

The Epidemiology of Addiction

What Clinicians Need to Know

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Origins of Epidemiology

“The study of the distribution and determinants of disease frequency in the population”



John Snow



What is epidemiology?

- Causal and preventative factors
- Population level
- Not at random



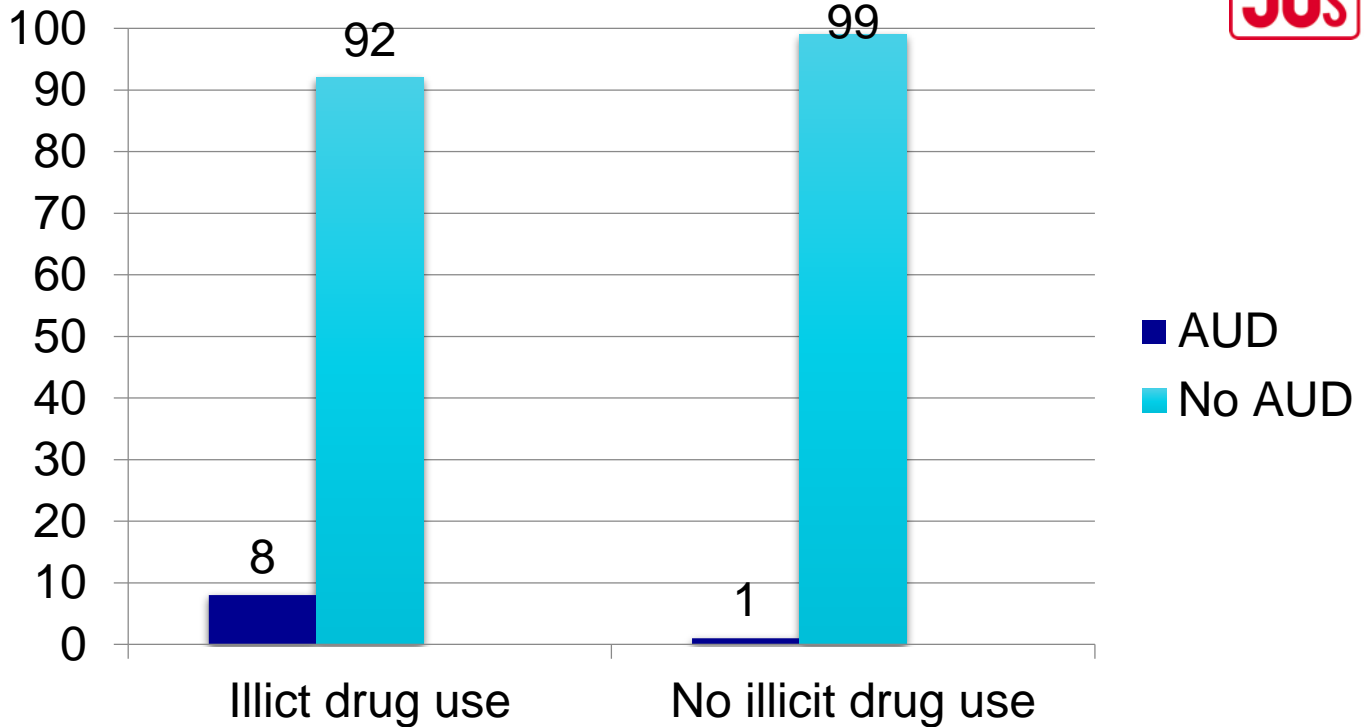
Basic of epidemiology

- Survey methods
- “Exposures” and “Outcomes”



- True effect?

Basics of epidemiology



Basics of epidemiology



Odds	Win %
10/1	9.09
1/10	90.91

Basic of epidemiology

	Illicit drug use(cases)	No illicit drug use (controls)
Alcohol Use Disorder (exposed)	8	1
NO Alcohol Use Disorder (unexposed)	92	99

$$(8 \div 92) \div (1 \div 99)$$

Odds of illicit drug use for those who report AUD:

