Transitions from cannabis use to cannabis use disorder:

Comparisons with other substances

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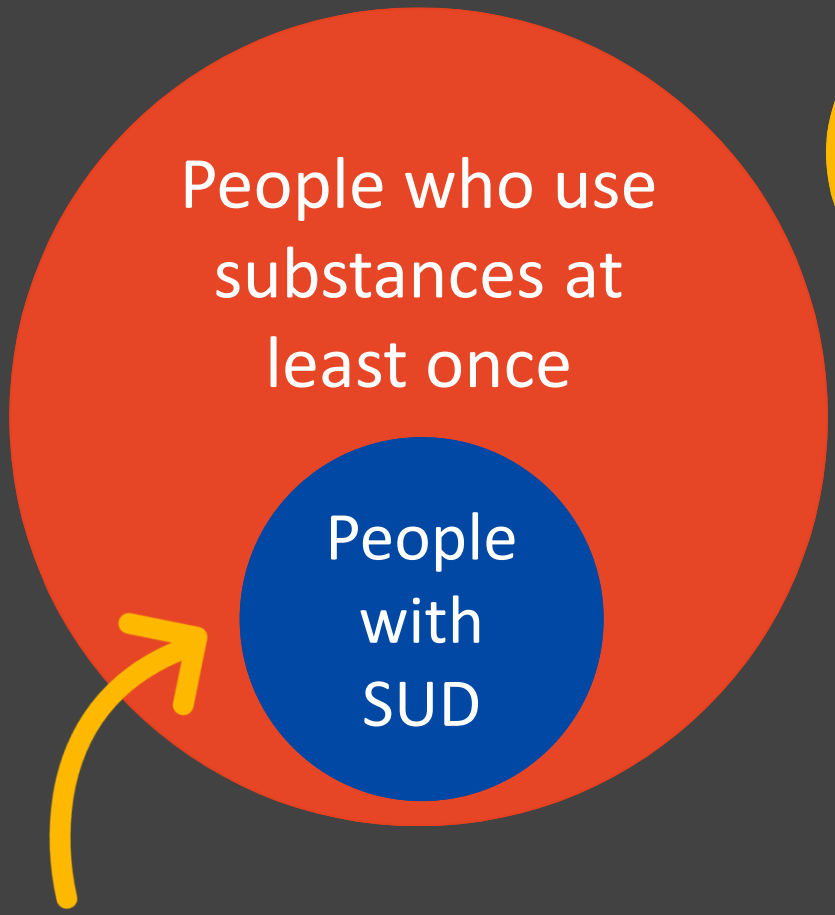
No declarations

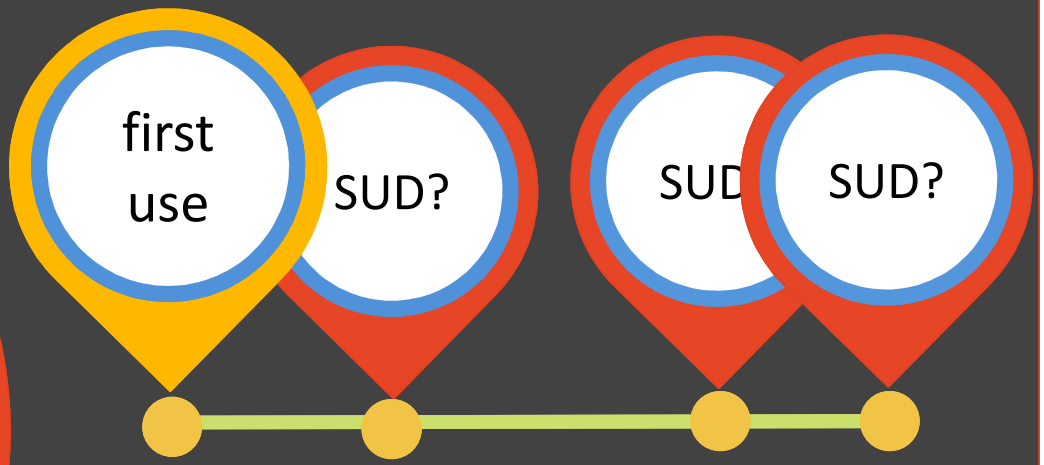
Substance use is common worldwide

- Not everyone who uses will develop substance use disorder (SUD)
- Of the 271M adults who used substances in 2017, 188M used cannabis, approx. 13% experienced an SUD (35M)
- Variability within and between substances
  - Conditional prevalence
  - Speed of transition from use to SUD

Why should we care?

