Recent trends in the use of tobacco and e-cigarettes in Germany: findings from the new DEBRA survey

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Disclosures

Industry funding to the investigator in the last 5 years

None
Tobacco-related mortality

- Tobacco smoking causes ~6 million deaths worldwide each year, including more than 600,000 non-smokers who die from second-hand tobacco smoke \[\text{WHO, 2011}\]
- Smokers lose on average 10 life-years, and spend much of their life in lower quality and poorer health \[\text{Doll, BMJ 2004}\]

Smoking in Germany

- Germany ranks among the top 10 countries worldwide in largest number of smokers \[\text{Reitsma, Lancet 2017}\]
- 110,000 people die from smoking each year, including 3,300 non-smokers \[\text{Mons, Gesundheitswesen 2011}\]
- Annual direct costs of tobacco smoking ~€8.7 billion, indirect costs ~€25.9 billion \[\text{Adams, DKFZ 2009}\]
DEBRA general aims

Provide data helping to guide tobacco control policy, clinical practice and scientific research

- Collect data on patterns and trends of smoking and quitting in the German population
- Assess processes of smoking and quitting and the role played by triggers such as motivation or physician advice, sociodemographic factors, and aids to cessation
- Assess the use of e-cigarettes and their impact on tobacco smoking and quitting
DEBRA strengths

- In-depth data on key indicators of smoking and quitting
- Baseline and 6-month follow-up data
  - face-to-face household interview (CAPI)
  - telephone follow-up interview (CATI)
  ➔ cross-sectional AND longitudinal data analyses
- Bi-monthly data collection via omnibus survey, 3 years
  - monitoring of trends (including new innovations)
- Large accumulated data set (18 waves)
  - high statistical power
- Methods closely aligned to "Smoking Toolkit Study"
  - international comparison with England

DEBRA methods

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Study protocol of the German Study on Tobacco Use (DEBRA): a national household survey of smoking behaviour and cessation

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BMC Public Health

Study Protocol
DEBRA sampling

- Multi-topic omnibus survey by market research institute Kantar Health
- Multi-stage, multi-stratified random probability sampling of German population 14+
- Bi-monthly representative sample N≈2,000
  - 500-600 smokers > ~10,000 smokers in total

DEBRA current state

- Wave 1 = start of DEBRA: June 2016
- Current analysis:
  - 5 waves
    June + August + November 2016
    January + March 2017
  - total N = 10,226 (N = 2,811 current smokers)
DEBRA today's aims

- Recent trends in use of tobacco and e-cigarettes in Germany
- Population's support for tobacco policy measures

Tobacco use

"Which of the following best applies to you?"

- I smoke cigarettes every day  > current smoker
- I smoke cigarettes, but not every day
- I do not smoke cigarettes at all, but I do smoke tobacco of some kind (e.g., pipe or cigar)
- I have stopped smoking completely in the last year  > ex-smoker
- I stopped smoking completely more than a year ago
- I have never smoked (i.e., smoked for a year or more)  > never smoker
Smoking status

Aggregated (Jun '16 - Mar '17)

- Current
- Ex
- Never

England: 17.3%
[www.smokinginengland.info]
(27.3-29.9%)
(16.1-17.6%)
(54.0-56.0%)

Smoker by sex

Males: 32.7%
Females: 23.8%
Smoker by age categories

- 14-17: 12.5%
- 18-20: 35.8%
- 21-34: 36.9%
- 35-64: 33.7%
- 65+: 12.9%

Smoker by education

- No qualification: 36.7%
- Junior high school (Hauptschule): 32.5%
- Secondary school (Realschule): 32.1%
- Advance tech. college (Fachhochschule): 24.1%
- High school (Hochschule): 20.2%

** p<0.01 for linear-by-linear trend
Smoker by income

*** p<0.001 for linear-by-linear trend

Use of e-cigarettes

"Have you ever used an electronic cigarette (e-cigarette) or similar product (e.g., e-shisha, e-cigar, e-pipe)"?

- Yes, I still use them at current  > current user
- Yes, I used them regularly, but currently not any more  > ex-user
- Yes, I tried them in the past, but currently not any more  > ever tried
- No, I never used them  > never user
Use of e-cigarettes

Aggregated (Jun '16 - Mar '17)

- Current: 89.7% (89.1-90.3%)
- Ex: 1.9% (1.7-2.2%)
- Ever: 6.7% (6.2-7.2%)
- Never: 100%

Use of e-cigs: trend

- Current
- Ex
- Ever

Trend from Jun '16 to Mar '17: Current, Ex, Ever
Use of e-cigarettes by age categories

- **Current**
  - 14-17: 10.8%
  - 18-20: 13.1%
  - 21-34: 10.8%
  - 35-64: 7.2%
  - 65+: 1.3%

- **Ex**
  - 14-17: 4.1%
  - 18-20: 2.7%
  - 21-34: 2.9%
  - 35-64: 1.9%
  - 65+: 1.1%

- **Ever**
  - 14-17: 2.7%
  - 18-20: 4.1%
  - 21-34: 3.9%
  - 35-64: 1.9%
  - 65+: 0.2%

Smoking status within e-cigarette status

- **Tobacco**
  - Never
  - Ex
  - Current

- **E-cigs**
  - Never
  - Ex
  - Current
Nicotine content of e-cigs
[subset of current users, N=179]

- Solely with nicotine: 41.7%
- Mainly with nicotine: 29.3%
- Mainly without nicotine: 17.7%
- Solely without nicotine: 8.1%
- Don’t know if nicotine: 2.4%

