Co-occurring use (co-use) of nicotine and cannabis is known about characteristics of those who co-use vaped through the lens of smoked tobacco and cannabis. Little is known about characteristics of those who co-use vaped nicotine and cannabis, and the degree to which specific co-use behaviors are associated, based on mode of use and/or substance.

**Methods**

One hundred twelve concurrent users of vaped nicotine and cannabis were recruited from Amazon Mechanical Turk and responded to a survey on inhaled nicotine and cannabis use behaviors.

- Eligible participants were aged 18 or older, residents of the country of Canada or a U.S. state with medical or recreationally-legal cannabis, reported past 30-day use of vaped nicotine and vaped cannabis, and usually used their vaping products at least monthly.
- All participants responded to questions about nicotine and cannabis vaping behaviors, while participants who reported smoking cannabis or tobacco cigarettes answered additional questions about use of those products.
- The survey took 25-30 minutes to complete, and participants were paid a total of $5.00 for their time.

**Survey Measures & Data Analysis**

- Time Line Follow-Back measures were used to examine inhaled nicotine and cannabis product use frequency. Specific measures were included assessing sequential use and co-administration practices.
- Sociodemographic characteristics as well as internalizing, externalizing, and substance use problem behaviors using the GAIN-SS were measured.
- Univariate and bivariate statistics were used to examine sample characteristics and associations between inhaled products.
- Binary logistic regression was used to examine the association between days of inhaled product use and odds of sequential use and co-administration practices.

**Results**

- **Average Days of Use Per Month**
  - Cannabis Smoking: 18.7
  - Cannabis Vaping: 20.9
  - Nicotine Vaping: 22.2

- **Average Quantity/Frequency Per Month**
  - Cannabis Smoking: 320.3
  - Cannabis Vaping: 417.8
  - Nicotine Vaping: 1386.3

- **Adjusted odds of engaging in co-administrations (n=112)**

<table>
<thead>
<tr>
<th>Behavior</th>
<th>No vs. any co-admin</th>
<th>Mix nicotine &amp; cannabis in e-cigarette</th>
<th>Mix tobacco &amp; cannabis in dry herb vaporizer</th>
<th>Mix tobacco and cannabis in pipe, long, or blunt</th>
<th>Smoked cannabis &amp; birds</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cannabis smoking days/month</td>
<td>0.99</td>
<td>1.00*</td>
<td>1.04</td>
<td>0.97</td>
<td>1.01</td>
<td>0.103</td>
</tr>
<tr>
<td>Cannabis vaping days/month</td>
<td>0.95</td>
<td>1.01</td>
<td>1.03</td>
<td>0.96</td>
<td>0.99</td>
<td>0.172</td>
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<tr>
<td>Cannabis smoking days/month</td>
<td>1.05</td>
<td>1.04</td>
<td>1.04</td>
<td>1.08**</td>
<td>1.08**</td>
<td>0.177</td>
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<tr>
<td>Nicotine vaping days/month</td>
<td>1.02</td>
<td>1.00</td>
<td>1.00</td>
<td>1.03</td>
<td>1.03</td>
<td>0.172</td>
</tr>
</tbody>
</table>

- **Adjusted odds of engaging in sequential use practices (n=112)**

<table>
<thead>
<tr>
<th>Behavior</th>
<th>No vs. any chasing</th>
<th>Chasing cannabis smoking with e-cigarette</th>
<th>Chasing cannabis vaping with nicotine smoking</th>
<th>Chasing cannabis smoking with nicotine vaping</th>
<th>Chasing cannabis vaping with e-cigarette</th>
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<tbody>
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<td>0.99</td>
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<td>0.172</td>
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<tr>
<td>Nicotine vaping days/month</td>
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<td>0.99</td>
<td>1.00**</td>
<td>0.99</td>
<td>1.11**</td>
<td>0.172</td>
</tr>
</tbody>
</table>

**Conclusion**

- Those who regularly vape nicotine and cannabis tend to exhibit moderate-to-high mental health and substance use problems, and regularly engage in some form of smoking.
- Different co-use practices showed different associations with patterns of use and modes of drug delivery.

**Acknowledgements**

Funding for this project was provided by The Mark Diamond Research Fund of the Graduate Student Association at the University at Buffalo, the State University of New York (Grant No. SU-19-16).

**Disclosures**

Macie J. Goniewicz has served on an advisory board to Johnson & Johnson, and has received funding from Pfizer, a manufacturer of smoking cessation medications. The other authors have no conflicts to declare.