Trauma and Suicide Risk in Opioid Use Disorder

MAX SPADERNA, MD

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Objectives

1) Understand how PTSD increases suicide risk and is overrepresented in opioid use disorder
2) Understand how suicide risk is elevated in individuals with opioid use disorder
3) Understand that history of childhood trauma and suicide attempts differentiates individuals with a history of intentional opioid overdose from those with a history of either unintentional or no opioid overdose

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Case

- 42 yo female
- Panic attacks: 4 x/week
- Generalized Anxiety: “9 out of 10”
- Mood: ”All over the place”
- Ruminations/anxiety → insomnia
- No SI/HI or AH/VH
- Suboxone 12 mg bid for OUD

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Case Continued

- Recurrent childhood sexual trauma by neighbor
- H/o sexual assault by Lyft driver at age 34
- Witnessed shooting/murder of 16-year-old boy
- Nightmares, hypervigilance, avoidance from trauma
- 2 suicide attempts: overdose on Seroquel, tried to jump out window

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DSM-5 PTSD Criteria

Trauma exposure	
Trauma	Actual or threatened violent death, serious injury or accident, or sexual violence
A. Exposure	Via any of the following: 1. Directly exposed to trauma 2. Eyewitness (in person) to others directly exposed to trauma 3. Learning of direct exposure to trauma of a close family member or close friend 4. Repeated or extreme exposure to aversive details of traumatic event (eg, trauma workers viewing human remains or repeatedly exposed to details of child abuse), in person or via work-related electronic media
Symptom groups B to E (symptoms beginning or worsening after the traumatic event)	
B. Intrusion	*≥1 intrusion symptoms:* 1. Recurrent, involuntary, distressing trauma memories 2. Recurrent, distressing trauma-related dreams 3. Dissociative reactions/flashbacks related to trauma 4. Intense or prolonged psychological distress to trauma reminders 5. Marked physiological reactions to trauma reminders
C. Avoidance	*≥1 avoidance symptoms:* 1. Avoidance/efforts to avoid distressing internal trauma reminders (memories, thoughts, feelings) 2. Avoidance or efforts to avoid distressing external trauma reminders (people, places, activities)
D. Negative cognition and mood	*≥2 negative cognition/mood symptoms:* 1. Amnesia for important parts of trauma exposure 2. Persistent, exaggerated negative beliefs about self, others, or the world 3. Persistent, distorted trauma-related cognitions leading to inappropriate blame of self/others 4. Persistent negative emotional state (eg, fear, horror, anger, guilt, shame) 5. Loss of interest or participation in significant activities 6. Detached/estranged feelings from others 7. Persistent loss of positive emotions (eg, happiness, satisfaction, love)
E. Hyperarousal	*≥2 marked alterations in trauma-related arousal and reactivity:* 1. Irritability and angry outbursts with little/no provocation (eg, verbal/physical aggression toward people/objects) 2. Reckless or self-destructive behavior 3. Hypervigilance 4. Exaggerated startle 5. Concentration problems 6. Sleep disturbance (eg, difficulty falling or staying asleep, restless sleep)
Additional criteria	
F. Duration	>1 month
G. Distress/ impairment	Clinically significant distress; social/occupational/other important functioning impairment
H. Not attributable to another	Independent of physiological effects of a substance (eg, medication, alcohol) or another medical condition

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What is Suicide Risk?

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Psychiatric Illness in OUD

Table 1
Pooled prevalence estimates of current disorders among people with opioid use disorder versus the general population.

Strata	People with OUD			General population		
	No. studies (Total N)	Prevalence Estimate (95% CI)	I^2	No. studies or data sources (Total N)	Prevalence Estimate (95% CI)	I^2
Depression (current)	161 (52828)	36.1% (32.4–39.7)	99.1	492 (-)	2.3% (2.0–2.6)[a]	–
Dysthymia (current)	28 (6377)	6.7% (5.5 – 7.9)	72.9	104 (-)	1.2% (1.0–1.5)[a]	–
Anxiety (current)	114 (32928)	29.1% (24.0 –33.3)	99.3	199 (-)	3.8% (3.2–4.5)[a]	–
PTSD (current)	51 (9803)	18.1% (15.4–20.9)	96.9	36 (-)	1.2% (0.1–3.4)[b]	–
Panic Disorder (current)	39 (8312)	7.4% (5.9– 8.9)	93.0	27 (142714)	1.0% (0.5–1.5)[b]	–
Obsessive Compulsive Disorder (OCD; current)	33 (6878)	6.6% (5.2 – 8.0)	94.2	10 (75046)	1.1% (0.6–2.0)[c]	–
Bipolar disorder (current)	34 (12307)	8.7% (6.7–10.7)	97.0	113 (-)	0.7% (0.6–0.8)[a]	–
Anti-social personality disorder (lifetime)	62 (16305)	33.6% (29.1 –38.0)	98.1	7 (94105)	3.1% (2.1–4.2)[d,e]	98.3
Borderline personality disorder (lifetime)	36 (10418)	18.2% (13.4–23.1)	98.4	9 (67688)	1.9% (0.9–3.3)[d,e]	99.1
Psychotic Disorders (current)	28 (11432)	6.6% (4.7 –8.6)	96.9	30 (-)	0.4% (0.3–0.5)[f]	99.8
Schizophrenia (current)	23 (6518)	1.9% (1.2– 2.5)	80.0	142 (-)	0.3% (0.2–0.3)[a]	–
Attention Deficit/Hyperactivity Disorder (ADHD; current)	25 (4889)	20.9% (15.7 – 26.2)	96.7	172 (-)	1.1% (0.8–1.5)[a]	–

