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Background & Objectives

- Social problems including loneliness and social isolation increase risk of mortality¹
- Social problems are very common among individuals with an OUD with one study finding nearly three-fourths of women and two-thirds of men reporting loneliness among individuals receiving methadone maintenance treatment²
- Social isolation is both a motivator for heroin use and a risk factor for suicidal behavior among individuals addicted to heroin^{3,4}
- Stronger social support is predictive of improved treatment retention⁵
- The current study seeks to expand the current literature by:
 - Assessing the extent to which difficulties with participating in social activities are associated with OUD in a nationally representative sample
 - Assessing suicidal thoughts and behaviors as a potential consequence of these difficulties participating in social activities among those with an OUD

Methods

Data sources and Study population

- All respondents of the 2008-2017 National Survey of Drug Use & Health
- 81 excluded from analyses due to missing OUD data (n= 5) and overall health rating data (n = 76)
- N = 398,886

Variables

- Demographics – gender, age, race/ethnicity education
- Overall health rating – excellent, very good, good, fair/poor
- Diagnoses – Past-year opioid use disorder (abuse/dependence); past-year alcohol use disorder (abuse/dependence), past-year major depressive episode
- Suicide-related – past-year suicide ideation and attempts
- Socially-relevant factors
 - Marital status – Married, widowed, divorced/separated, never married
 - Cohabitation status – Alone, 2 people, 3+ people
 - Difficulty with social activity – mild, moderate, severe, no social activities
 - Difficulty leaving the house – yes/no

Data analyses

- Binomial logistic regressions assessed social factors as independent variables of interest and opioid use disorder status (yes-no) as the dependent variable; adjusted for variables noted above
- Second set of analyses was conducted on only those respondents with an OUD. Binomial logistic regressions were conducted assessing social factors as independent variables of interest with suicide ideation and suicide attempts as dependent variables
- All analyses accounted for clustered sampling

Respondent characteristics by OUD status

Characteristics	Overall N = 398,886	No OUD n = 393,867	OUD n = 5,092	Unadjusted OR (95% CI)	Adjusted OR (95% CI)
Gender					
Male	48.2% (0.1%)	48.1% (0.1%)	60.3% (1.1%)	1.64 (1.50-1.79)	1.66 (1.52-1.82)
Female	51.8% (0.1%)	51.9% (0.1%)	39.7% (1.1%)	Reference	Reference
Age					
18-25	14.5% (0.1%)	14.4% (0.1%)	29.0% (0.9%)	15.34 (9.90-23.76)	7.11 (4.45-11.36)
26-34	15.8% (0.1%)	15.7% (0.1%)	28.7% (1.1%)	13.92 (9.03-21.46)	9.74 (6.14-15.48)
35-49	26.1% (0.1%)	26.1% (0.1%)	24.5% (1.0%)	7.13 (4.59-11.09)	5.81 (3.66-9.22)
50-64	25.3% (0.1%)	25.4% (0.2%)	15.4% (1.1%)	4.62 (2.93-11.09)	4.00 (2.49-6.41)
65+	18.2% (0.1%)	18.3% (0.1%)	2.4% (0.5%)	Reference	Reference
Race/Ethnicity					
White	66.2% (0.2%)	66.1% (0.2%)	73.6% (1.0%)	Reference	Reference
Black	11.7% (0.1%)	11.7% (0.1%)	9.7% (0.7%)	0.75 (0.64-0.87)	0.58 (0.50-0.69)
Hispanic	14.9% (0.1%)	14.9% (0.1%)	11.9% (0.8%)	0.72 (0.62-0.84)	0.49 (0.42-0.57)
Education					
Less than HS	14.0% (0.1%)	13.9% (0.1%)	22.9% (1.0%)	4.22 (3.65-4.87)	3.48 (2.98-4.07)
HS graduate	28.5% (0.1%)	28.5% (0.1%)	34.1% (1.0%)	3.07 (2.68-3.52)	2.54 (2.20-2.94)
Some college	27.6% (0.1%)	27.6% (0.1%)	31.4% (1.1%)	2.92 (2.51-3.39)	2.13 (1.82-2.49)
College graduate	29.9% (0.2%)	30.0% (0.2%)	11.7% (0.6%)	Reference	Reference
Health rating					
Excellent	22.2% (0.1%)	22.3% (0.1%)	9.1% (0.7%)	Reference	Reference
Very good	36.1% (0.1%)	36.1% (0.1%)	30.5% (0.9%)	2.06 (1.74-2.45)	1.72 (1.46-2.03)
Good	28.1% (0.1%)	28.0% (0.1%)	35.9% (1.1%)	3.13 (2.66-3.68)	2.42 (2.07-2.84)
Fair/poor	13.6% (0.1%)	13.5% (0.1%)	24.5% (1.0%)	4.42 (3.68-5.32)	3.15 (2.59-3.84)
Depressive episode	6.8% (0.1%)	6.6% (0.1%)	27.8% (1.0%)	5.33 (4.93-6.01)	1.71 (1.51-1.93)
AUD	6.8% (0.1%)	6.6% (0.1%)	34.0% (0.9%)	7.27 (6.71-7.87)	3.51 (3.20-3.84)