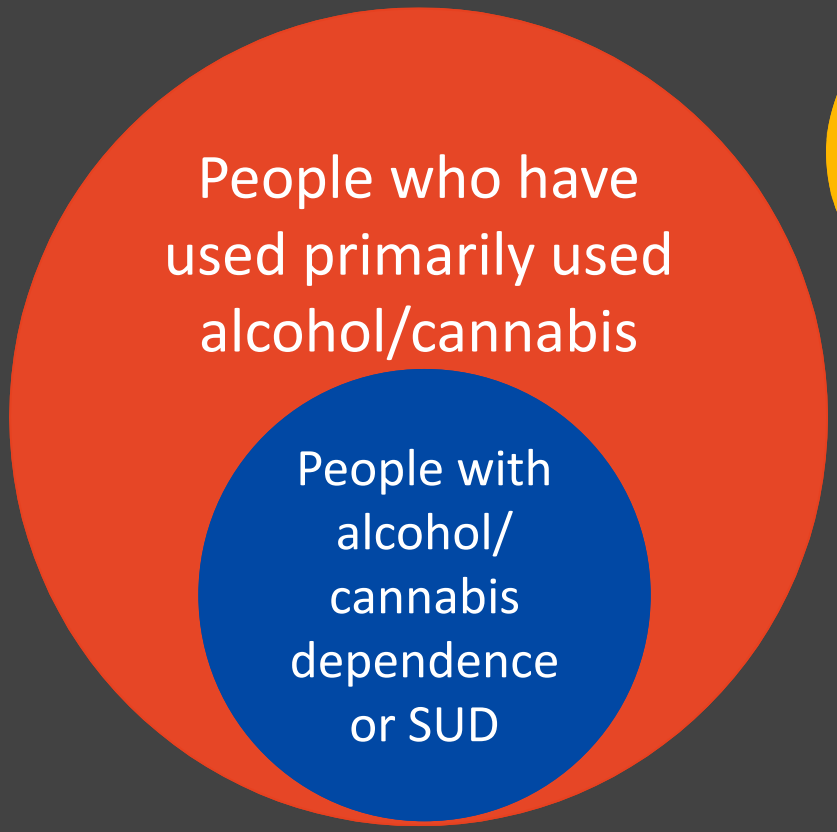


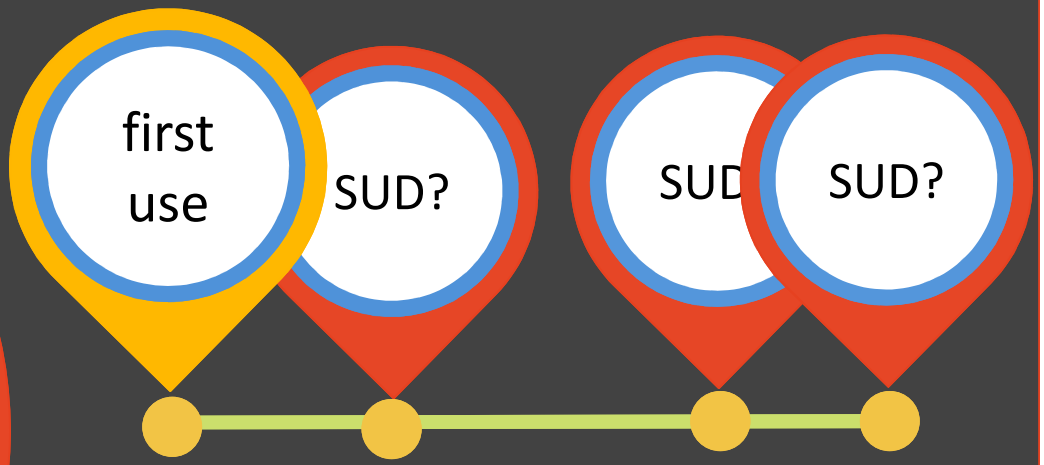
Who are these people?



Younger age at time of study, male, ethnicity, place of birth, marital status, lower income, unemployment, substance use history, younger age of first use

Why should we care?





Primarily focused on alcohol and cannabis, US-based, few studies examined impact of pre-existing psychiatric/other SUDs on likelihood of transitioning

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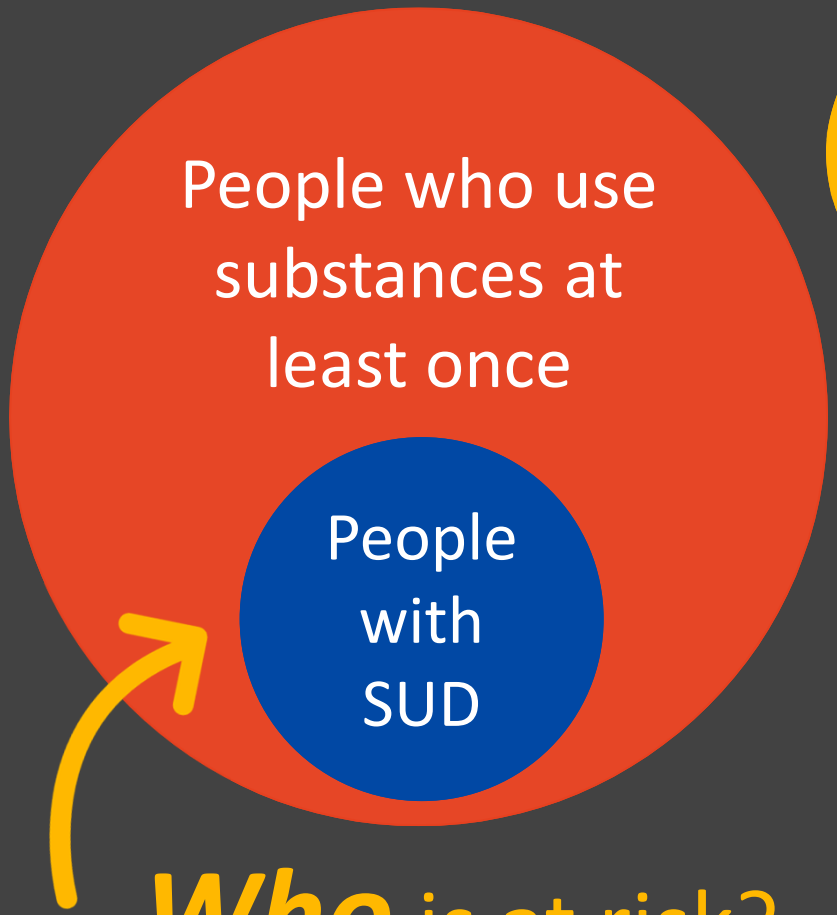
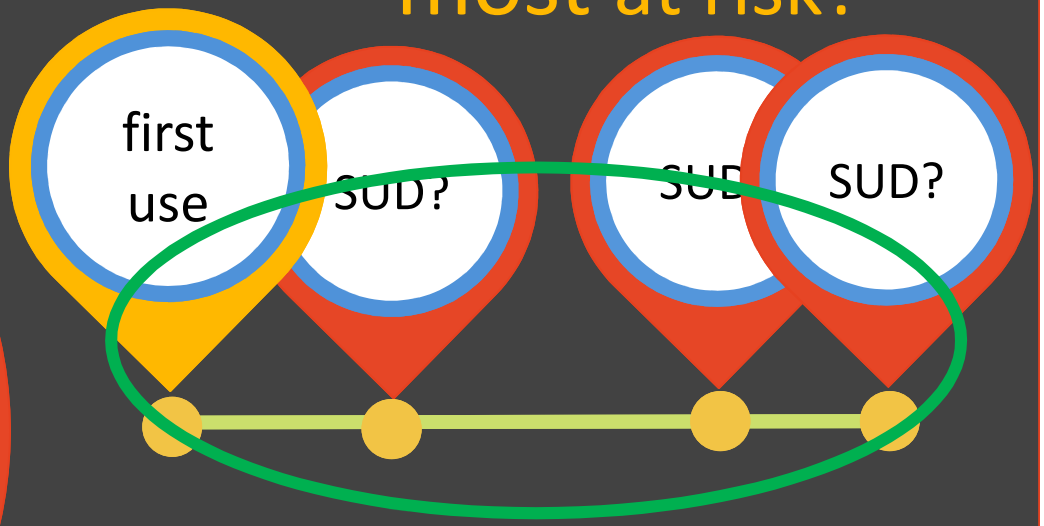


Who is at risk?

When are they most at risk?



