Is cannabis a substitute or complement to alcohol?
A study of recreational drug use employing self-reports and biological markers
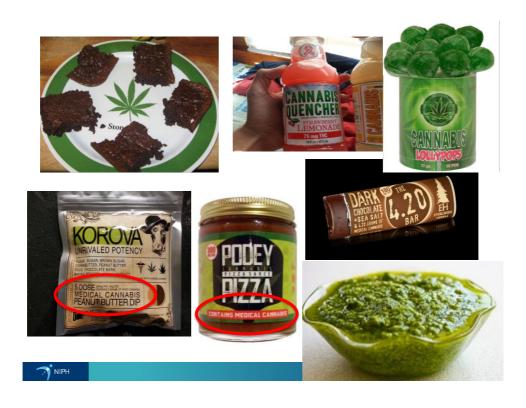
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Background

- An ongoing, heated cannabis policy debate in Europe and the US
- The legalization and increased access to medicinal marihuana have influenced the US cannabis market:

And new ways of selling the products...

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Background

- An ongoing and heated cannabis debate in Europe and the US
- The legalization and increased access to medical marihuana have influenced the US cannabis market
- Will the policy changes influence cannabis use?

Has cannabis use an affect on users' consumption of alcohol – and if so, does it decrease or increase it?

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Previous studies

- Have employed self-reports which might be a less-than-optimal data source
- Findings are inconclusive:
  - Compliment (Berge et al 2014, Pape et al 2009, Hoffman et al 2000, Pacula 1998, Williams et al 2004)

  - Substitute (Crost and Guerrero 2012, Cameron and Williams 2001, Chaloupka andLaixuthai 1997)

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Oslo nightlife study

- Aimed to investigate the prevalence and user characteristics of a population assumed to have particularly high consumption of alcohol and illicit drugs
- 12 popular nightclubs in downtown Oslo
- Data collection between 11pm and 4 am on Friday and Saturday nights

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Oslo nightlife study, data collection

- Self-administrated questionnaire used for background information and for data on drug types and frequency of drug use
- Biological markers
  - BAC levels (Lion Alcometer^{TM} 500)
  - Saliva samples (46 drugs were analyzed with the Orasure Intercept Oral Fluid Test)

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Results - *Sample characteristics*

A total of 1099 patrons participated (rr = 76%)

- 65% males
- Mean age: 27 years (16-64)
- 67% full/part time employment, 29% students, 4% unemployed or homemakers
- 63% college/university degree
- 49% visited nightclubs, pubs or bars after 11pm ≥ 1 a week

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Results; self-reports and saliva tests

Illicit drug use:

A = self-reported for last 48 hours

B = determined by oral fluid samples

	Cannabis	Cocaine	Amphet.	Ecstasy/ MDMA	NPS	Opiates	Any illicit drugs
A	11%	4.4%	1.1%	1.3%	0.1%	0%	14%

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B	13%	14%	2%	2%	1%	1%	25%

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Cannabis and alcohol use

	Total (n = 1084)	a. No illicit drug use (n = 816)	b. Only cannabis use (n = 90)	c. Use of other illicit drugs incl. cannabis (n = 178)
Alcohol intoxication ≥2-3 times a month	71%	68%	81%	76%

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Alcohol intoxication ≥2-3 times a month	71%	68%	81%	76%
Mean BAC level	1.01‰	0.96‰[c]	0.99‰[c]	1.25‰[a,b]

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Multinominal regression results
(comparison group: no illicit drugs)

After we have controlled for age, gender, education, country of origin, age of first alcohol intoxication, frequency of alcohol intoxication last year, frequency of visits to nightclubs, bars etc. after 11 pm:

	Only cannabis use	Use of other illicit drugs
	RRR (95% CI)	RRR (95% CI)
Dummy =1 if BAC level >0.50‰	0.93 (0.47; 1.86)	1.17 (0.64; 2.14)
Dummy =1 if BAC level >1.00‰	0.86 (0.45; 1.65)	**2.41 (1.45; 3.99)**

RRR= relative risk ratio

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Conclusions

- Cannabis users drank just as much as non-users – both in terms of intoxication frequency and BAC levels:
- cannabis does not seem to replace alcohol (not a substitute?
- nor increase alcohol use (not a complement?)
- Just comes in addition to the alcohol?
- However; users may have consumed more alcohol without the cannabis

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Discussion

- The cannabis market is changing (US):
  - New products
  - New devices for consuming the drug
  - New ways of selling
- Medicinal cannabis, changes in (young) people's risk perception => increased cannabis use?
- Public health perspective; will this reduced alcohol use and alcohol-related harmful effects?
- This study suggest little effect of cannabis use on alcohol consumption…but; more research is needed!

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