Reasons for e-cig use – top 10
[subset of current users, N=179]

<table>
<thead>
<tr>
<th>Reason</th>
<th>% (multiple choice)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Different flavours</td>
<td>35.5</td>
</tr>
<tr>
<td>2. Less expensive than tobacco</td>
<td>33.1</td>
</tr>
<tr>
<td>3. To smoke less tobacco without quitting</td>
<td>31.2</td>
</tr>
<tr>
<td>4. Less harmful than tobacco</td>
<td>30.7</td>
</tr>
<tr>
<td>5. It’s fun</td>
<td>29.8</td>
</tr>
<tr>
<td>6. Less annoying for others than tobacco smoke</td>
<td>26.8</td>
</tr>
<tr>
<td>7. To quit tobacco</td>
<td>25.4</td>
</tr>
<tr>
<td>8. For use at places where tobacco is prohibited</td>
<td>24.2</td>
</tr>
<tr>
<td>9. Tastes better than smoking tobacco</td>
<td>22.2</td>
</tr>
<tr>
<td>10. Reduces urges to smoke tobacco</td>
<td>18.1</td>
</tr>
</tbody>
</table>
Use of e-cigs as quit aid
[subset smokers who attempted to quit, N=719]

<table>
<thead>
<tr>
<th>Method</th>
<th>NRT Rx</th>
<th>NRT OTC</th>
<th>Bupropion</th>
<th>Vareniclin</th>
<th>E-cig with nicotine</th>
<th>E-cig without nicotine</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physician advice</td>
<td>5.5%</td>
<td>1.7%</td>
<td>0.6%</td>
<td>3.7%</td>
<td>5.1%</td>
<td>6.1%</td>
</tr>
<tr>
<td>Behavioural support</td>
<td>2.6%</td>
<td>0.6%</td>
<td>0.6%</td>
<td>0.6%</td>
<td>0.6%</td>
<td></td>
</tr>
<tr>
<td>Telephone support</td>
<td>6.1%</td>
<td>0.6%</td>
<td>0.6%</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**England:**
- Any evidence-based treatment ~50%
- E-cigs ~35%

[Kotz, Addiction 2009] [www.smokinginengland.info]

DEBRA today's aims

- Recent trends in use of tobacco and e-cigarettes in Germany
- Population's support for tobacco policy measures
Support tobacco policy measures

Statements [Wave 2, September 2016, N=2,087]:
1. The sale of cigarettes and tobacco in Germany should be banned completely within the next 10 years
2. The legal age of sale of cigarettes and tobacco in Germany should be raised from 18 to 21
3. Tobacco industry sales should be taxed in order to use the money to address problems caused by tobacco (e.g. health issues, environmental problems, etc.)
4. It should be assessed whether e-cigarettes are safe and effective in assisting smokers to quit
5. When children are in the car, smoking inside the car should be banned and subjected to punishment

Response categories:
1. Strongly support 1+2 > agree
2. Tend to support
3. No opinion either way
4. Tend to oppose 4+5 disagree
5. Strongly oppose
6. Not applicable/No answer
Support tobacco policy measures

1. total ban on sales
   - Agree: 48.8%
   - Disagree: 22.9%
   - Undecided: 29.3%
   - No answer: 9.9%

2. raise age > 21
   - Agree: 43.1%
   - Disagree: 36.6%
   - Undecided: 18.7%
   - No answer: 9.9%

3. taxing industry
   - Agree: 57.1%
   - Disagree: 36.6%
   - Undecided: 6.2%
   - No answer: 9.9%

4. assess e-cigs
   - Agree: 55.4%
   - Disagree: 38.7%
   - Undecided: 6.2%
   - No answer: 9.9%

5. ban in cars
   - Agree: 71.4%
   - Disagree: 22.9%
   - Undecided: 29.3%
   - No answer: 9.9%

Agreement by smoking status

1. total ban on sales
   - Average: 36.2%
   - Smoker: 29.3%
   - Ex-smoker: 48.4%
   - Never smoker: 43.1%

2. raise age > 21
   - Average: 38.7%
   - Smoker: 36.6%
   - Ex-smoker: 43.1%
   - Never smoker: 48.4%

3. taxing industry
   - Average: 57.1%
   - Smoker: 48.4%
   - Ex-smoker: 57.1%
   - Never smoker: 61.3%

4. assess e-cigs
   - Average: 55.4%
   - Smoker: 50.1%
   - Ex-smoker: 56.9%
   - Never smoker: 57.7%

5. ban in cars
   - Average: 71.4%
   - Smoker: 57.7%
   - Ex-smoker: 67.0%
   - Never smoker: 73.8%
Conclusions: tobacco

- **Prevalence** of tobacco smoking in Germany is relatively **high**
  - 28% of the population smokes tobacco, incl.
  - 13% of children aged 14-17 years

- **Social gradient** in smoking tobacco:
  the lower the education and income the higher the prevalence of smoking

- Only very few smokers attempting to quit use **evidence-based treatments**

Conclusions: e-cigarettes

- 1.9% of the population currently uses e-cigs, incl.
  - 2.7% of children aged 14-17 years

- E-cigs are mainly used by tobacco smokers

- E-cigs are a relatively frequently used aid to reduce and quit tobacco

➔ There is scientific need and public support for research into the effectiveness and safety of e-cigarettes as an aid to quitting
The DEBRA study is funded by the Ministry of Innovation, Science and Research of the State of North Rhine-Westphalia.