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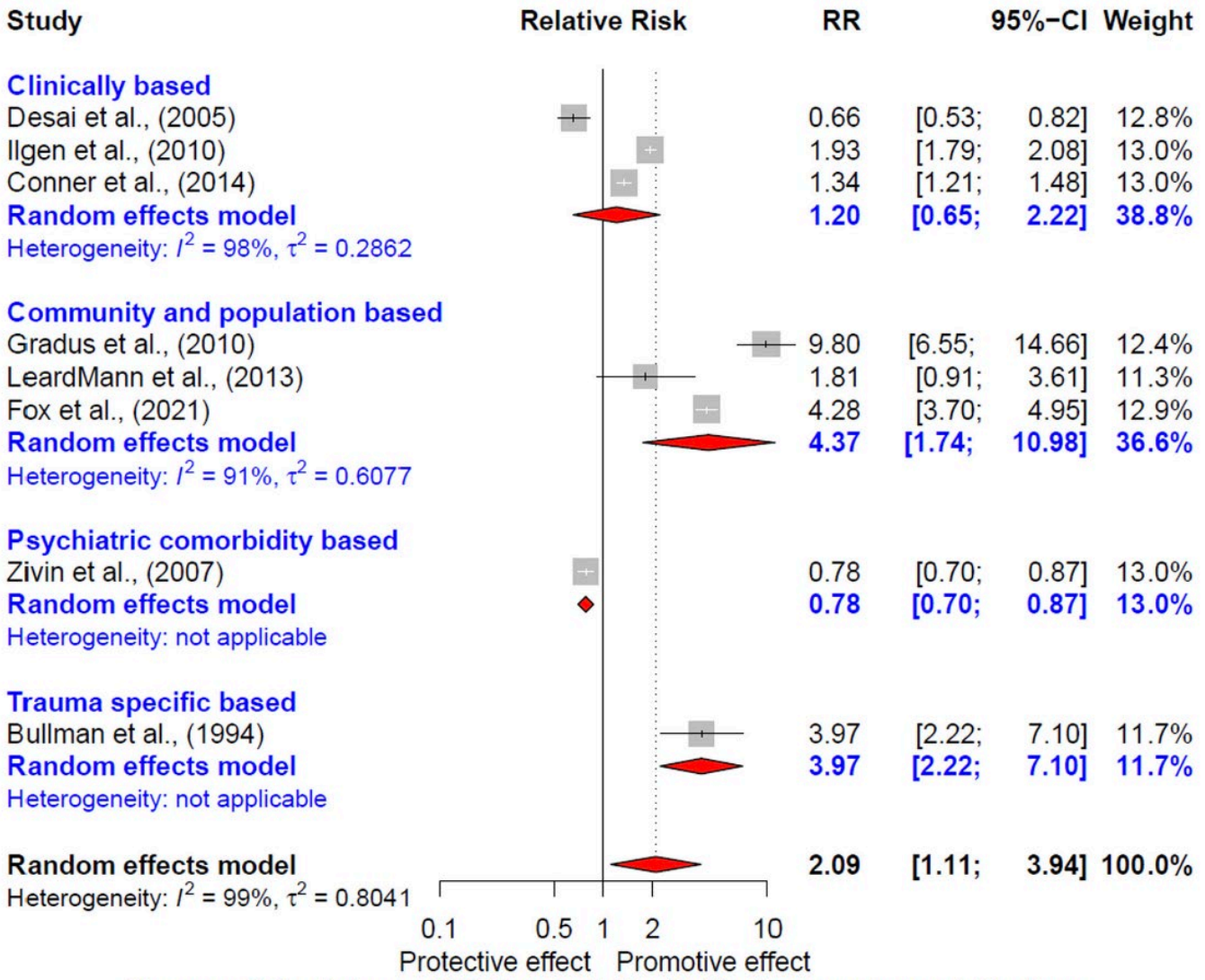
Suicide and PTSD



The association between PTSD and suicide stratified by sample population type

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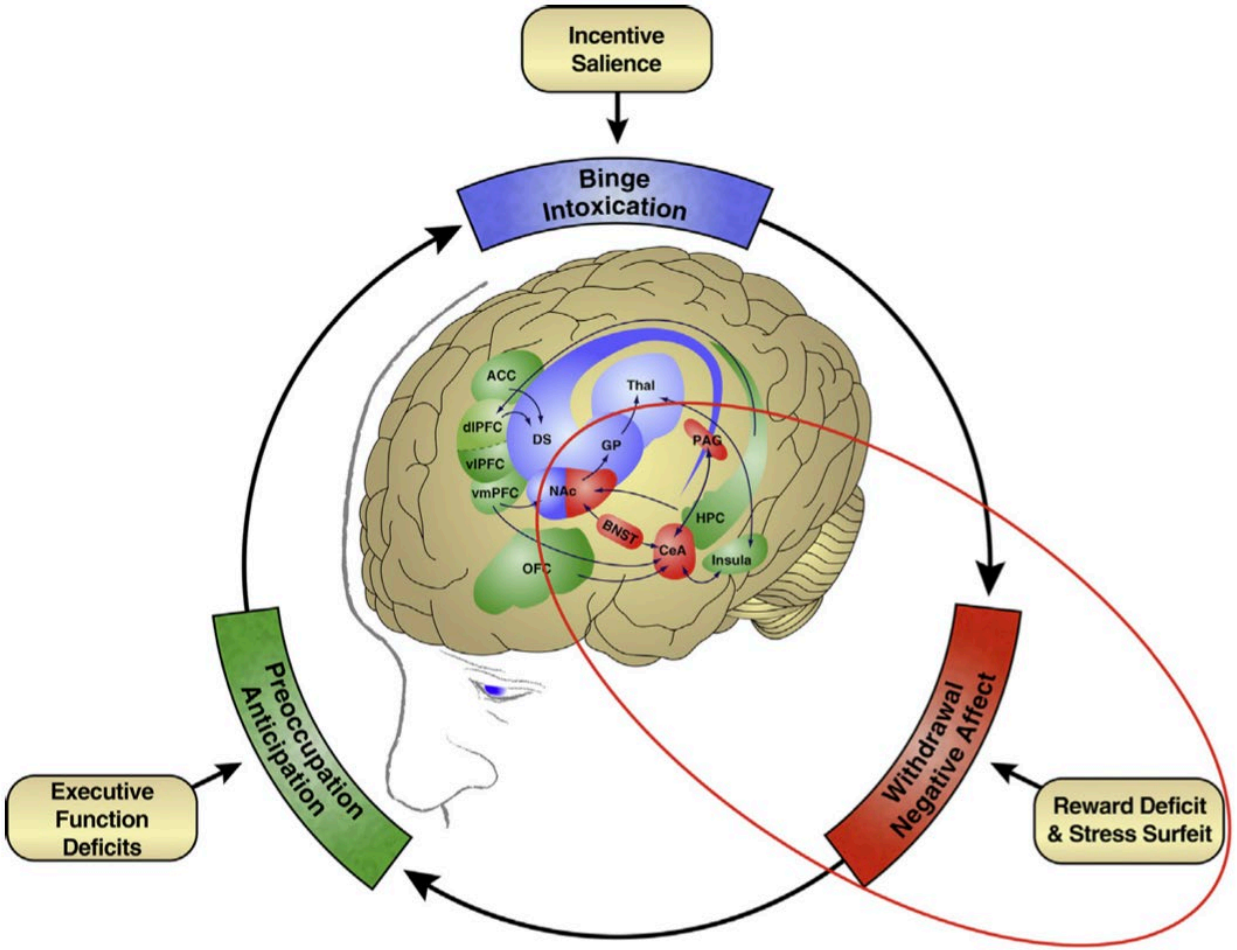
Neurobiology of Opioids



