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...

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?
Previous studies

• Have employed self-reports which might be a less-than-optimal data source

• Findings are inconclusive:

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
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™ 500)
  - Saliva samples (46 drugs were analyzed with the Orasure Intercept Oral Fluid Test)

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
Results; self-reports and saliva tests

Illicit drug use:
A = self-reported for last 48 hours
B = determined by oral fluid samples

<table>
<thead>
<tr>
<th></th>
<th>Cannabis</th>
<th>Cocaine</th>
<th>Amphet.</th>
<th>Ecstasy/MDMA</th>
<th>NPS</th>
<th>Opiates</th>
<th>Any illicit drugs</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>11%</td>
<td>4.4%</td>
<td>1.1%</td>
<td>1.3%</td>
<td>0.1%</td>
<td>0%</td>
<td>14%</td>
</tr>
<tr>
<td>B</td>
<td>13%</td>
<td>14%</td>
<td>2%</td>
<td>2%</td>
<td>1%</td>
<td>1%</td>
<td>25%</td>
</tr>
</tbody>
</table>
Cannabis and alcohol use

<table>
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<tr>
<th></th>
<th>Total (n = 1084)</th>
<th>a. No illicit drug use (n = 816)</th>
<th>b. Only cannabis use (n = 90)</th>
<th>c. Use of other illicit drugs incl. cannabis (n = 178)</th>
</tr>
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<tbody>
<tr>
<td>Alcohol intoxication ≥2-3 times a month</td>
<td>71%</td>
<td>68%</td>
<td>81%</td>
<td>76%</td>
</tr>
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Mean BAC level

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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:

<table>
<thead>
<tr>
<th>Dummy =1 if BAC level &gt;0.50‰</th>
<th>Only cannabis use</th>
<th>Use of other illicit drugs</th>
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</thead>
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<tr>
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<td>RRR (95% CI)</td>
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</tr>
<tr>
<td>Dummy =1 if BAC level &gt;1.00‰</td>
<td>0.93 (0.47; 1.86)</td>
<td>1.17 (0.64; 2.14)</td>
</tr>
<tr>
<td></td>
<td>0.86 (0.45; 1.65)</td>
<td>2.41 (1.45; 3.99)</td>
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</tbody>
</table>

RRR= relative risk ratio

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
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!