Higher Substance and Opioid Use Disorder in Lean patients with MASLD: Risk Factors and Mortality

Background

Metabolic dysfunction-Associated Steatotic Liver Disease (MASLD), formerly known as non-alcoholic fatty liver disease (NAFLD), is the leading cause of chronic liver disease.

Its complex etiology combined with physiological and social factors, potentially increases vulnerability to substance use disorder (SUD), especially opioid use disorders (OUD). There is limited literature on prevalence of SUD/OUD in MASLD patients.

Objective

To explore the prevalence of OUD/SUD within an ethnically diverse population and compare between lean vs non-lean patients with MASLD.

Methods

Patients diagnosed with steatotic liver disease from Banner University Medical Centers between July 2012 and June 2023 (N = 162,085)

Exclusions (N = 102,905)

MASLD participants included for the cross-sectional study (N = 59,180)

MASLD Patients with SUD (N = 18,900) OUD (N = 3,717)

MASLD Patients without SUD/OUD (N = 40,280)

The primary outcomes were prevalence of SUD/OUD and mortality. Multivariable logistic regression was conducted to determine the association of SUD/OUD among lean vs non-lean MASLD patients.

There is a **concerningly high prevalence of SUD/OUD among MASLD patients,** with significantly **higher rates** observed in **lean** individuals. **SUD/OUD is an independent predictor** of **higher mortality.**
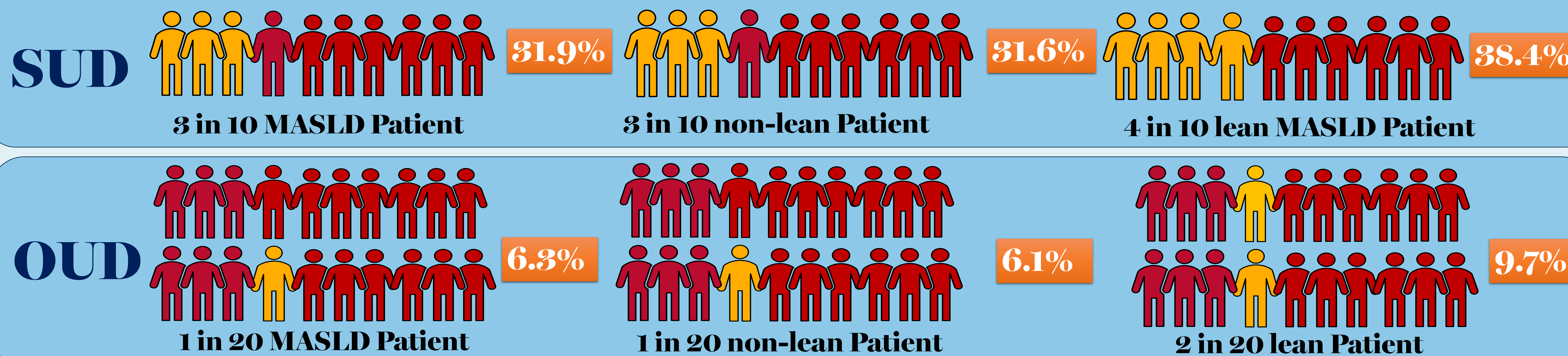
Results

SUD

31.9% — 3 in 10 MASLD Patient
31.6% — 3 in 10 non-lean Patient
38.4% — 4 in 10 lean MASLD Patient

OUD

6.3% — 1 in 20 MASLD Patient
6.1% — 1 in 20 non-lean Patient
9.7% — 2 in 20 lean Patient

Figure 1: The prevalence of SUD/ OUD among persons with MASLD by lean vs non-lean