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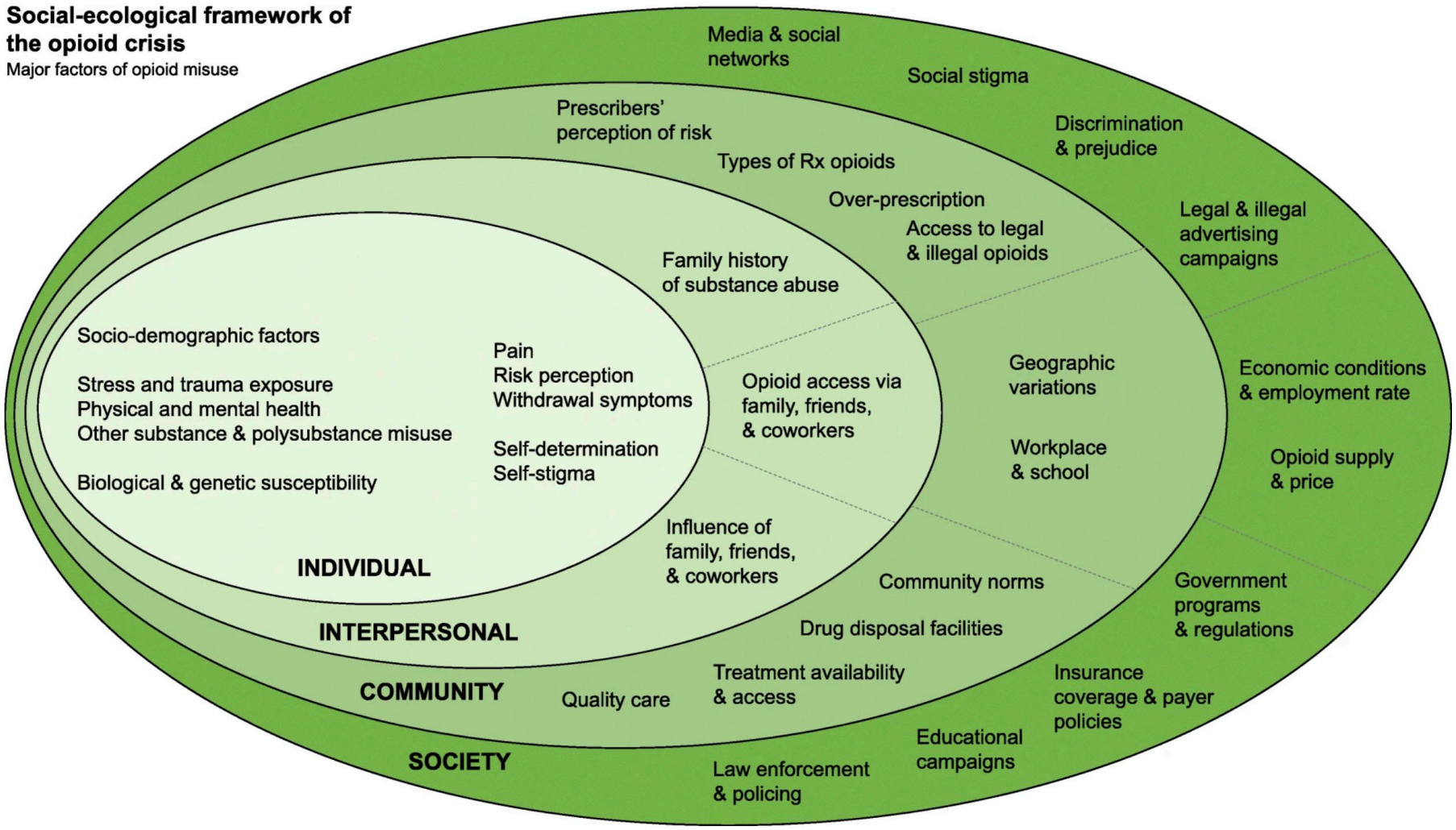
Social Burden



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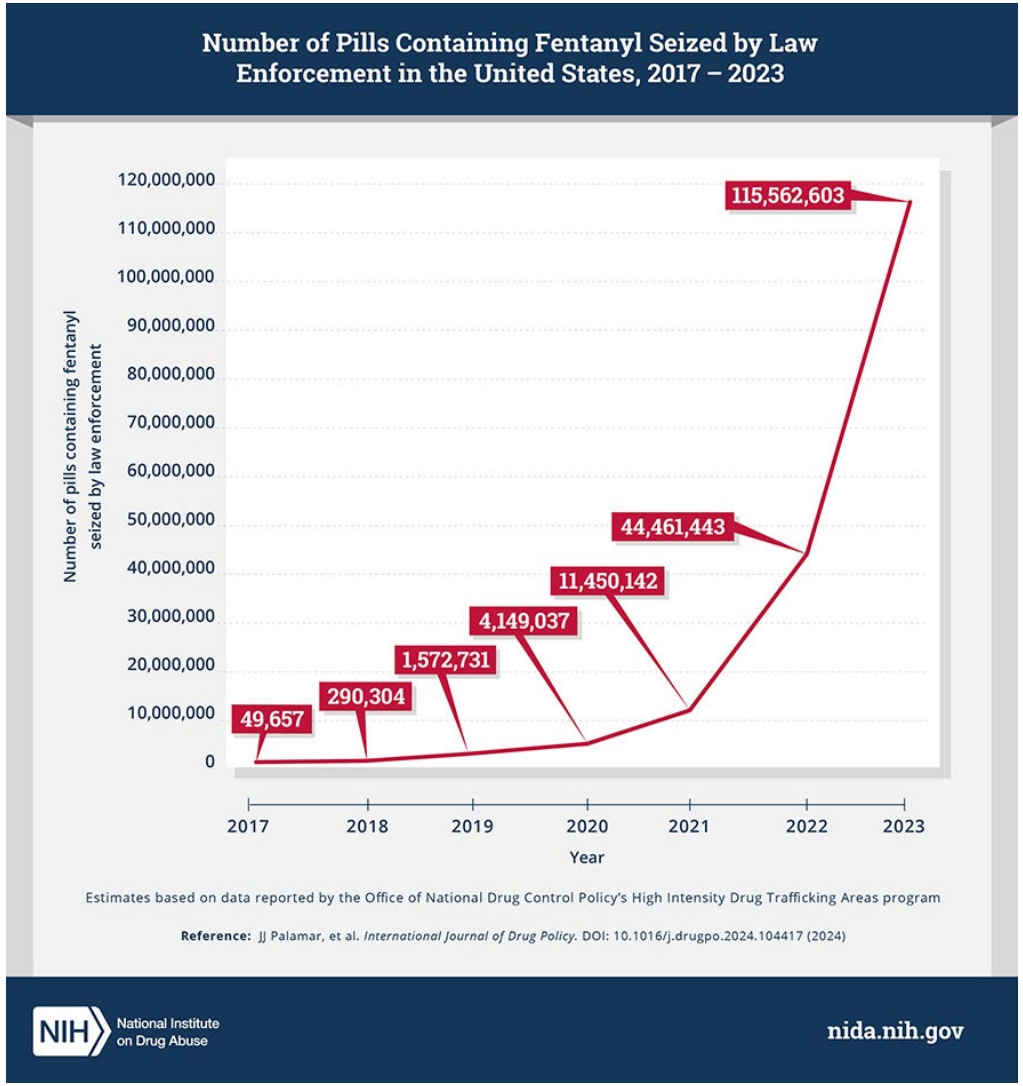
Fentanyl Supply