Aims

1. Estimate conditional probability of developing cannabis use disorder (CUD) among people who use cannabis
2. Estimate speed of transition from cannabis use to CUD
3. Examine impact of pre-existing mental health disorders and other substance use on likelihood and speed of transition to CUD

→ Relative to those using alcohol, stimulants, sedatives or opioids

Methods

- 2007 NSMHWB (n=8,841): nationally representative population survey, aged 16-85
- Subsamples of respondents who provided age of first use data:
  - Cannabis (n=1,629)
  - Alcohol (n=5,456)
  - Stimulants (n=579)
  - Opioids (n=156)
  - Sedatives (n=137)

Measures

- Lifetime DSM-IV use disorder (abuse & dependence)
  - Cannabis (5+ times in lifetime)
  - Stimulants (5+ times in lifetime)
  - Sedatives (5+ times in lifetime)
  - Opioids (5+ times in lifetime)
  - Alcohol
- Lifetime DSM-IV diagnosis of bipolar disorder, agoraphobia, social anxiety disorder, panic attacks, GAD, OCD, PTSD (WMH-CIDI v.3.0)

Approach

Descriptive analyses

Conditional probability estimates and median age of disorder onset

Discrete time survival analysis

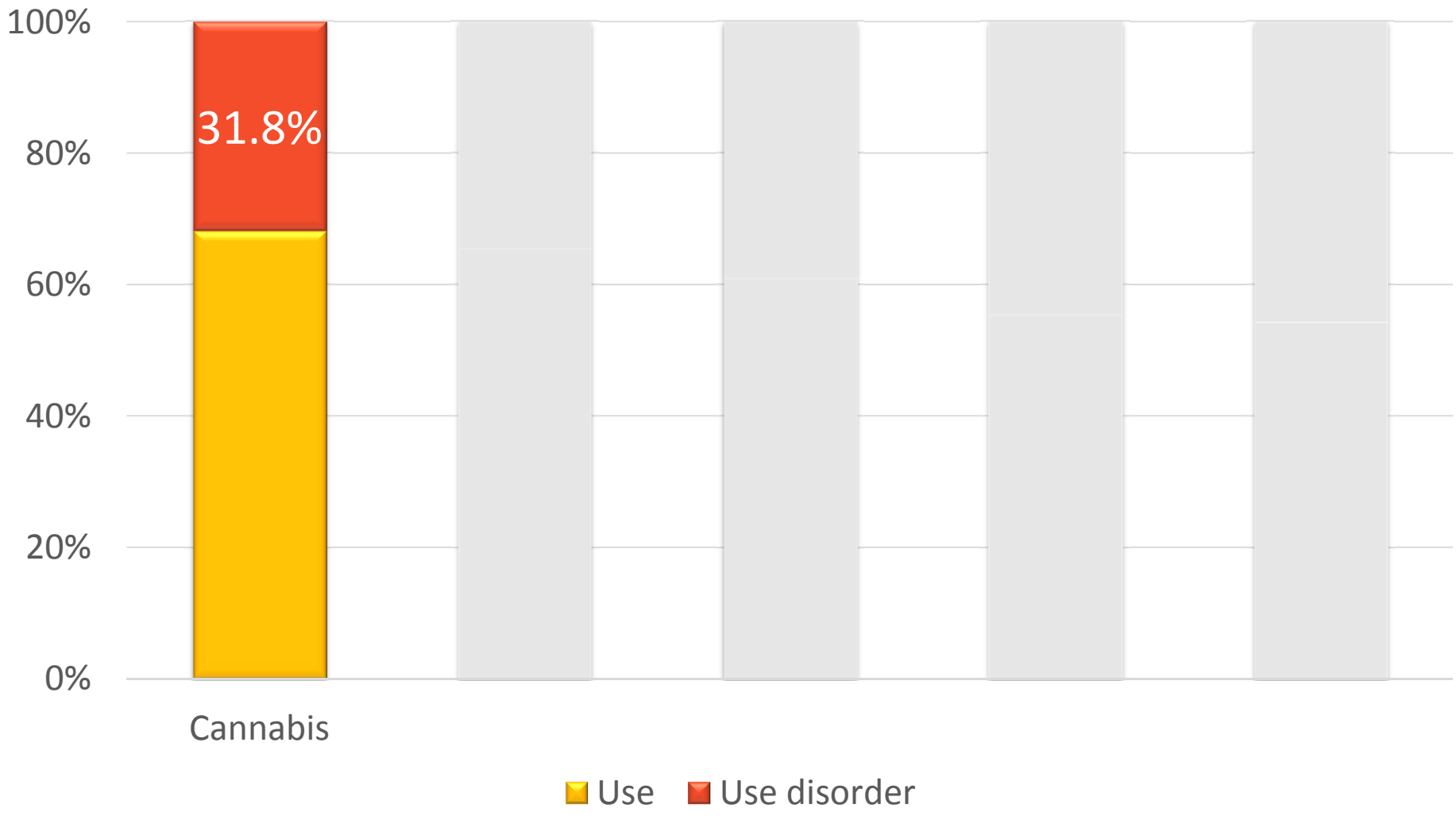
Model time in years from first use to of SUD for each drug subsample

Time-varying covariates

Covariates were entered as time-varying, which allowed assessment of individual-level onset and pre-existing psychiatric disorders and substance use