	SUD non-lean	SUD lean	OUD non-lean	OUD lean
White	32%	40%	7%	11%
Native American/Alaskan	34%	39%	6%	
Hispanic	30%	33%	5%	6%
Black	37%	49%	8%	15%
Asian/Pacific Islander	17%	21%		
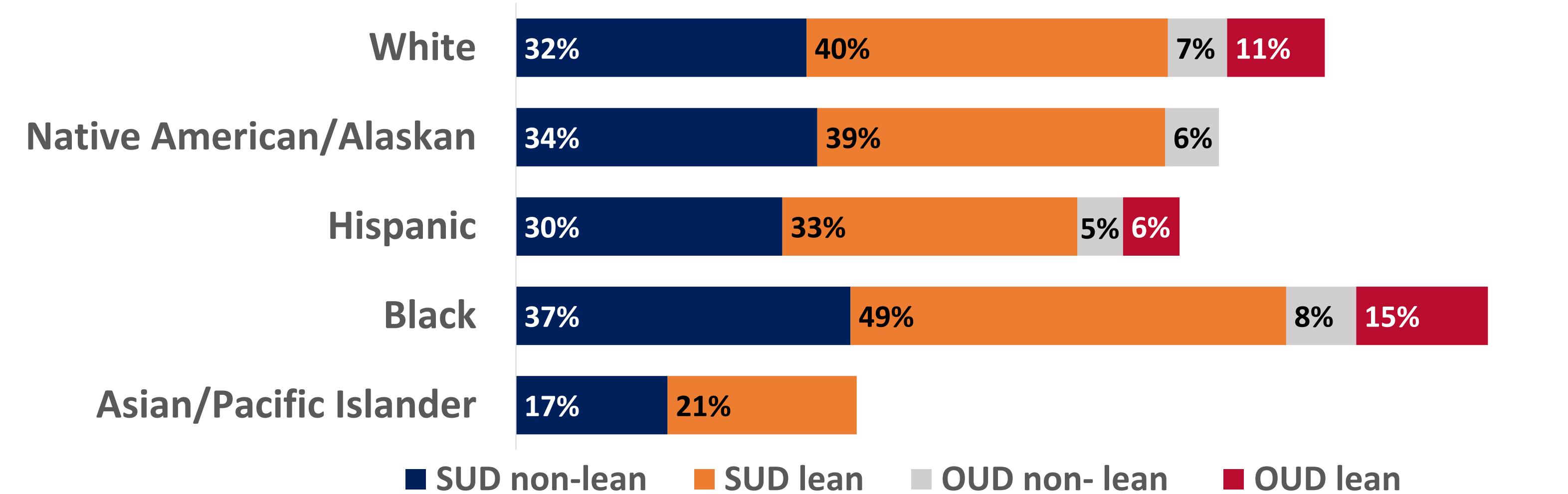
Figure 2: Mortality among persons with MASLD by SUD/OUD

Legend: SUD, No SUD, OUD, No OUD

	SUD	No SUD	OUD	No OUD
Asian/Pacific Islander	4%	1%		2%
Black	4%	3%	6%	4%
Hispanic	3%	2%	5%	2%
Native American/Alaskan	5%	3%	8%	3%
White	4%	2%	6%	3%
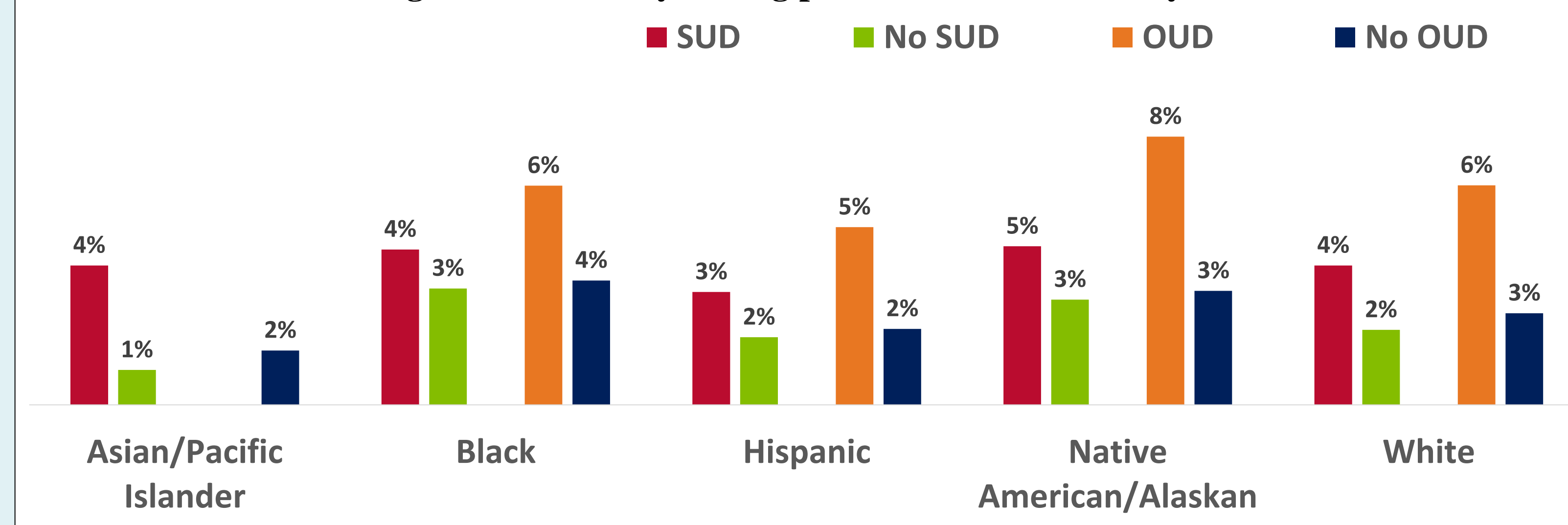
Table 1: Logistic regression analysis for the prevalence of SUD/ OUD among persons with MASLD