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Suicide and Access to Lethal Means

Suicide rates within occupations with and without access to lethal means, by gender, 2001 to 2012

	ASR	Lower CI	Upper CI
Males, no access	11.6	11.3	11.9
Males, access	15.7	14.9	16.4
Females, no access	3	2.6	3.4
Females, access	7.6	6.4	8.9

Notes: ASR age-standardised suicide rates expressed as per 100,000 person years. *Lower CI* 95% CI Interval at the lower bound; *Upper CI* 95% CI Interval at the upper bound

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Max Spaderna et al. (2025)

Elevated Rate of Suicide Risk in Individuals with Opioid Use Disorder

American Journal on Addictions

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AIMS

1) What is the rate of suicide risk in OUD over a 1-year period?

2) Does detection of suicide risk differ by screening tool?

3) Which characteristics are associated with suicide risk in OUD?

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LOOP: Long-Term Outcomes of Opioid-Using Persons

2-year prospective, natural-history cohort followed every 6 months

Community sample of OUD (N=200)

Urban syringe-service/buprenorphine-treatment program; urban opioid-treatment program; rural, mobile buprenorphine-treatment program

At least 18 years old, met criteria for OUD within past 3 years

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Detection of Suicide Risk

- Item-9 of PHQ-9
- Suicide domain of CCSM
- ASQ

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PATIENT HEALTH QUESTIONNAIRE (PHQ-9)

NAME:_____ DATE:_____

Over the last *2 weeks*, how often have you been bothered by any of the following problems?
(use "✓" to indicate your answer)

	Not at all	Several days	More than half the days	Nearly every day
1. Little interest or pleasure in doing things	0	1	2	3
2. Feeling down, depressed, or hopeless	0	1	2	3
3. Trouble falling or staying asleep, or sleeping too much	0	1	2	3
4. Feeling tired or having little energy	0	1	2	3
5. Poor appetite or overeating	0	1	2	3
6. Feeling bad about yourself—or that you are a failure or have let yourself or your family down	0	1	2	3
7. Trouble concentrating on things, such as reading the newspaper or watching television	0	1	2	3
8. Moving or speaking so slowly that other people could have noticed. Or the opposite — being so figety or restless that you have been moving around a lot more than usual	0	1	2	3
9. Thoughts that you would be better off dead, or of hurting yourself	0	1	2	3
add columns		+	+	
(Healthcare professional: For interpretation of TOTAL, please refer to accompanying scoring card). TOTAL:				

10. If you checked off *any problems*, how *difficult* have these problems made it for you to do your work, take care of things at home, or get along with other people?	Not difficult at all _____ Somewhat difficult _____ Very difficult _____ Extremely difficult _____

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Item #9 of PHQ-9

“Over the past two weeks, how often have you been bothered by thoughts that you would be better off dead, or thoughts of hurting yourself in some way?”

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	During the past **TWO (2) WEEKS**, how much (or how often) have you been bothered by the following problems?	**None** Not at all	**Slight** Rare, less than a day or two	**Mild** Several days	**Moderate** More than half the days	**Severe** Nearly every day	**Highest Domain Score** (clinician)
I.	1. Little interest or pleasure in doing things?	0	1	2	3	4	
	2. Feeling down, depressed, or hopeless?	0	1	2	3	4	
II.	3. Feeling more irritated, grouchy, or angry than usual?	0	1	2	3	4	
III.	4. Sleeping less than usual, but still have a lot of energy?	0	1	2	3	4	
	5. Starting lots more projects than usual or doing more risky things than usual?	0	1	2	3	4	
IV.	6. Feeling nervous, anxious, frightened, worried, or on edge?	0	1	2	3	4	
	7. Feeling panic or being frightened?	0	1	2	3	4	
	8. Avoiding situations that make you anxious?	0	1	2	3	4	
V.	9. Unexplained aches and pains (e.g., head, back, joints, abdomen, legs)?	0	1	2	3	4	
	10. Feeling that your illnesses are not being taken seriously enough?	0	1	2	3	4	
VI.	11. Thoughts of actually hurting yourself?	0	1	2	3	4	
VII.	12. Hearing things other people couldn't hear, such as voices even when no one was around?	0	1	2	3	4	
	13. Feeling that someone could hear your thoughts, or that you could hear what another person was thinking?	0	1	2	3	4	
VIII.	14. Problems with sleep that affected your sleep quality over all?	0	1	2	3	4	
IX.	15. Problems with memory (e.g., learning new information) or with location (e.g., finding your way home)?	0	1	2	3	4	
X.	16. Unpleasant thoughts, urges, or images that repeatedly enter your mind?	0	1	2	3	4	
	17. Feeling driven to perform certain behaviors or mental acts over and over again?	0	1	2	3	4	
XI.	18. Feeling detached or distant from yourself, your body, your physical surroundings, or your memories?	0	1	2	3	4	
XII.	19. Not knowing who you really are or what you want out of life?	0	1	2	3	4	
	20. Not feeling close to other people or enjoying your relationships with them?	0	1	2	3	4	
XIII.	21. Drinking at least 4 drinks of any kind of alcohol in a single day?	0	1	2	3	4	
	22. Smoking any cigarettes, a cigar, or pipe, or using snuff or chewing tobacco?	0	1	2	3	4	
	23. Using any of the following medicines ON YOUR OWN, that is, without a doctor's prescription, in greater amounts or longer than prescribed [e.g., painkillers (like Vicodin), stimulants (like Ritalin or Adderall), sedatives or tranquilizers (like sleeping pills or Valium), or drugs like marijuana, cocaine or crack, club drugs (like ecstasy), hallucinogens (like LSD), heroin, inhalants or solvents (like glue), or methamphetamine (like speed)]?	0	1	2	3	4	

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Cross-Cutting Measure Item (CCSM) #12

“During the past 2 weeks, how much have you been bothered by thoughts of actually hurting yourself?”