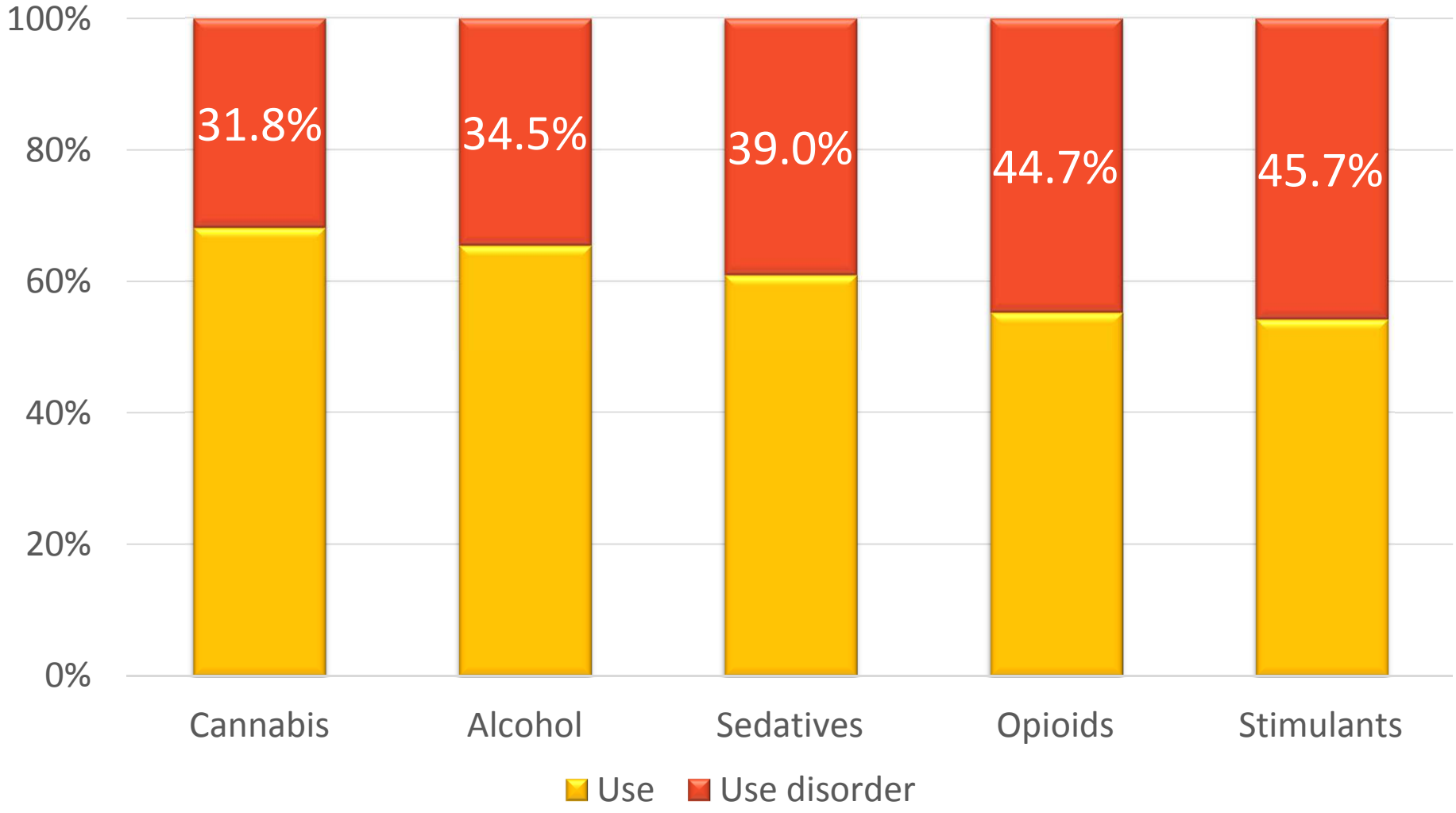
What was the conditional probability of CUD, relative to other SUDs?

Conditional probability of CUD



Marel et al., Drug & Alcohol Dependence, 2019, 194:136-142

Conditional probability of CUD relative to other SUDs



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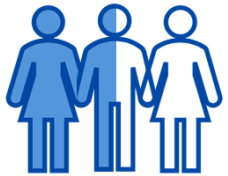
Lifetime cumulative probability of CUD

- Cannabis 34.1% within 23yrs*

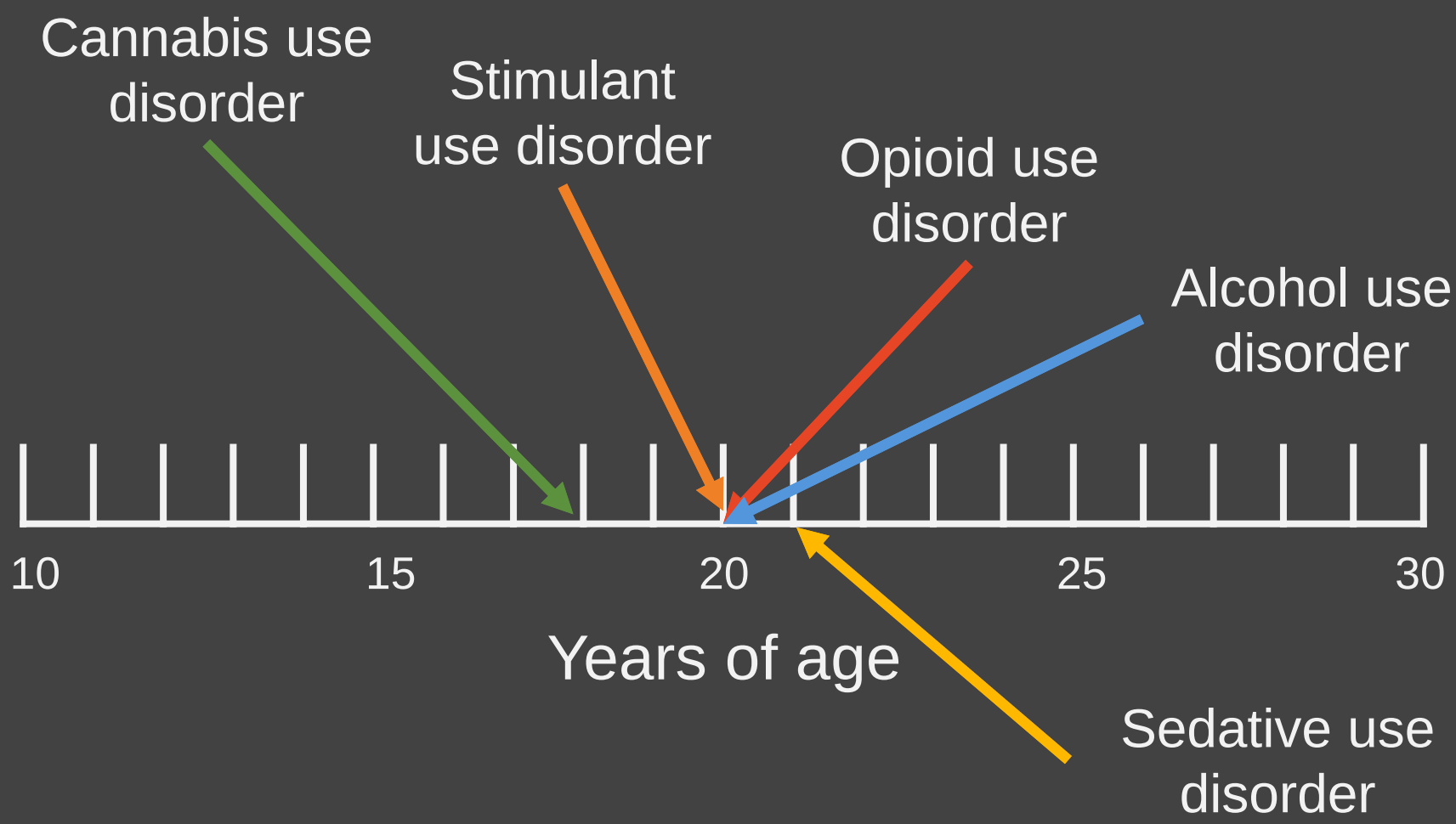
*right censored

Lifetime cumulative probability of CUD relative to other SUDs

- Cannabis 34.1% within 23yrs*
- Alcohol 37.5%  within 30yrs*
- Sedative 39% within 8yrs*
- Opioid 46.6% within 12yrs*
- Stimulant 50.4% within 14yrs*