9

Basic of epidemiology

- Chance
- Bias
- Confounding

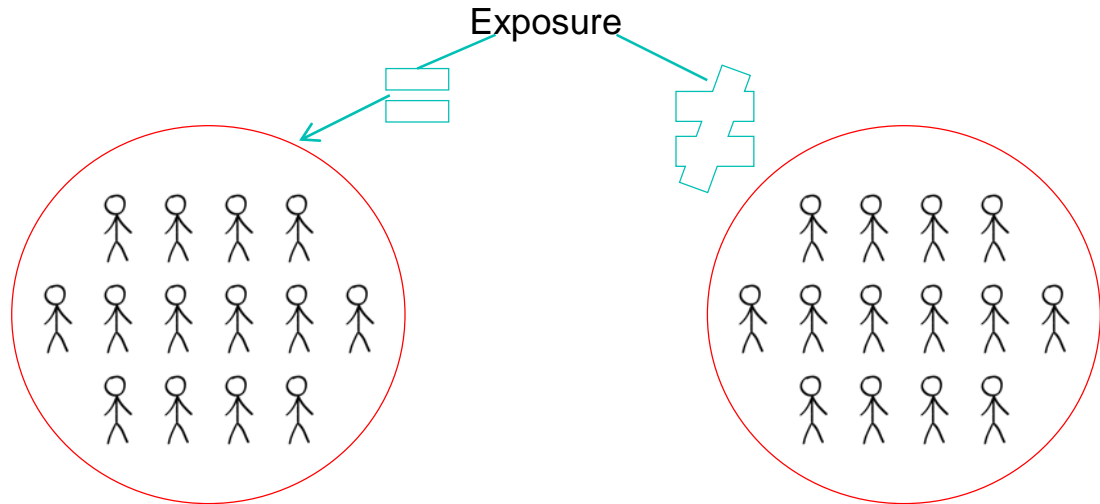
Age?
Gender?
Childhood?
Genes?