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NIMH TOOLKIT

asQ Suicide Risk Screening Tool

Ask Suicide-Screening Questions

Ask the patient:

1. **In the past few weeks, have you wished you were dead?** ❍ Yes ❍ No

2. **In the past few weeks, have you felt that you or your family would be better off if you were dead?** ❍ Yes ❍ No

3. **In the past week, have you been having thoughts about killing yourself?** ❍ Yes ❍ No

4. **Have you ever tried to kill yourself?** ❍ Yes ❍ No

   If yes, how? _____

   _____

   _____

   When? _____

   _____

If the patient answers **Yes** *to any of the above, ask the following acuity question:*

5. **Are you having thoughts of killing yourself right now?** ❍ Yes ❍ No

   If yes, please describe: _____

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Demographics

Characteristic	No (%)
Total (N)	121
Age, Median (IQR)	57 (11.5)
Male Gender	64.5
Black Race	81
High School or More	65.3
Unstable Housing	44.6
No Income	14.9
Physically Abused by Someone	15.7
Sexual and/or Physical Abuse Before Age 17	38

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Substance Use

Characteristic	No (%) at Day 0	No (%) at Month 6	No (%) at Month 12
Mean OUD Score (Std v)	4.4 (3.7)	3.1 (3.6)*	3 (3.5)*
Opioid Use >= Daily	17.4	18.2	17.4
Prescribed MOUD	90.1	86.8	92.6
UDS + for opioids	63.6	62	62.8
UDS + for cocaine	47.1	46.3	53.7
UDS + for Other Drugs	16.5	13.2	14.9
Hazardous EtOH Use	31.4	24	19*
H/o Intentional OD	8.3	N/A	N/A

*=P Value for Change from Day 0 is <0.05

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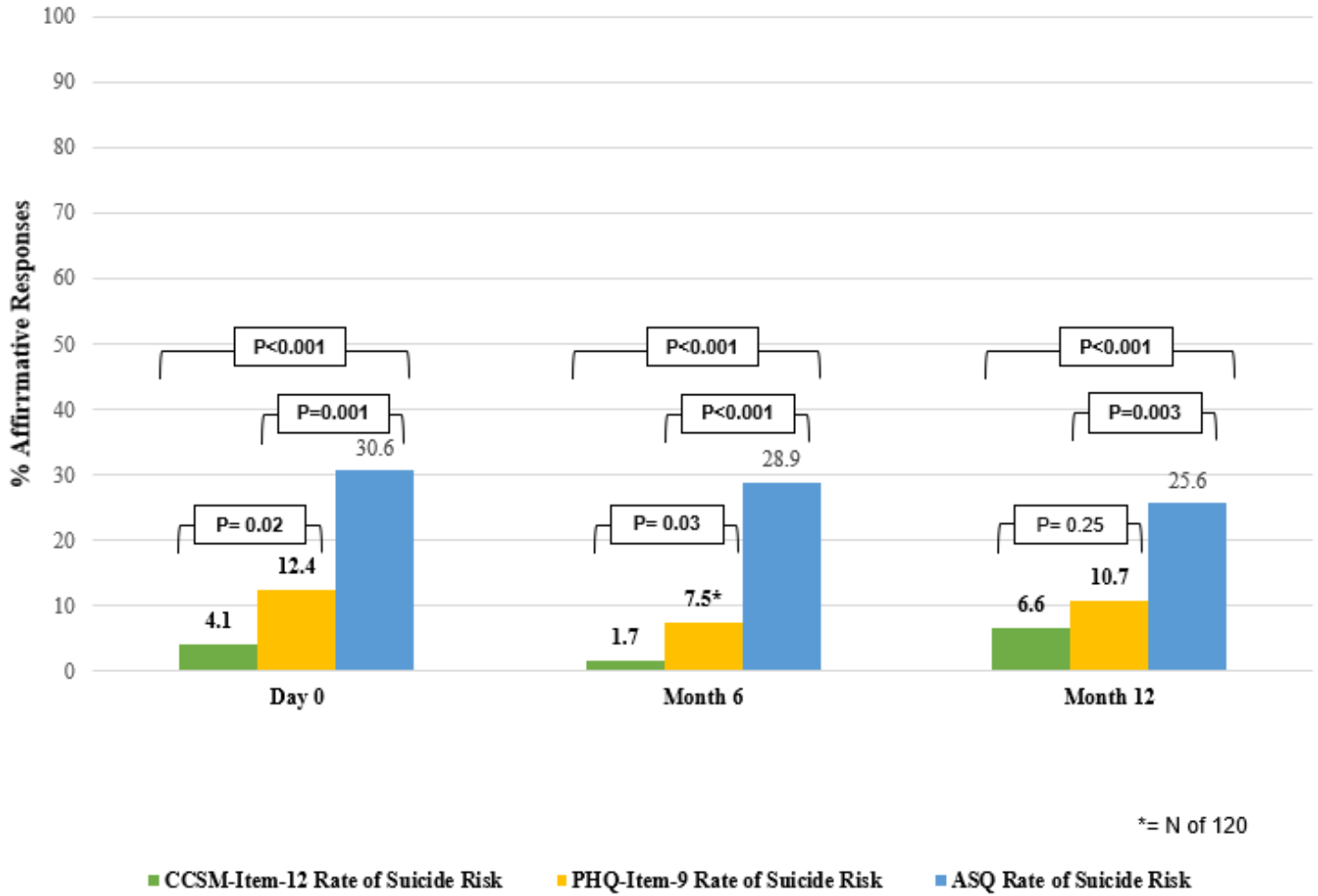
Rates of Suicide Risk