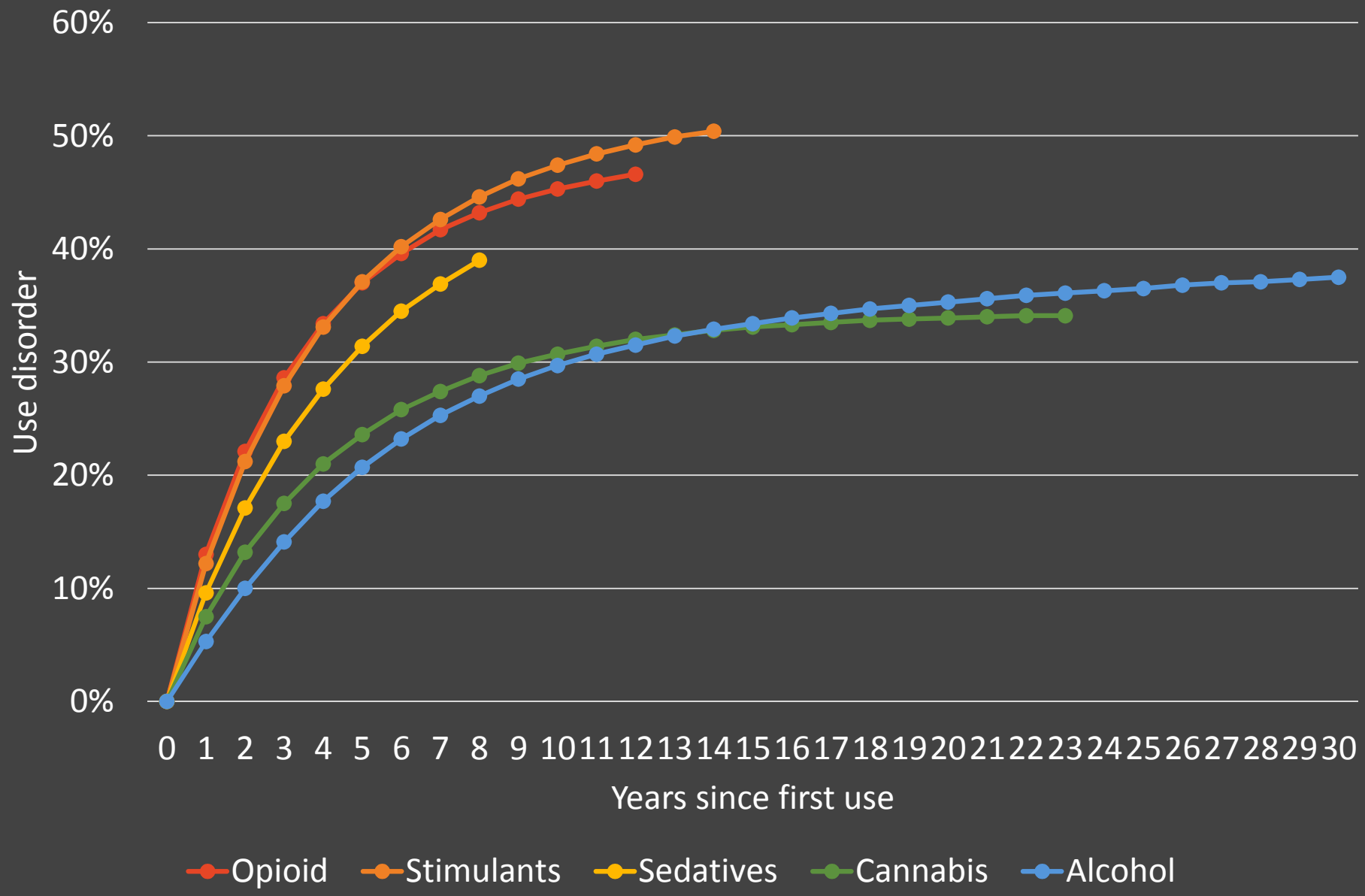
*right censored

Median age of onset



What was the speed of transition from cannabis use to CUD, relative to other SUDs?

Speed of transition from use to SUD



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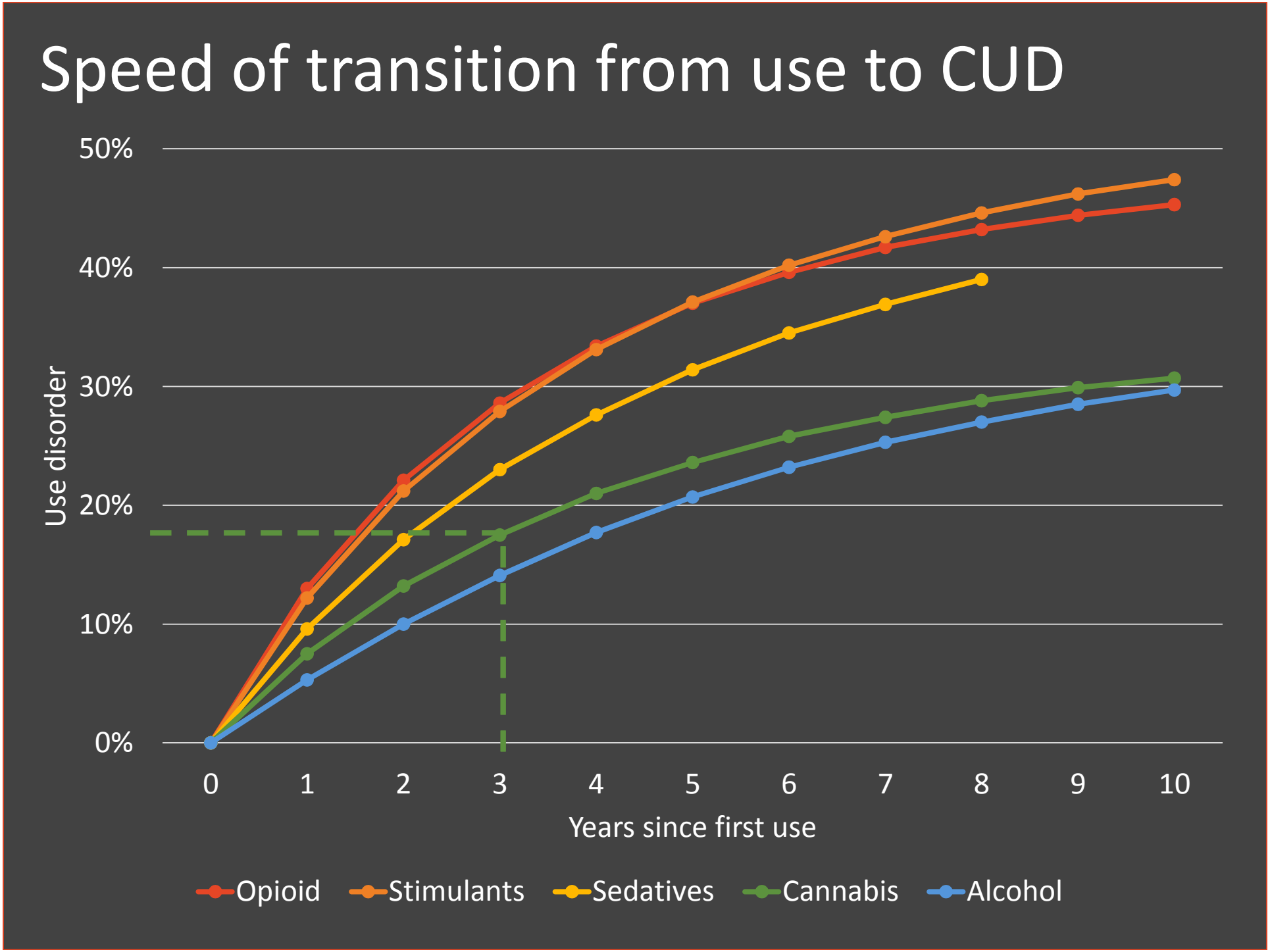