Risk factors for addiction

Risk factors for addiction

- General population samples



People experiencing addiction

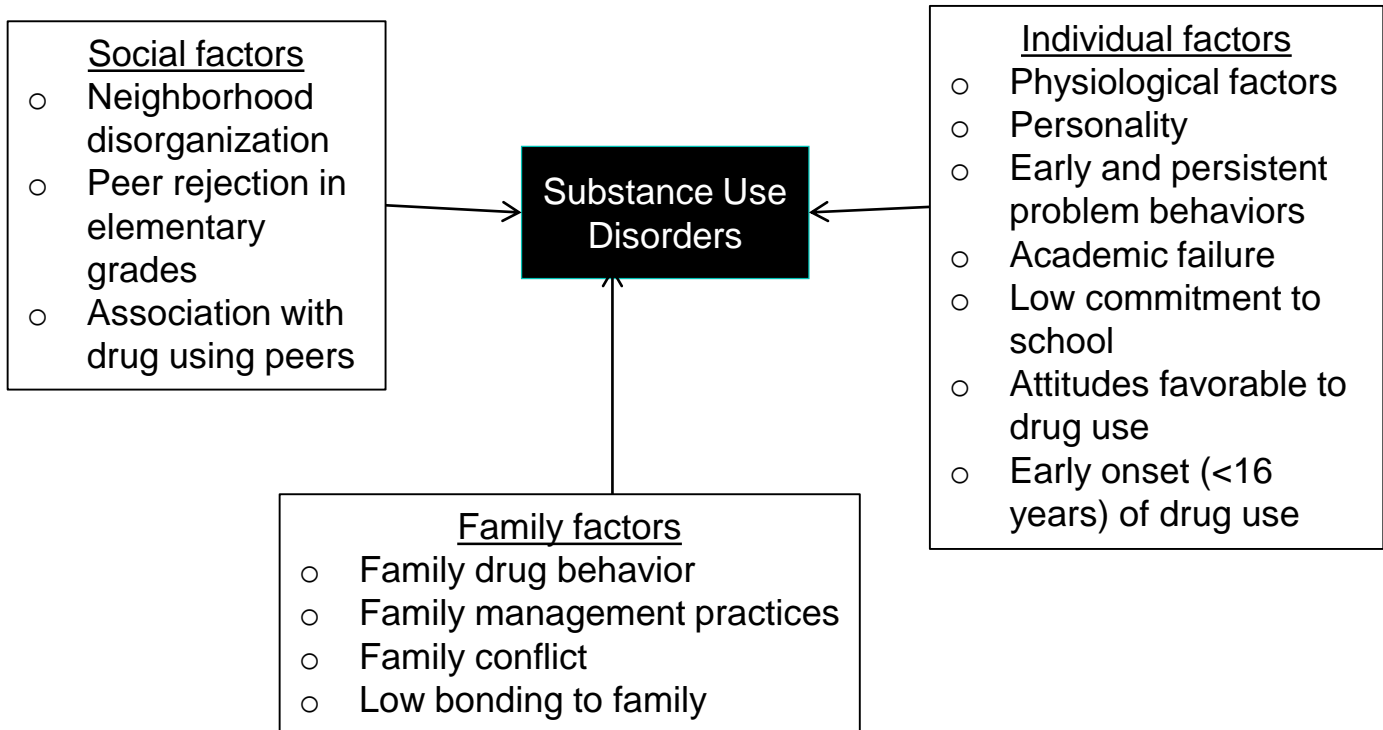
People who don't experience addiction

Risk factors for addiction

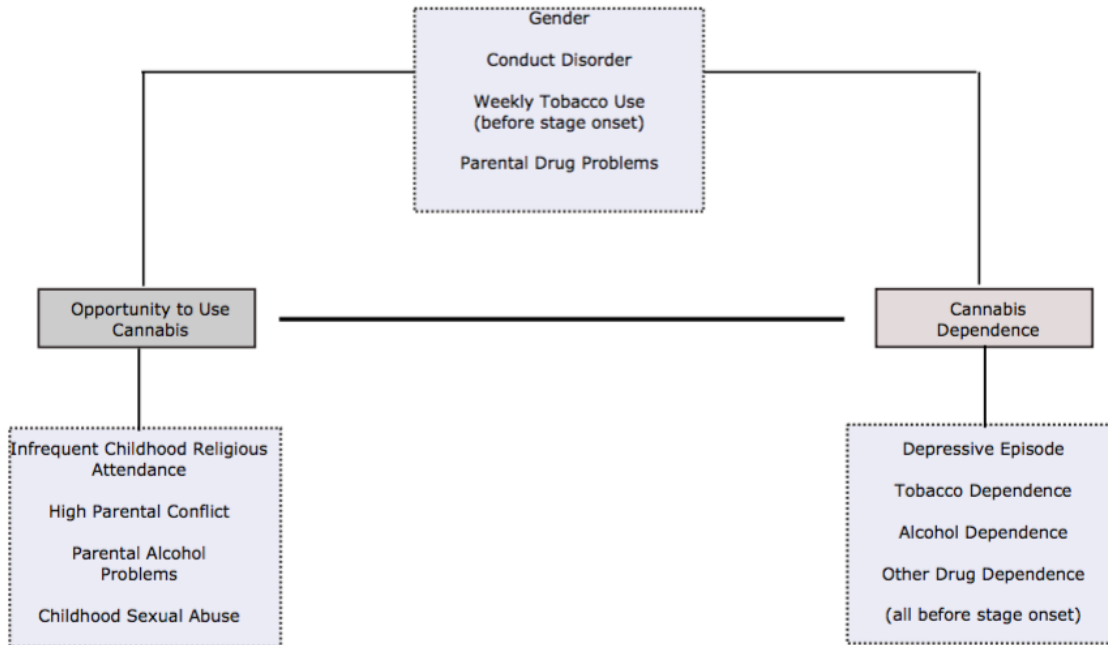
- General population samples
- Cohort studies
 - Subjects classified on presence or absence of exposure
 - Followed up over time to observe outcomes
 - Can be prospective or retrospective
- Case-control studies
 - Select participants based on outcomes
 - Select control group who do not have the outcome
 - Comparing exposures between these groups

Policy and laws

Laws and norms, availability, extreme economic deprivation



Risk factors for addiction



Hines, L.A., Morley, K.I., Strang, J., Agrawal, A., Nelson, E.C., Statham, D., Martin, N.G., Lynskey, M.T., 2016. Onset Of Opportunity To Use Cannabis And Progression From Opportunity To Dependence: Are Influences Consistent Across Transitions? Drug And Alcohol Dependence, 1;160:57-64

Drug related factors - cannabis



Simonavicius et al (2017) – of 295 clients in drug and alcohol treatment:

- 40% report secondary cannabis use
- 31% meet criteria for problem use
- Few defined treatment pathways

Drug related factors - cannabis



Cannabidiol (CBD)