Statistical significance is defined by p<0.05

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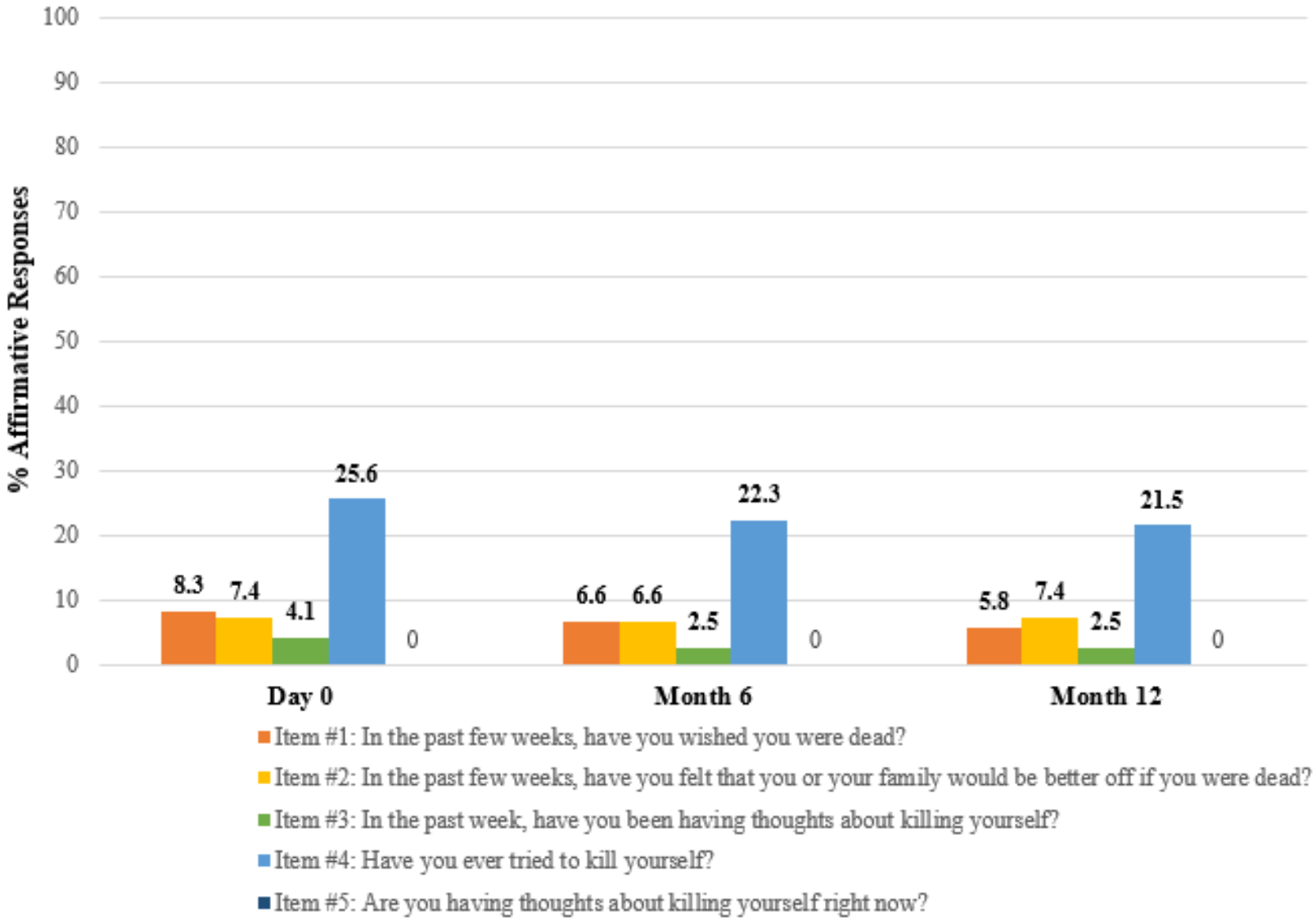
ASQ Responses



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Variables Associated with Suicide Risk

Significant Variables Collected Only at Day 0			
PHQ-Item-9			**Odds Ratio (P Value)**
Intentional Overdose History			66.52; CI: 21.28, 207.94 **(<0.001)**
CCSM-Item-12			**Odds Ratio (P Value)**
None			N/A
ASQ			**Odds Ratio (P Value)**
Intentional Overdose History			6.23; CI: 2.30, 16.84 **(<0.001)**
Female Gender			90.45; CI: 4.60, 1779.53 **(0.003)**
Significant Time-Dependent Variables			
PHQ-Item-9	**Current Timepoint Odds Ratio (P Value)**	**1-Timepoint-Lag Odds Ratio (P Value)**	**2-Timepoint-Lag Odds Ratio (P Value)**
Poor Sleeper by PSQI	18.81; CI: 4.67, 75.69 **(<0.001)**	0.02; CI: 0.01, 0.07 **(<0.001)**	3.59; CI: 2.00, 6.43 **(<0.001)**
Meets Criteria for Psychosis by CCSM	23.12; CI: 10.82, 49.37 **(<0.001)**	5.02; CI: 2.15, 11.74 **(<0.001)**	NS
Meets Criteria for Mania by CCSM	2.37; CI: 1.30, 4.31 **(0.005)**	NS	14.78; CI: 3.03, 72.18 **(<0.001)**
Frequency of Opioid Use in Past Month	NS	1.30; CI: 1.04, 1,63 (0.022)	NS
CCSM-Item-12	**Current Time-Point (P Value)**	**1-Timepoint-Lag Odds Ratio (P Value)**	**2-Timepoint-Lag Odds Ratio (P Value)**
None	N/A	N/A	N/A
ASQ	**Current Time-Point (P Value)**	**1-Timepoint-Lag Odds Ratio (P Value)**	**2-Timepoint-Lag Odds Ratio (P Value)**
Meets Criteria for Psychosis by CCSM	5.11; CI: 1.92, 13.57 **(0.001)**	NS	NS
Total PHQ-9 Score	1.05; CI: 1.00, 1.10 **(0.032)**	NS	NS

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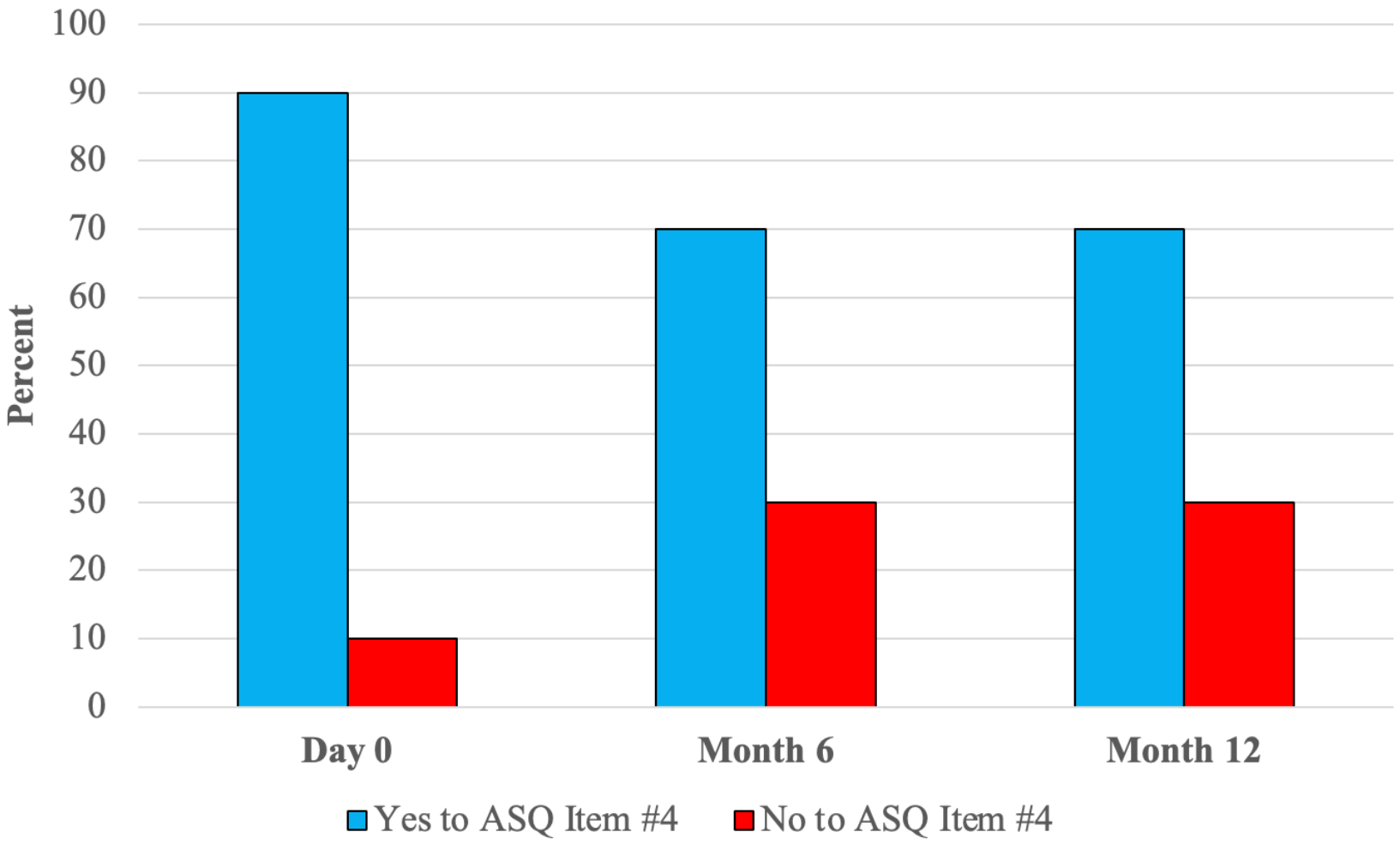