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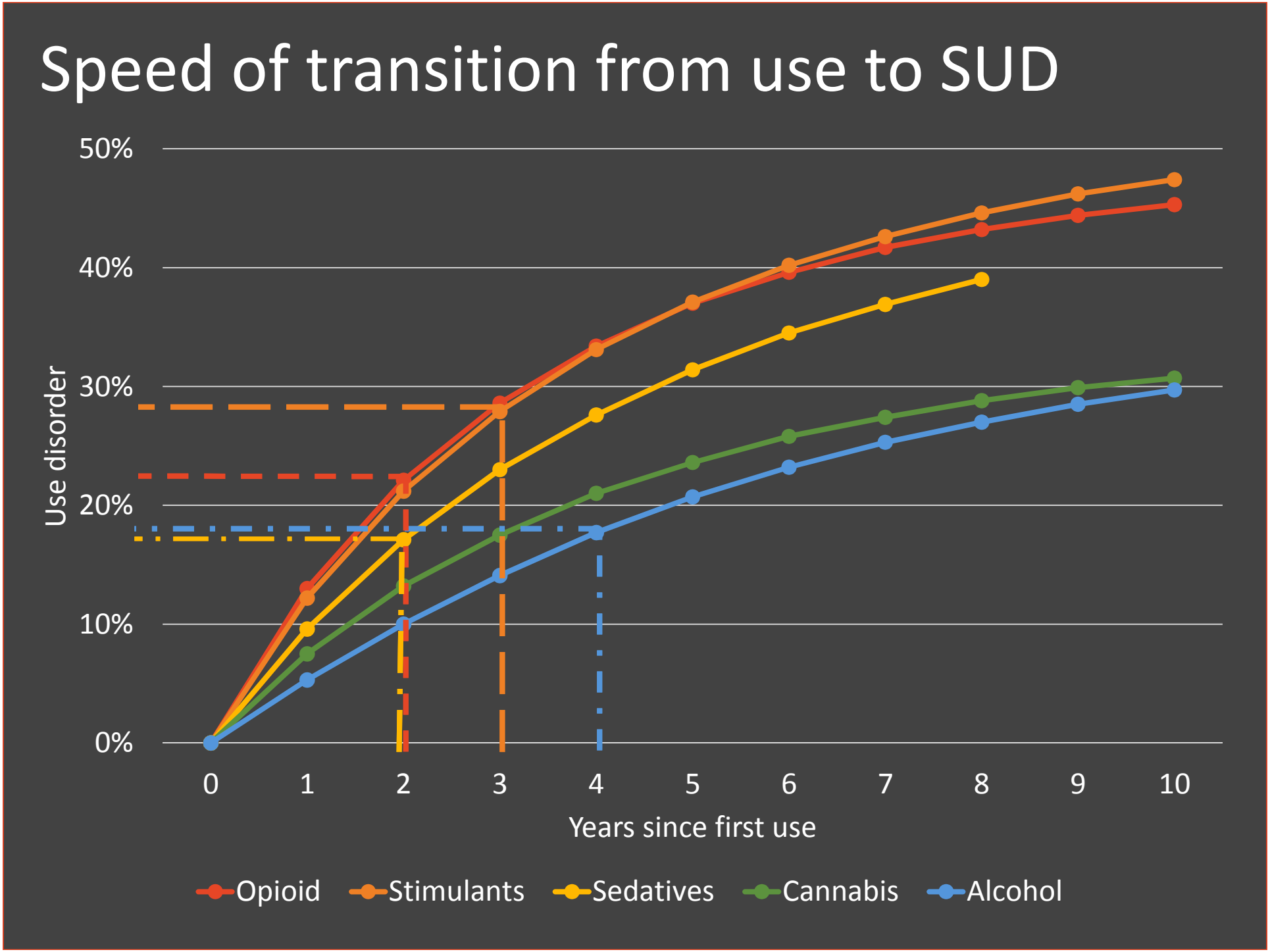
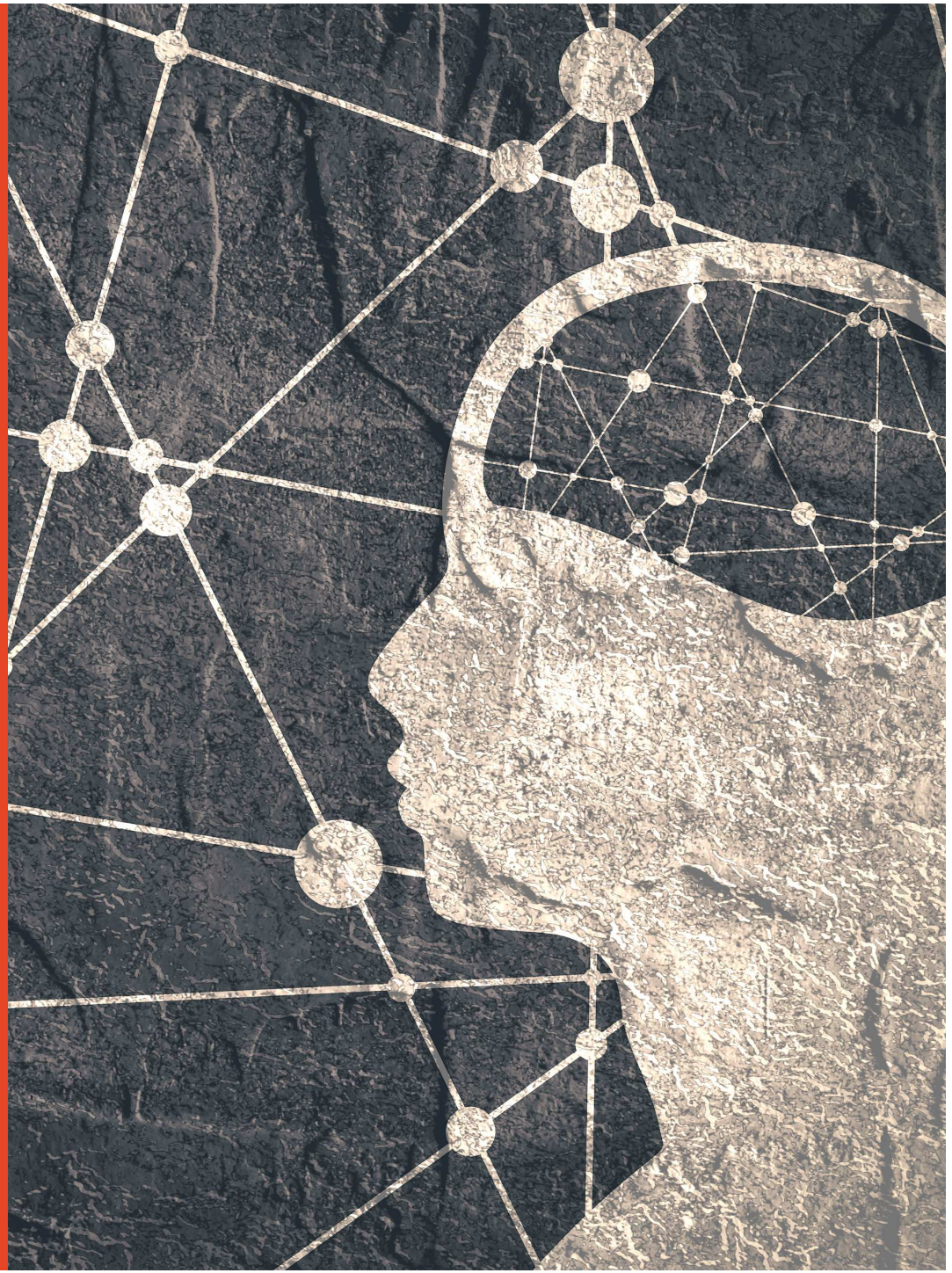