Variables	SUD		OUD	
	aOR (95% CI)[a]	P-Value	aOR (95% CI)	P-Value
Lean	Referent		Referent	
Non-Lean	0.68 (0.62-0.76)	**<0.01**	0.70 (0.60-0.82)	**<0.01**
Race				
Non-Hispanic White	Referent		Referent	
Asian / Pacific Islander	0.45 (0.34-0.58)	**<0.01**	0.16 (0.64-0.92)	**<0.01**
Black	0.88 (0.78-0.99)	0.03	0.91 (0.74-1.12)	0.37
Hispanic	0.77 (0.73-0.81)	**<0.01**	0.78 (0.71-0.86)	**<0.01**
Native American/Alaskan	0.93 (0.77-1.11)	0.40	1.14 (0.83-1.57)	0.40

Abbreviations: CI, confidence interval; OR, odds ratio. ; [a]OR adjusted for age, sex, race, smoking status, hypertension, dyslipidemia, DM, SDI, and any mental disorder

Table 2: Logistic regression analysis for mortality among persons with MASLD

Variables	Death		Variables	Death	
	aOR (95% CI)[a]	P-Value		aOR (95% CI)[a]	P-Value
SUD	1.41 (1.24-1.60)	**<0.01**	**OUD**	1.72 (1.44-2.04)	**<0.01**
Lean	Referent		**Lean**	Referent	
Non-Lean	0.64 (0.53-0.78)	**<0.01**	Non-Lean	0.63 (0.52-0.77)	**<0.01**
Race			**Race**		
Non-Hispanic White	Referent		**Non-Hispanic White**	Referent	
Asian / Pacific Islander	0.68 (0.33-1.40)	0.30	Asian / Pacific Islander	0.68 (0.33-1.40)	0.30
Black	1.21 (0.91-1.61)	**0.03**	Black	1.20 (0.91-1.60)	0.20
Hispanic	1.01 (0.87-1.18)	0.87	Hispanic	1.00 (0.86-1.16)	0.87
Native American/Alaskan	1.80 (1.16-2.78)	0.40	Native American/Alaskan	1.78 (1.15-2.75)	**<0.01**

Abbreviations: CI, confidence interval; OR, odds ratio. ; [a]OR adjusted for age, sex, race, smoking status, hypertension, dyslipidemia, DM, SDI, and any mental disorder

Conclusions :

Addressing racial and ethnic disparities in SUD/OUD prevalence calls for culturally sensitive approaches and addressing underlying social inequities. Further research is warranted to explore these results and to improve health outcomes and reduce mortality in these complex patient population.

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