Intentional Opioid OD (N=10) and ASQ Item #4

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Suicide Risk in OUD

- Elevated/unchanged over 1 year
- Detection varies by screening tool
- Associated with psychiatric illness
- Associated with intentional OD

Max Spaderna et al. (2026)

Elevated Rate of Intentional Overdose in Individuals with Opioid Use Disorder

Journal of Addiction Medicine: Under Review

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AIMS

1) What is the proportion of intentional opioid OD in OUD?

2) Compare those with and without a h/o intentional opioid OD on demographic, substance use, psychiatric, and overdose outcomes over 2 years

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Participants

LOOP cohort (N=193)

Intentional OD, unintentional OD, no OD at start of/during LOOP

Assessed Day 0 and Months 6,12, 18, 24

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Intentional Opioid Overdose

"Have you ever intentionally overdosed on heroin or opioids as a way to kill yourself?"

OR

ASQ: Ever attempted suicide by overdosing on opioids

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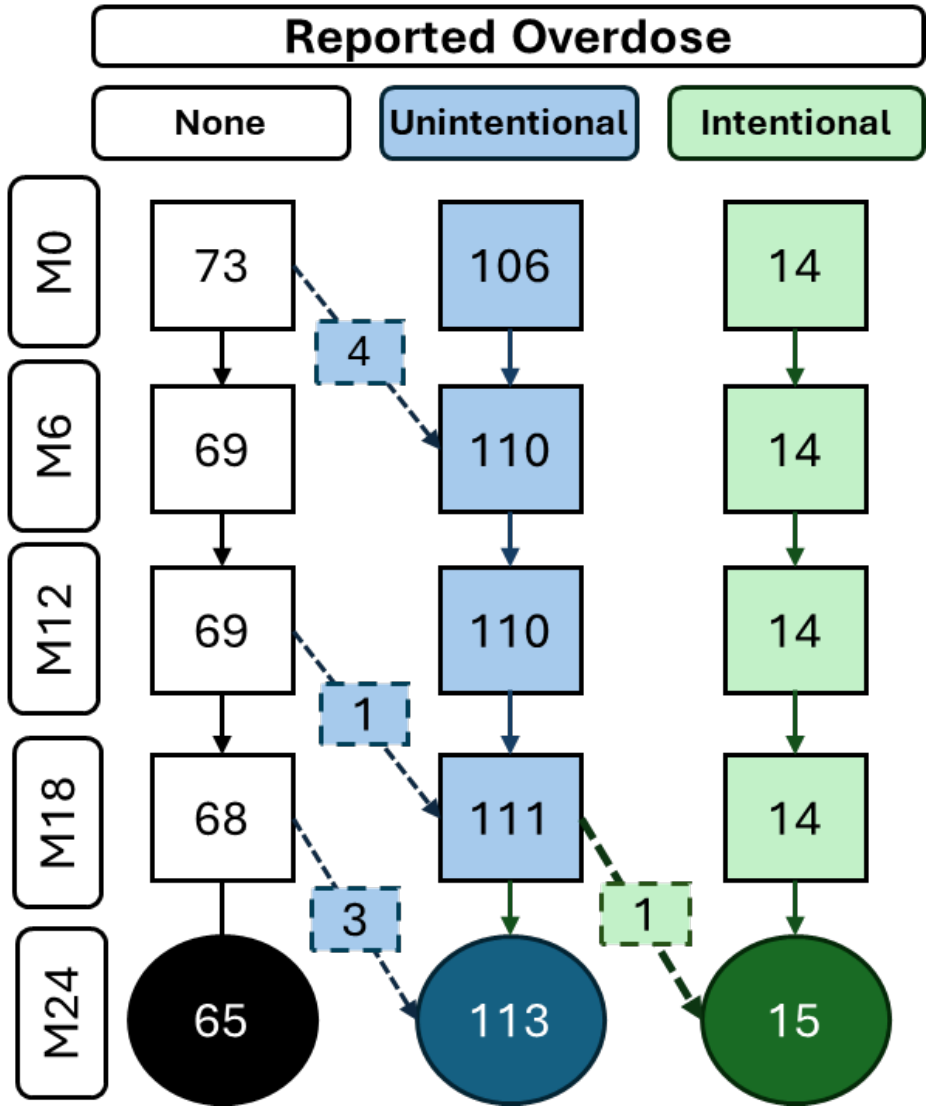
Diagram for Overdose Groups



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Odds Ratios by Overdose Group