Social factors by OUD status

Characteristics	Overall N = 398,962	No OUD n = 393,867	OUD n = 5,095	Unadjusted OR (95% CI)	Adjusted OR (95% CI)
Marital status					
Married	52.8% (0.2%)	53.0% (0.2%)	25.0% (1.1%)	Reference	Reference
Widowed	6.0% (0.1%)	6.0% (0.1%)	2.8% (0.5%)	0.99 (0.68-1.43)	1.98 (1.35-2.90)
Divorced/separated	13.9% (0.1%)	13.9% (0.1%)	16.7% (0.9%)	2.56 (2.18-2.99)	1.69 (1.43-2.00)
Never married	27.4% (0.1%)	27.1% (0.1%)	55.5% (1.1%)	4.34 (3.86-4.88)	2.11 (1.83-2.44)
Cohabitation status					
Alone	12.5% (0.1%)	12.5% (0.1%)	9.8% (0.8%)	0.67 (0.56-0.79)	0.70 (0.58-0.85)
2 people	32.9% (0.2%)	33.0% (0.2%)	25.8% (1.1%)	0.66 (0.59-0.74)	0.92 (0.82-1.03)
3+	54.6% (0.2%)	54.5% (0.2%)	64.4% (1.2%)	Reference	Reference
Difficulty leaving house					
Difficulty leaving house	0.7% (0.0%)	0.7% (0.0%)	3.8% (0.5%)	5.55 (4.17-7.37)	0.74 (0.53-1.03)
Difficulty with social activities					
No difficulty	70.6% (0.1%)	70.9% (0.1%)	34.7% (1.1%)	Reference	Reference
Mild difficulty	15.2% (0.1%)	15.2% (0.1%)	21.3% (0.8%)	2.87 (2.58-3.20)	2.23 (1.98-2.50)
Moderate difficulty	7.6% (0.1%)	7.5% (0.1%)	20.4% (1.0%)	5.56 (4.85-6.39)	3.23 (2.80-3.74)
Severe difficulty	3.4% (0.0%)	3.3% (0.0%)	15.9% (0.9%)	9.74 (8.43-11.24)	4.10 (3.40-4.93)
No social activities	3.1% (0.7%)	3.1% (0.0%)	7.8% (0.7%)	5.20 (4.27-6.34)	2.90 (2.31-3.62)

Suicide variables and social activities

- Past year suicide ideation prevalence among OUD – 22.6% vs. No OUD – 3.8%
- Past year suicide attempt prevalence among OUD – 5.1% vs. No OUD – 0.5%

Data below on only those with an OUD

Social difficulties	Suicide ideation		Suicide attempt	
	No (n = 3,871)	Yes (n = 1,221)	No (n = 4,688)	Yes (n = 342)
No difficulty	39.1% (1.2%)	19.5% (1.5%)	34.4% (1.1%)	30.4% (3.4%)
Mild difficulty	23.1% (1.0%)	15.1% (1.3%)	22.0% (0.8%)	11.8% (3.0%)
Moderate difficulty	19.3% (12%)	24.2% (1.8%)	20.5% (1.1%)	21.3% (3.1%)
Severe difficulty	12.4% (0.9%)	27.8% (2.0%)	15.5% (0.9%)	25.0% (3.1%)
No social activities	6.1% (0.7%)	13.4% (1.5%)	7.6% (0.7%)	11.5% (2.9%)

Social difficulties	Suicide ideation		Suicide attempt	
	Unadjusted OR (95% CI)	Adjusted OR (95% CI)	Unadjusted OR (95% CI)	Adjusted OR (95% CI)
Mild difficulty	1.31 (0.99-1.74)	1.10 (0.81-1.49)	0.62 (0.34-1.15)	0.49 (0.23-0.95)
Moderate difficulty	2.53 (1.92-3.31)	1.61 (1.14-2.29)	1.20 (0.78-1.85)	0.72 (0.42-1.21)
Severe difficulty	4.49 (3.39-5.96)	2.45 (1.77-3.38)	1.87 (1.22-2.86)	0.88 (0.52-1.49)
No social activities	4.42 (3.09-6.32)	1.85 (1.20-2.85)	1.75 (0.92-3.32)	0.64 (0.29-1.37)

Discussion

- These data suggest that those with an OUD commonly experience severe difficulty in participating in social activities and are less likely to be married after accounting for key covariates
- Suicide ideation and suicide attempts are much more common among individuals with an OUD compared to those without
- The proportion of people with OUD who have attempted suicide is generally higher across levels of difficulties with participating in social activities, while those with more severe difficulties were more likely to report suicide ideation
- Addressing social factors in individuals with an OUD can reduce risk factors for relapse and have a significant positive impact on how a person develops, maintains, and utilizes social support
- Increasing social activities may be important to addressing OUD and in reducing suicide ideation among individuals with an OUD
- Limitations – cross-sectional data, limited social engagement variables
- Future studies should focus on longitudinal and causal associations of social activities, OUD, and suicidality to inform OUD prevention, treatment, and suicide risk mitigation strategies

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