; concurrent therapy for depression and alcohol dependence is needed⁷.
- Sub-analysis showed that homelessness was a risk factor associated with an increased number of alcohol-related readmissions (p=0.048). Other potential factors such as gender, ethnicity, and smoking history (Table 2) were not associated with increased readmission rates. This data may be skewed due to the low number of patients who were readmitted for alcohol-related issues (N=11).

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

Discharging patients with MDD with an antidepressant medication was associated with a significant reduction in alcohol-related readmissions. There was no association between patients discharged with an antidepressant and days to future alcohol-related readmissions. Future studies include a multivariate analysis and an assessment of the association of medication adherence and subsequent alcohol-related readmissions of patients who refill their antidepressant medications at DHS outpatient pharmacies.

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