Covid-19 and alcohol, tobacco, and nicotine vaping

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Topics for discussion today

• Part 1: Adolescent substance use and the pandemic: interrogating potential hypotheses

• Part 2: State-to-state heterogeneity and beginning to tackle Covid-19 policy analyses

• Part 3: Setting a research agenda moving forward: localized and long-term period effects
<table>
<thead>
<tr>
<th>Availability of Substance</th>
<th>Prevalence of Substance</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Decrease</td>
</tr>
<tr>
<td></td>
<td>Steady/Increase</td>
</tr>
<tr>
<td>Decrease</td>
<td>(1) Constriction of Supply</td>
</tr>
<tr>
<td></td>
<td>(3) Persevering</td>
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<tr>
<td>Steady/Increase</td>
<td>(2) Constriction of Use Opportunities</td>
</tr>
<tr>
<td></td>
<td>(4) No changes during social distancing</td>
</tr>
</tbody>
</table>
Adolescent Drug Use Before and During U.S. National COVID-19 Social Distancing Policies

• Wave 1 data collected February to March 2020 (N=3,770)

• Wave 2 data collected July to August 2020 (N=582)

<table>
<thead>
<tr>
<th>Social distancing practices at follow up</th>
<th></th>
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</thead>
<tbody>
<tr>
<td>Extreme</td>
<td></td>
</tr>
<tr>
<td>Question: “Have you met friends in person since the pandemic started”? Coded 1 for response of “No.”</td>
<td>.20 (.16 - .25)</td>
</tr>
<tr>
<td>High</td>
<td></td>
</tr>
<tr>
<td>Questions: “When you are with your friends who do not live with you, how often do you stay six feet apart from them?” and “When you are with your friends who do not live with you, how often do you wear a facemask?” (Questions asked only of those who had met with friends in person since the pandemic started). Coded 1 for respondents whose answers were “Always or almost always” or “Often” for both questions.</td>
<td>.18 (.14 - .23)</td>
</tr>
<tr>
<td>None to medium</td>
<td></td>
</tr>
<tr>
<td>Coded 1 for respondents who answers to either of the questions above for category above included “Never”, “Rarely,” or “Sometimes.”</td>
<td>.61 (.55 - .67)</td>
</tr>
</tbody>
</table>
Prevalence of Substance Use and Substance Availability Before and During the 2020 Pandemic, by Level of Social Distancing in Summer of 2020

Panel A2: Availability of Marijuana

Prevalence of Substance Use and Substance Availability Before and During the 2020 Pandemic, by Level of Social Distancing in Summer of 2020

Panel A: Availability of Marijuana

Panel B: Availability of Alcohol

Panel C: Availability of Vaping Device

Social Distancing Practices in Summer of 2020

Prevalence of Substance Use and Substance Availability Before and During the 2020 Pandemic, by Level of Social Distancing in Summer of 2020

Panel A1: Marijuana Use in Past 30 Days

Panel B1: Binge Drinking in Past Two Weeks

Panel C1: Nicotine Vaping in Past 30 Days

Panel A2: Availability of Marijuana

Panel B2: Availability of Alcohol

Panel C2: Availability of Vaping Device

Social Distancing Practices in Summer of 2020

Conclusions

• Largest decreases in substance use availability ever recorded in the 46 consecutive years it has been monitored by Monitoring the Future

• Support for and against the four hypotheses of this study vary by substance and by social distancing levels.
  
  • Cannabis and alcohol: “Perseverance” hypothesis (decreased availability, unchanged prevalence)

  • Vaping: “constriction of supply” hypothesis (decreased availability, decreased prevalence)
Conclusions

• Adolescent substance use prevalence decreased surprisingly little in summer 2020, despite social distancing efforts.

• Record decreases in availability of substances did not track with decreases in prevalence. Challenges face a supply-side strategy for adolescent substance use.

• Changes were substance-specific.
Trends in US Alcohol Consumption Frequency During the First Wave of the SARS-CoV-2 Pandemic

Sarah McKetta, Christopher N. Morrison, and Katherine M. Keyes

**Background:** The SARS-CoV-2 pandemic created disruptions and stressors which may have influenced alcohol consumption frequency trends. Varying COVID-19 health burden and alcohol policies may have contributed to different consumption trends between states. The aim of this study is to assess trends in alcohol consumption and moderation by state of residence.

**Methods:** We examined trends in adult drinking days, during the first wave of the pandemic (March 10 to June 8) using longitudinal data from the Understanding America Study (N = 6,172 unique participants; N = 28,059 observations). Because state mandates were responsive to disease burden, we modeled the interaction of time by COVID-19 burden, defined as whether the state had the median (or higher) daily incidence of COVID-19 cases on the survey date, and state random effects. We controlled for individual sociodemographics, perceived personal/familial COVID-19 burden, mental health symptomology, and risk avoidance.

**Results:** Drinking days increased throughout the duration (incidence risk ratio [IRR] for drinking per increase in one calendar day = 1.003, 95% CI 1.001, 1.004); trends were heterogeneous by disease burden, with individuals living in states with lower COVID-19 burden increasing (IRR = 1.005, 95% CI 1.003, 1.007) faster than those living in states with higher COVID-19 burden (IRR = 1.000, 95% CI 0.998, 1.002). Trends were heterogeneous between states, but there was no evidence of systematic geographic clustering of state trends.

**Conclusions:** Drinking days increased during the first months of the COVID-19 pandemic, particularly among residents of states with lower disease burden.

**Key Words:** Alcohol, SARS-CoV-2, Trends.
Methods

- UnderStanding America Study, waves 1-5 (March 10 – June 8)
- N=6,172 unique participants; N=28,013 observations
- Outcome Alcohol frequency of past week (0-7)
- Covariates: gender, presence of children at home, employment status, age, race, and perceived COVID-19 risk
- Modeled trends over time using negative binomial regression
- 3-level growth models: Random slopes for state, random intercept for individual
- Interaction by COVID-19 burden

- COVID-19 burden: whether or not state had >median national cumulative incidence of cases on study date

Fig. 1. Predicted count of drinking days over time and state-level COVID-19 presence, March 10, 2020–June 8, 2020; marginal estimates and with interaction by disease burden.

Fig. 2. Incident rate ratio for the count of drinking days as a function of time, from March 10, 2020 to June 8, 2020, by US state, ranked by magnitude of slope.
Conclusions

• Alcohol frequency increased overall during the first wave of the pandemic

• However, increases concentrated among individuals living in states with lower COVID-19 burden

• In high COVID-19 burden states, the lack of increase may be related to policy changes, reduced consumption in bars/restaurants
Long-term trends in alcohol, tobacco, and nicotine vaping

Past two-week binge drinking

8th Graders

10th Graders

12th Graders

Long-term trends in alcohol, tobacco, and nicotine vaping

Past 30 day cigarette use

Long-term trends in alcohol, tobacco, and nicotine vaping

Past 30 day nicotine vaping

Trends in binge drinking among adults by gender in the United States, 2006 to 2018


Hypothetical pandemic impact on substance use

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  - NIDA: R01 parent MTF
  - NIDA: R01 panel MTF
- Columbia University Department of Epidemiology