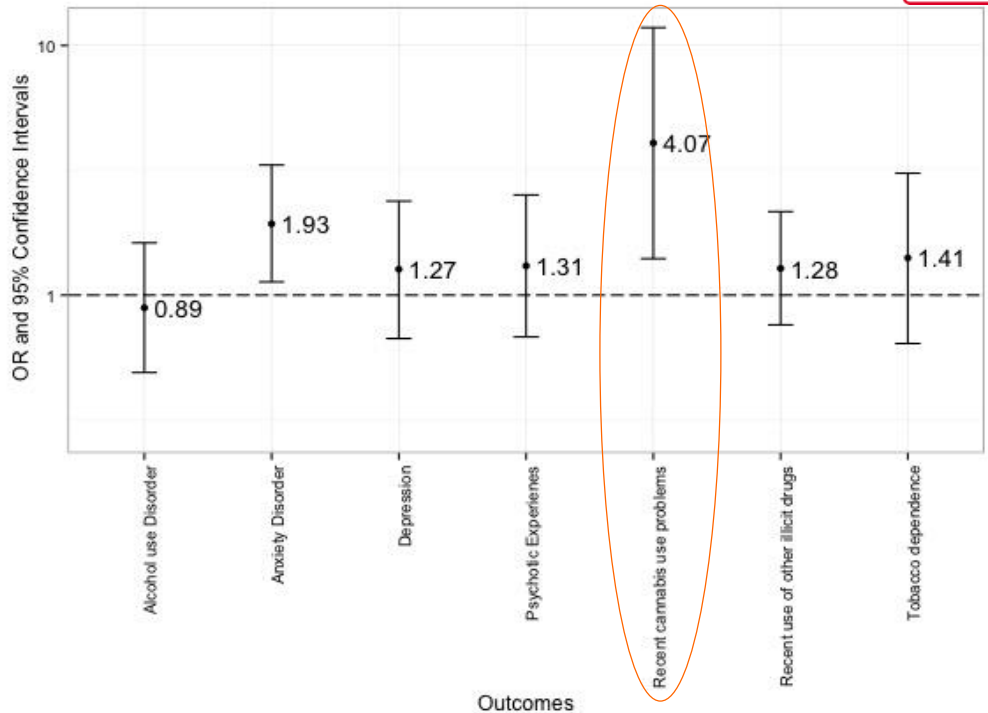
Primary psychoactive component:
Delta-9-tetrahydrocannabinol (THC)

Other cannabinoids...

