E-cigarette use in young Swiss men: is vaping an effective way of reducing or quitting smoking?

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Background: Heated debate on e-cigarette use

- Substitution for cigarettes to help smokers quit smoking or reduce conventional cigarette use => could thus have a major beneficial public health impact
- Doubts on its efficacy to help quitting smoking – mainly dual users
- ‘Re-normalises’ smoking, which may increase the smoking prevalence, or slow down its decrease
- Acts as gateway to conventional cigarette use among youth
- Few longitudinal studies, and often methodological problems, such as no adjustment for dependence or no baseline measure of e-cigarette use (Grana, Benowitz & Glantz, 2014, West & Brown, (2014))
Research Questions

• Does vaping increase smoking among baseline non-smokers?
• Does vaping increase smoking cessation rates among baseline smokers?
• Does vaping decrease the number of cigarettes used among smokers?
• Do vapers among smokers attempt to quit smoking more often than non-vapers?
Sample: 21 of 26 cantons
Young men only

**Sampling** in 3 army recruitment centers
98% of Swiss men go through -> no selectivity

- 6’000 informed consents and **baseline** measures
- 91.5% at 15 months follow-up
- Due to missings 5,128 respondents in present study

**It is NOT a study IN the army**
Measures

- CC-smoking status (nonsmoker, occasional smoker, daily smoker) past 12 months baseline and follow-up
- Frequency of CC-use and number of cigarettes per smoking day, thus weekly number of cigarettes past 12 months baseline and follow-up
- Number of serious quit attempts (consecutive days) past 12 months follow-up only
- Adjustment for dependence (Fagerström Test for Nicotine Dependence) baseline and follow-up
- E-cigarette use past 12 months follow-up only!!!
Methods

- Mutinomial logistic regression for smoking status stratified by baseline status and adjusting for nicotine dependence
- Mixed models for change in weekly number of c-cigarettes stratified by baseline status and adjusting for nicotine dependence
- Negative binomial regression on number of quit attempts adjusting for nicotine dependence
RESULTS
Vapers are different! Probably even before starting to vape

1.1% of nonsmokers « became » vapers, but 13% became CC users

RENORMALIZATION????

Baseline
- Daily smoker
- Occasional smoker
- Nonsmoker

Vapers (5%)
- 55.1%
- 12.6%

Non-vapers (95%)
- 16.7%
- 57.3%
Vapers are different! Probably even before starting to vape
Increased smoking among non-smokers?
Increased smoking cessation among smokers?

Follow-up

<table>
<thead>
<tr>
<th>Group</th>
<th>Non smokers</th>
<th>Occasional smokers</th>
<th>Daily smokers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nonsmokers</td>
<td>50.0%</td>
<td>37.5%</td>
<td>87.9%</td>
</tr>
<tr>
<td>Vapers</td>
<td>12.5%</td>
<td>34.1%</td>
<td>84.0%</td>
</tr>
<tr>
<td>Non-vapers</td>
<td>12.5%</td>
<td>34.1%</td>
<td>87.9%</td>
</tr>
<tr>
<td>Baseline</td>
<td>86.9%</td>
<td>57.3%</td>
<td>21.9%</td>
</tr>
</tbody>
</table>

OR values:
- Non-smokers: OR = 12.69
- Occasional smokers: OR = 2.31
- Daily smokers: OR = 0.43
Does vaping decrease the number of cigarettes among smokers?

- Daily smokers
  - Vapers: Decrease with p < .05
  - Non-vapers: No change
  - No Interaction

- Occasional smokers
  - Vapers: Increase with p < .05
  - Non-vapers: Increase with p < .05
  - No Interaction
Do vapers among smokers have more quit attempts than non-vapers?

<table>
<thead>
<tr>
<th>Baseline cc-smoking</th>
<th>Vapers</th>
<th>Non-vapers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Occasional</td>
<td>0.6</td>
<td>0.3</td>
</tr>
<tr>
<td>Daily</td>
<td>0.7</td>
<td>0.5</td>
</tr>
</tbody>
</table>

*p < .05*
Discussion I

• Be careful with interpretation; vaping was measured at follow-up only; e.g. nonsmokers may have started first with cc and than started vaping, but.....

• Vaping seems not to renormalize cc-use, only very few non-smoker start smoking “via” vaping.

• E-cigarettes are used by heavier smokers, so they may be used as a help to quit or reduce smoking
Discussion II

• Although vapers had more quit attempts, they were not more likely to become nonsmokers, even when adjusting for nicotine dependence.
• Vaping smokers also do not reduce their number of c-cigarettes compared with smoking non-vapers.
• Clearly, the next wave of C-SURF with also longitudinal measures of vaping will show whether vapers stop or reduce smoking in the long run.