What were the psychiatric predictors of transitioning from use to CUD, relative to other SUDs?



Psychiatric predictors

	Cannabis UD OR	Alcohol UD OR	Simulant UD OR	Sedative UD OR	Opioid UD OR
MDE	**2.15***	**3.22***	1.25	0.98	0.36
Bipolar	1.95	**2.41***	2.08	0.89	1.10
GAD	**2.60***	**2.28***	**3.89***	4.24	2.31
Panic attacks	**1.97***	**1.64***	1.36	2.14	1.67
Social anxiety	**2.45***	**1.59***	1.23	1.67	1.74
Agoraphobia	**3.06***	1.39	2.23	3.00	4.70
PTSD	**1.79***	**2.63***	**2.51***	2.19	1.27
OCD	1.25	1.49	1.06	1.21	0.98
Any affective	**2.32***	**3.30***	1.29	1.13	0.36
Any anxiety	**2.90***	**2.17***	**2.13***	2.55	2.35

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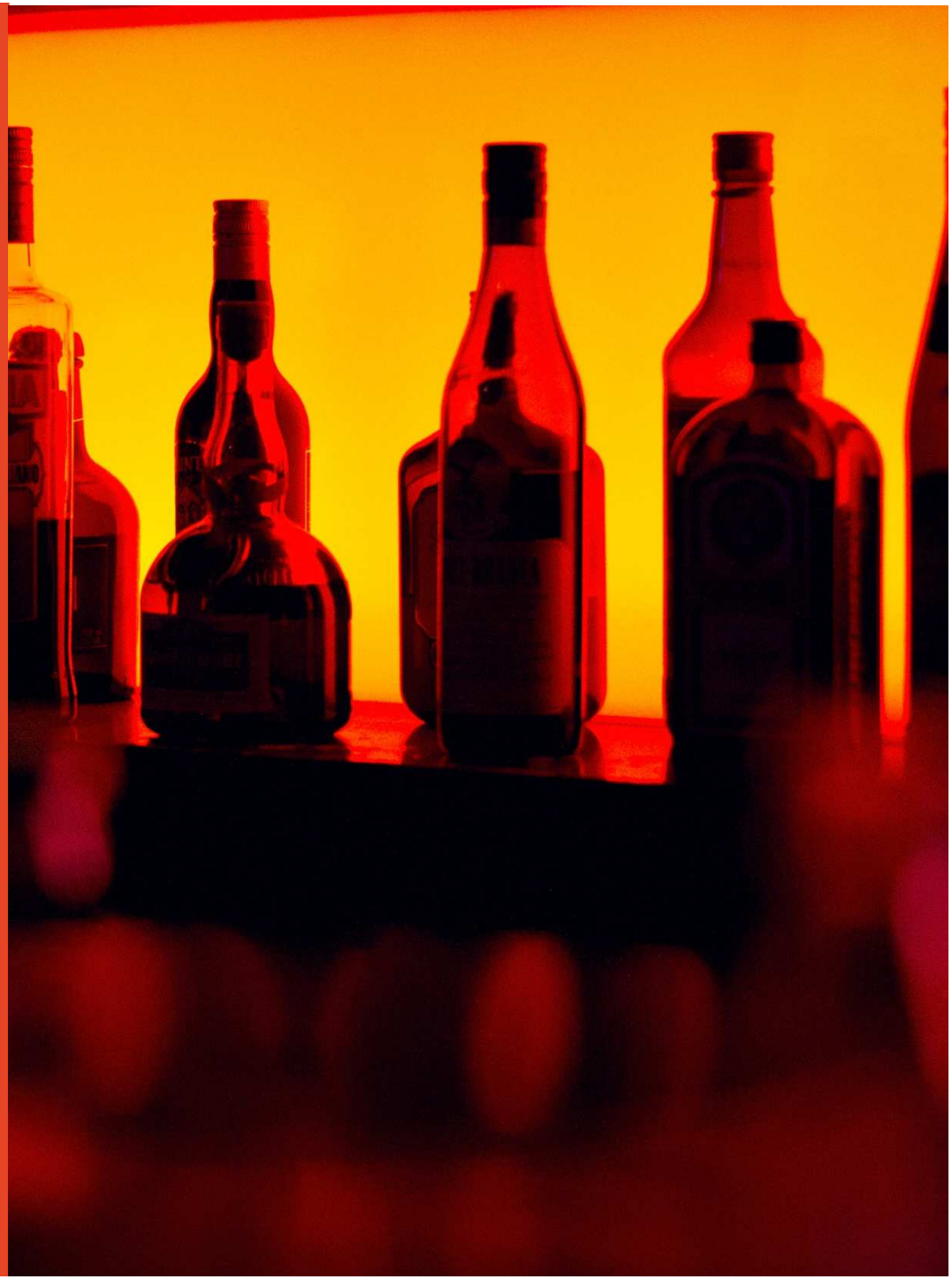
What were the substance use predictors of transitioning from use to CUD, relative to other SUDs?