Risk factors for addiction



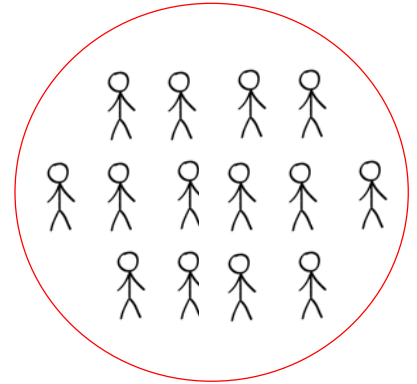
Lower potency cannabis →



Epidemiology of treatment outcomes

Treatment outcomes

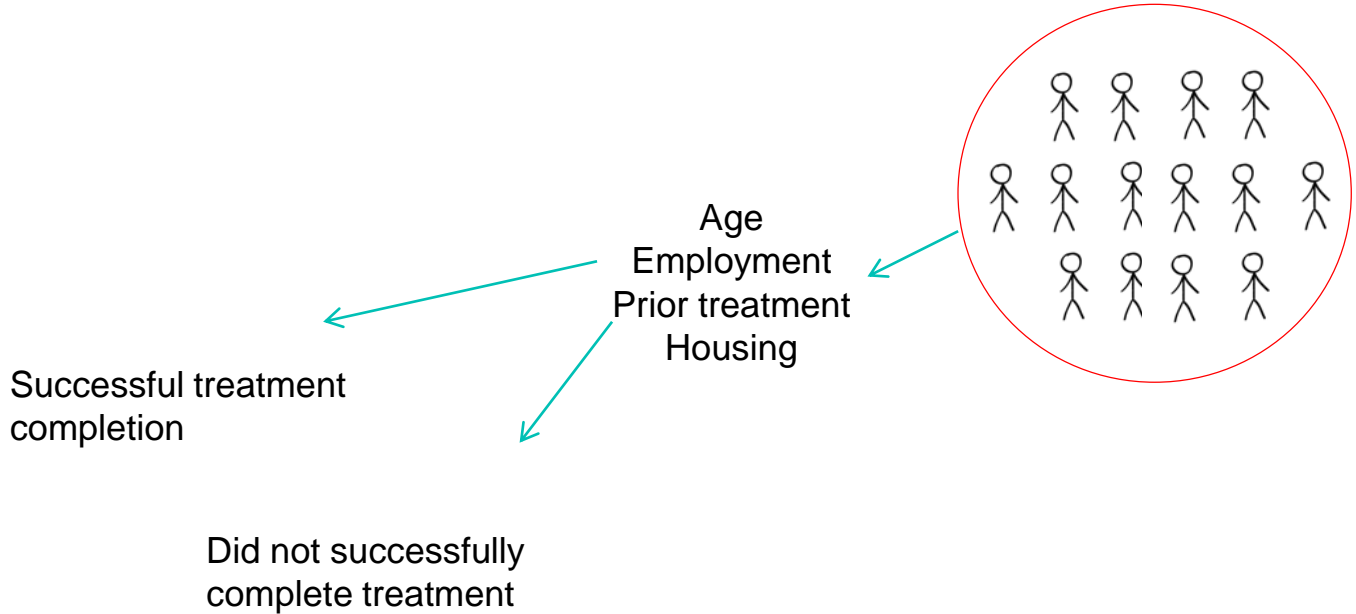
- Use of routine data
 - NDTMS
 - CRIS
 - ONS
- Objective measurement
- Reduced missing data



People in treatment

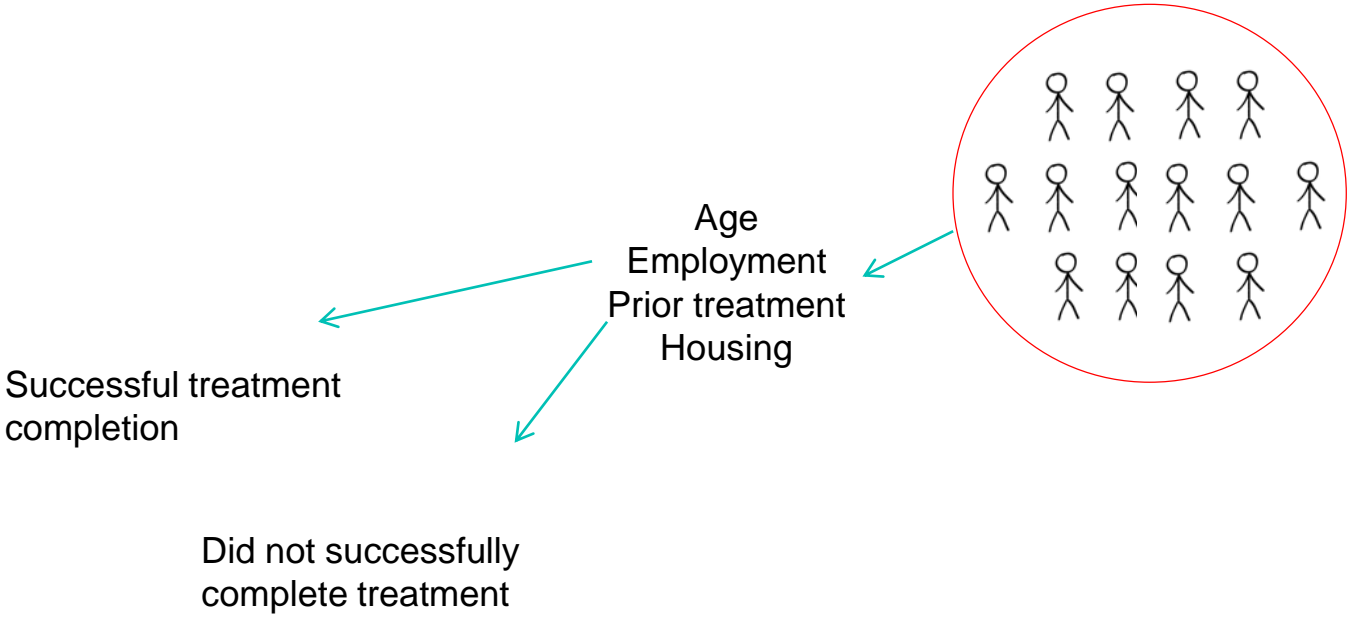
Treatment outcomes

Patients in NDTMS with AUD who participated in inpatient withdrawal and/or residential rehab



Patients in NDTMS with AUD
who participated in community-based
treatment

Treatment outcomes



Eastwood B, Peacock A, Millar T, Jones A, Knight J, Horgan P, Lowden T, Willey P, Marsden J. (2018) Effectiveness of inpatient withdrawal and residential rehabilitation interventions for alcohol use disorder: A national observational, cohort study in England.

