

## Introduction

- ❑ Opioid use disorder (OUD) is associated with high healthcare utilization, and it is reported that patients with OUD are the highest healthcare utilizers among patients with other substance use disorders (SUDs)
- ❑ It has been shown that patients with Major depressive disorder (MDD) are three times more likely to initiate opioid use than who are non-depressed
- ❑ Depression is associated with increased inpatient admission risk, length of stay (LOS), and 30-day readmission
- ❑ While co-occurring, SUDs and MDDs have been linked to increased healthcare utilization and costs
- ❑ The aim of this study was to explore the relationship between MDD and OUD and assess the extent to which the co-occurring conditions contribute to healthcare utilization

## Methods

- ❑ We analyzed all adult admissions (18 years and above) from January 1, 2016-December 31, 2019, from the National inpatient sample (NIS) database
- ❑ We included 869,169 inpatient hospitalizations (ages 18 and above) from the NIS database with a primary ICD-10 diagnosis of OUD
- ❑ We compared demographic and clinical characteristics of OUD hospitalizations with and without secondary diagnosis of MDD using Statistical tests like Chi-square etc

## Results

- ❑ About 6.9% of hospitalizations with OUD had MDD
- ❑ Hospitalizations with OUD and comorbid MDD were more likely to have a younger age (mean age 40.79 ± 0.12 years vs 42.59 ± 0.04 years, p<0.001)
- ❑ OUD hospitalizations with MDD had a mean LOS of 6.24 ± 0.06 days compared to 4.43 ± 0.01 days for the non-MDD group (p<0.001)
- ❑ Hospitalizations were predominantly white, with an overall proportion of 72.5%
- ❑ Insurance coverage varied, with public insurance (Medicare and Medicaid) (72.7%) being the predominant insurance coverage, followed by private insurance (20.2%), and self-pay being 7.1%
- ❑ There was a significant difference between shorter and longer LOS when comparing the following characteristics: Sex, race, presence of MDD, insurance type, and APRDRG severity of illness (p < 0.001)
- ❑ In univariate logistic regression, hospitalizations with OUD and coexisting MDD had 3.01 times the odds of longer hospital LOS than those without co existing MDD
- ❑ After adjusting for other variables using multivariate analysis, there remained an association of MDD and LOS in hospitalization with OUD (OR = 2.86, 95% CI 2.69-3.04, p < 0.001)
- ❑ APRDRG revealed a trend with increasing odds of having a longer LOS as the severity increased

### FACTORS ASSOCIATED WITH MDD IN PATIENTS WITH OUD

	OR (95% CI)	P-value	OR (95% CI)	P-value
Age	0.99 (0.99-1.00)	0.813	0.99 (0.99-1.00)	0.003
Sex				
Male	Reference		Reference	
Female	0.93 (0.91-0.96)	<0.001	0.87 (0.85-0.90)	<0.001
Race				
White	Reference		Reference	
Black	0.86 (0.77-0.96)	0.008	0.94 (0.85-1.03)	0.171
Hispanic	1.00 (0.93-1.08)	0.949	1.03 (0.95-1.11)	0.446
Asian	1.01 (0.83-1.22)	0.946	1.06 (0.87-1.29)	0.570
Others	1.13 (1.03-1.23)	0.006	1.16 (1.06-1.26)	0.001
Insurance				
Public	Reference		Reference	
Private	1.10 (1.03-1.17)	0.005	1.11 (1.04-1.18)	0.003
Self-Pay	0.81 (0.75-0.87)	<0.001	0.80 (0.74-0.85)	<0.001
MDD	3.01 (2.84-3.20)	<0.001	2.86 (2.69-3.04)	<0.001
APRDRG severity				
Minor	Reference		Reference	
Moderate	1.59 (1.50-1.68)	<0.001	1.55 (1.47-1.64)	<0.001
Major	2.03 (1.88-2.18)	<0.001	2.04 (1.90-2.19)	<0.001
Extreme	4.12 (3.57-4.76)	<0.001	4.25 (3.66-4.93)	<0.001

## Discussion

- ❑ Our study aimed to investigate whether MDD contributed to higher healthcare utilization in the context of hospital LOS among hospitalizations with OUD one of the ever few studies to do so
- ❑ Studies have shown that among those with OUD, depression is the most common co-occurring mental health disorder, with 49% of those with OUD experiencing MDD
- ❑ Co-occurring mood disorders and SUDs pose a challenge to healthcare providers in numerous ways

- ❑ Studies have shown including those written by Granholm et al found that brief integrated outpatient treatment resulted in a significant 60% reduction in hospital LOS among patients with co-occurring SUDs and mood disorders a year after treatment when compared to the year before
- ❑ An integrated approach to management of co-occurring MDD and OUD is key to helping reduce long hospital stays, reduce relapse, and enhance recovery to promote quality health outcomes and cost-effective treatment
- ❑ Effective treatment of comorbid patients must use a combination of different therapeutic approaches and their modalities such as psychotherapy, pharmacology, and behavioral approaches will simultaneously address both disorders

## Conclusions

- ❑ Comorbid diagnosis of MDD is an independent risk factor of longer hospital LOS among hospitalizations with OUD
- ❑ Integrated approaches which coordinate mental health conditions and substance use therapies are needed for more effective outcomes including reducing long hospital stays, relapse and enhancing recovery

## References

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