Substance use predictors

	Cannabis UD OR	Alcohol UD OR	Simulant UD OR	Sedative UD OR	Opioid UD OR
Daily smoking	**1.56***	**1.56***	1.25	0.87	3.22
Alcohol use	1.16	–	1.07	0.71	0.85
Cannabis use	–	**2.23***	0.60	0.80	4.82
Stimulant use	**3.28***	**2.57***	–	3.59	4.51
Sedative use	**3.66***	**2.68***	1.91	–	1.77
Opioid use	**3.85***	**2.73***	1.28	1.69	–
Alcohol UD	**10.92***	–	1.58	1.96	2.10
Cannabis UD	–	**8.03***	**7.03***	3.31	4.65
Stimulant UD	**18.29***	**5.29***	–	9.04	5.05
Sedative UD	**8.54***	2.12	2.44	–	**6.18***
Opioid UD	**6.88***	**3.37***	2.37	10.31	–
Any other SUD	**3.43***	**3.37***	**5.09***	4.53	**5.57***

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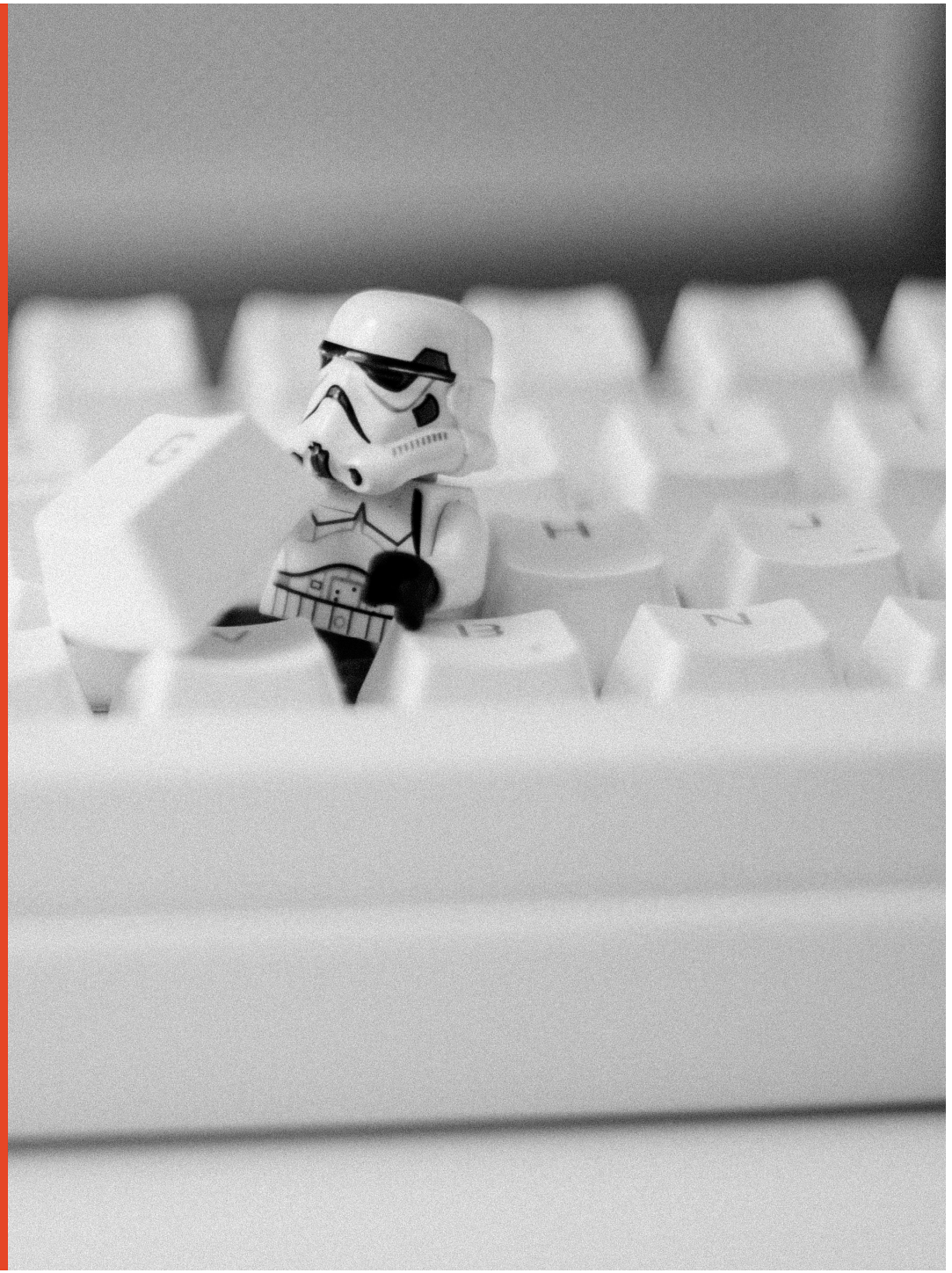
So what?



Higher estimates than previous studies

- Estimates for conditional probability lowest for cannabis (34.1%)
  - Highest for stimulants (50.4%), followed by opioids (46.6%), sedatives (39%) and alcohol (37.5%)
- Higher than reported in other studies
  - Measurements (onset/first use/DSM-IV SUD/problematic use…etc)
  - Sociocultural factors (availability, legalisation, norms)
  - Ideological differences in policy (zero-tolerance vs harm minimisation)

Speed of transition

- Transition from use to use disorder occurred fastest for opioids and stimulants, followed by cannabis and alcohol
- Of those who will go on to develop a use disorder, half will do so within the first two to four years of use
- Very narrow window of time available to prevent transition from regular use to use disorder

Risk factors

- Nearly every mood and anxiety disorder examined was significantly associated with transitioning to CUD (and alcohol use disorder)
  - Assess symptoms of co-occurring mental disorders among people who use cannabis and alcohol
  - Ask about cannabis or alcohol use among people with mood or anxiety disorders
- Pre-existing SUDs had strongest association with transitioning from use to SUD on other substances
- Take home message: Early identification and early provision of appropriate evidence-based treatments → prevent development of secondary SUDs

Thank you!

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