	IO versus NO		IO versus UO		UO versus NO	
Categorical	*Odds Ratio (95% CI)*	*p*	*Odds Ratio (95% CI)*	*p*	*Odds Ratio (95% CI)*	*p*
Physical/Sexual Trauma Before Age 17	11.6 (1.92, 69.95)	**0.008**	13.84 (2.45, 78.21)	**0.003**	0.84 (0.39, 1.79)	0.65
Self-Reported History of Suicide Attempt	30.2 (5.2, 175)	**<0.001**	20.7 (3.8, 114)	**<0.001**	1.46 (0.72, 2.95)	0.29
UDS Positive for Opioids	0.85 (0.26, 2.71)	0.78	0.34 (0.11, 1.03)	0.06	2.48 (1.29, 4.74)	**0.006**
Hazardous Alcohol Use	10.33 (1.2, 88.87)	**0.03**	2.27 (0.32, 15.99)	0.41	4.54 (1.3, 15.86)	**0.02**
Frequency of Opioid Use	1.15 (0.19, 6.77)	0.88	0.57 (0.11, 3.03)	0.51	2.01 (0.72, 5.61)	0.18
Frequency of IDU	1.05 (0.02, 66.97)	0.98	0.88 (0.02, 47.78)	0.95	1.2 (0.14, 10.23)	0.87
Prescribed MOUD	0.28 (0.01, 6.86)	0.43	0.28 (0.01, 5.99)	0.41	0.99 (0.18, 5.55)	0.99
UDS Positive for Cocaine	0.84 (0.13, 5.28)	0.85	0.67 (0.12, 3.84)	0.66	1.25 (0.44, 3.53)	0.67
UDS Positive for Other Drugs	0.56 (0.11, 2.75)	0.47	0.47 (0.1, 2.13)	0.33	1.19 (0.5, 2.8)	0.7
Opioid Overdose Within the Past 6 Months	N/A		0.73 (0.18, 3.03)	0.66	N/A	

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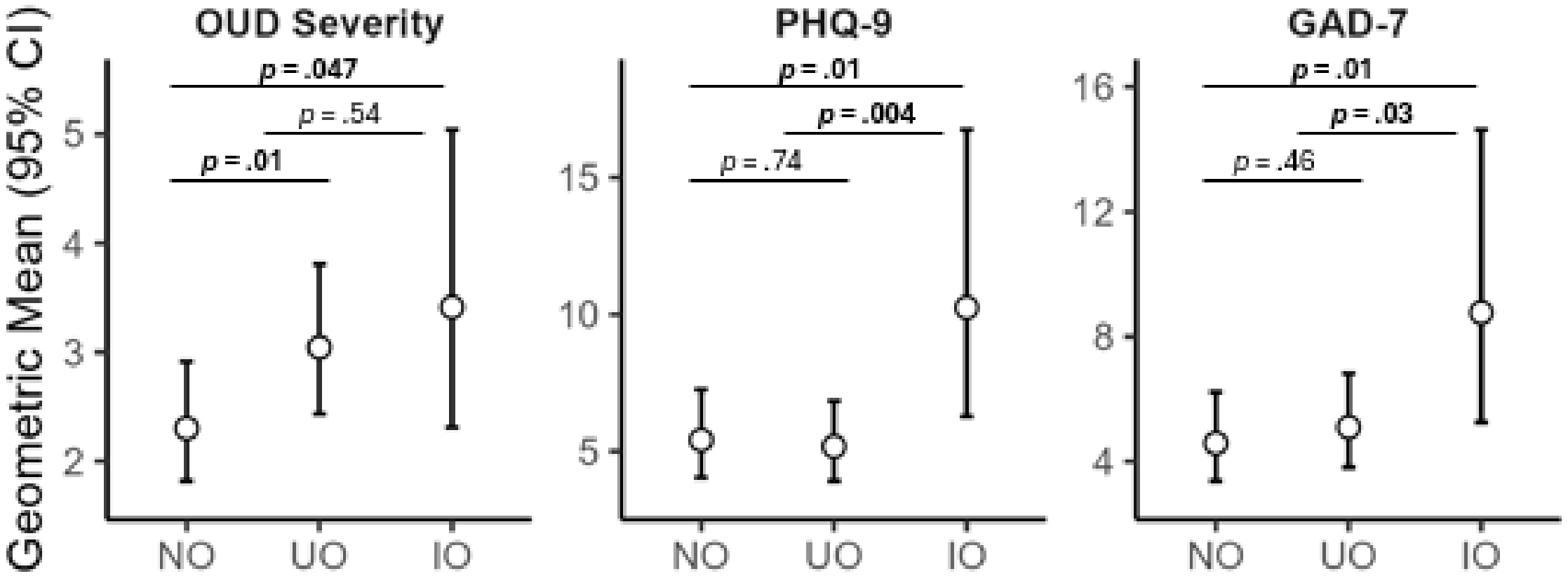
Depression, Anxiety, and OUD Scores



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Probabilities by Overdose Group

	NO (n=65)	UO (n=113)	IO (n=15)
Categorical (Estimated Probabilities)			
Physical and/or Sexual Trauma Before Age 17	0.53 [0.33, 0.73]	0.49 [0.29, 0.69]	0.93 [0.68, 0.99]
Self-Reported History of Suicide Attempts	0.24 [0.13, 0.40]	0.31 [0.18, 0.48]	0.90 [0.62, 0.98]
UDS Positive for Opioids	0.1 [0.04, 0.22]	0.21 [0.1, 0.39]	0.08 [0.02, 0.26]
Hazardous Alcohol Use	0.04 [0.01, 0.15]	0.15 [0.05, 0.39]	0.29 [0.05, 0.76]
Frequency of Opioid Use	0.03 [0.01, 0.11]	0.06 [0.02, 0.18]	0.03 [0, 0.19]
Frequency of IDU	0 [0, 0.01]	0 [0, 0.01]	0 [0, 0.05]
Prescribed MOUD	1 [0.98, 1]	1 [0.98, 1]	0.99 [0.81, 1]
UDS Positive for Cocaine	0.48 [0.25, 0.72]	0.53 [0.33, 0.73]	0.44 [0.13, 0.81]
UDS Positive for Other Drugs	0.13 [0.05, 0.3]	0.15 [0.06, 0.31]	0.08 [0.02, 0.3]
Opioid Overdose Within the Past 6 Months	N/A	0.34 [0.17, 0.56]	0.27 [0.07, 0.64]

*=P Value is <0.05

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Treatment

- Alpha-1 adrenergic blocker: prazosin, doxazosin
- SSRIs/SNRIs
- Other antidepressants (mirtazapine)
- Lamotrigine
- Symptom management, i.e. antipsychotics
- Therapy, i.e. Prolonged Exposure

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Conclusions

- PTSD associated with OUD/suicide
- Elevated trauma exposure in OUD
- Childhood trauma associated with intentional OD
- Significant need for psychiatric care

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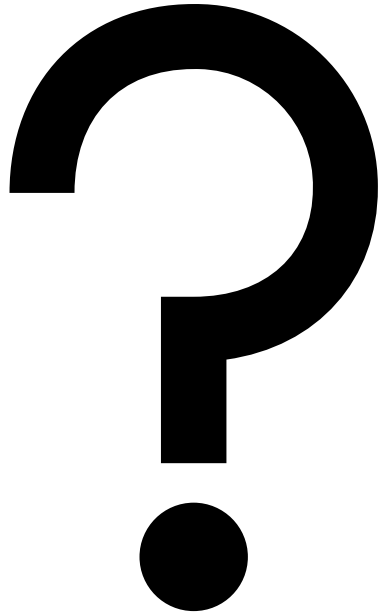
Questions



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