Treatment outcomes - results

Successful inpatient withdrawal:

Older age

Employed

Receiving community-based treatment prior and subsequently

Successful residential rehab:

Employed

Self/family/peer referral

Longer duration of rehab

Community-based treatment following discharge

Successful community treatment:

Older age

BAME group

Employed

CJS referral

Unsuccessful inpatient withdrawal:

Housing problems

Unsuccessful residential rehab:

Community-based treatment prior to entering residential rehab

Receiving inpatient withdrawal during the same rehab treatment journey as rehab

Housing problems

Unsuccessful community treatment:

Lower SES

AUD treatment history

Housing problems

✓ Deprivation

✓ Level of alcohol use

X Other mental Health

X Other drug use/dependence

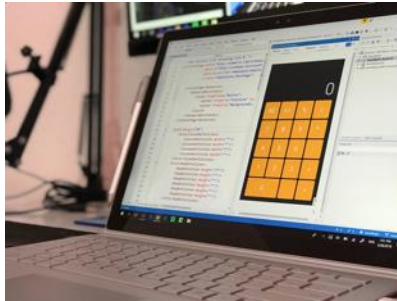
Summary

- Shared risk factors for substance use disorders
- A pattern of co-occurring mental health problems and other dependencies
- Sociodemographic factors and treatment outcomes

But... why? And how?



Qualitative work



Advancing
epidemiology methods



Clinical input to
prevention and
intervention science


Acknowledgments

Thanks to the participants and study teams of ALSPAC, and to the MRC (ALSPAC funding) & the Wellcome Trust (ALSPAC funding and postdoctoral fellowship researcher funding).



References

- Charles, H. (2019) *Measuring illicit drug use in young people: comparing Crime Survey for England and Wales with ALSPAC*. (Unpublished doctoral dissertation or master's thesis). University of Bristol, UK.
- Eastwood B, Peacock A, Millar T, Jones A, Knight J, Horgan P, Lowden T, Willey P, Marsden J. (2018) Effectiveness of inpatient withdrawal and residential rehabilitation interventions for alcohol use disorder: A national observational, cohort study in England. *Journal of Substance Abuse*, 88, 1-18.
- Hawkins JD, Catalano RF, Miller JY (1992). Risk and protective factors for alcohol and other drug problems in adolescence and early adulthood: implications for substance abuse prevention. *Psychological Bulletin* 112, 64–105.
- Hennekens, C. H., Buring, J. E., & Mayrent, S. L. (1987). *Epidemiology in medicine*. Boston: Little, Brown.
- Hines, L.A., Morley, K.I., Strang, J., Agrawal, A., Nelson, E.C., Statham, D., Martin, N.G., Lynskey, M.T., 2016. Onset Of Opportunity To Use Cannabis And Progression From Opportunity To Dependence: Are Influences Consistent Across Transitions? *Drug And Alcohol Dependence*, 1;160:57-64
- Hines, L.A., Freeman, T., Gage, S., Zammit, S., Hickman, M., Cannon, M., Munafo, M., MacLeod, J. & Heron, J. (in preparation). High-Potency Cannabis, Mental Health and Substance Use in Adolescence: Results from a UK General Population Sample
- Peacock A, Eastwood B, Jones A, Millar T, Horgan P, Knight J, Randhwa K, White M, Marsden J. (2018) Effectiveness of community psychosocial and pharmacological treatments for alcohol use disorder: A national observational cohort study in England. *Drug and Alcohol Dependence*, 1;186:60-67
- Simonavicius, E., Singh, P., Calder, R., Hines, L.A., Lynskey, M.T., Morley, K.I (2018) Secondary cannabis use among London drug treatment service clients. *Drug Education, Prevention and Policy*, *DOI* doi.org/10.1080/09687637.2018.1425374



**Want to run a sub study?
Questions for 2019 questionnaire?
Get in touch: alspac-exec@bristol.ac.uk**



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