Cannabis Advertising Exposure and Use among Adolescents

Pamela Trangenstein, Jennifer Whitehill, Marina Jenkins, David Jernigan, and Megan Moreno
Adolescence is an important developmental phase marked by growing independence.
Trends in Drug Use among 12th Graders, 2007 vs. 2017

- **Alcohol**: 44% to 33%
- **Tobacco**: 22% to 10%
- **Cannabis**: 19% to 23%

Among adolescents, smartphone access is “nearly ubiquitous.”

45% of teens report being online “almost constantly.”

Pew Research Center, May 2018, “Teens, Social Media & Technology 2018”
Media have been described as a “super peer” that can promote social norms and expectancies around health behaviors, including risky behaviors such as substance use.


Advertisements vs. Promotions

**Advertisements** is an openly sponsored, non-personal message to promote or sell a product, service or idea.

**Promotions** are focused on cannabis social media “business pages.”
What we Know from Tobacco & Alcohol

While cannabis ads are new, decades of research on advertising related to other substances like tobacco and alcohol.

Cigarette ads can change the appeal of smoking and recruit new smokers.

The more young people are exposed to alcohol marketing, the more likely they are to start drinking or, if already drinking, to drink more.

How Cannabis is Unique

1. Ads can claim health benefits of cannabis use because it is legal for medical use in some states.

2. Cannabis businesses rely on social media as an initial and primary method for communications with potential customers.

3. The physical effects of cannabis are different from alcohol and tobacco.

4. There are no regulatory guidelines for cannabis advertisement content.
The Theory of Normative Social Behavior

Descriptive Norms

Normative Mechanisms

Injunctive Norms
Social approval

Outcome Expectations
Anticipated benefits to self and others

Group Identity
Similarity & aspiration

Behaviors

The Prevalence of Cannabis Promotions on Social Media is Unknown

Oh, you took too many dabs on 7/10? But did you die?
Limitations on social media ads & promotions are sparse.

The WA Liquor Control Board marijuana advertising rules (WAC 314-55-155) state:

“Please use social media with caution and be mindful not to appeal to, or solicit, viewers under the age of 21. If possible, please restrict views to adults age 21 and older.”
Objective

Our analysis aims to determine whether exposure to and engagement with cannabis advertisements and promotions are associated with cannabis use among adolescents in six states with legalized cannabis.
Sample

n=501

Adolescents aged 15-19 years old
Recruited by Qualtrics, Inc.
Surveyed in February 2018

Youth were from six states with legalized non-medical (retail) cannabis:

Alaska, California, Colorado, Maine, Nevada, and Washington
We asked youth how often they saw cannabis advertisements on various platforms:

Facebook
Twitter
Instagram
News
Billboards

Social media platforms

Traditional platforms

The original questions used a 5-point likert scale:

When you are using [PLATFORM], how often do you see ads or promotions for cannabis or related products?
- Never (1)
- Rarely (2)
- Sometimes (3)
- Most of the time (4)
- Always (5)
- I don't use [PLATFORM] (6)

We dichotomized these questions and counted the number of media platforms on which each youth reported cannabis advertising.
Covariates

Analyses determining odds of cannabis advertising exposure
- Age
- Gender
- Race/Ethnicity
- Timing of cannabis legalization (2012/early vs. 2016/late)

Analyses determining association between cannabis advertising exposure and cannabis use
- Age
- Gender
- Race/Ethnicity
- Parent’s level of education
- Injunctive norms
- Outcome expectations
- Group identity
Analysis Methods

- Exploratory data analysis
  (\(\chi^2\) & simple logistic regression)

- Theory of Normative Social Behavior and best subset selection

- Logistic regression with robust standard errors

- Regression diagnostics
  (specification link test, Hosmer-Lemeshow Goodness of Fit, and tests for outliers and leverage)
# Sample Characteristics

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mid adolescence</td>
<td>230</td>
<td>49.8%</td>
</tr>
<tr>
<td>Older adolescence</td>
<td>232</td>
<td>50.2%</td>
</tr>
<tr>
<td><strong>Gender</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>127</td>
<td>27.5%</td>
</tr>
<tr>
<td>Female</td>
<td>335</td>
<td>72.5%</td>
</tr>
<tr>
<td><strong>Race/Ethnicity</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Caucasian</td>
<td>180</td>
<td>39.0%</td>
</tr>
<tr>
<td>African American</td>
<td>34</td>
<td>7.4%</td>
</tr>
<tr>
<td>Hispanic</td>
<td>163</td>
<td>35.3%</td>
</tr>
<tr>
<td>Other</td>
<td>85</td>
<td>18.4%</td>
</tr>
<tr>
<td><strong>Parent education</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High school or some college</td>
<td>353</td>
<td>76.4%</td>
</tr>
<tr>
<td>Bachelors degree or more</td>
<td>109</td>
<td>23.6%</td>
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</table>

## Self-Reported Cannabis Use

<table>
<thead>
<tr>
<th></th>
<th>Lifetime</th>
<th>Past Year</th>
<th>Past Month</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes (our sample)</td>
<td>37%</td>
<td>15%</td>
<td>30%</td>
</tr>
<tr>
<td>Yes (United States)</td>
<td>12%</td>
<td>27%</td>
<td>7%</td>
</tr>
<tr>
<td>No</td>
<td>20%</td>
<td>30%</td>
<td>40%</td>
</tr>
</tbody>
</table>
Cannabis Ad/Promotion Exposure

Percent Reporting Ad Exposure

<table>
<thead>
<tr>
<th>Media Platform</th>
<th>Any platform</th>
<th>Facebook</th>
<th>Twitter</th>
<th>Instagram</th>
<th>Newspaper/magazine</th>
<th>Billboards</th>
</tr>
</thead>
<tbody>
<tr>
<td>Middle Adolescence (15-17 yrs)</td>
<td>89%</td>
<td>76%</td>
<td>69%</td>
<td>75%</td>
<td>54%</td>
<td>69%</td>
</tr>
<tr>
<td>Older Adolescence (18-19 yrs)</td>
<td>91%</td>
<td>82%</td>
<td>76%</td>
<td>74%</td>
<td>62%</td>
<td>76%</td>
</tr>
</tbody>
</table>
Youth who reported seeing cannabis promotions on Instagram had **twice the odds** of past year cannabis use than youth who were not exposed to cannabis promotions on Instagram.

Adjusted for age, gender, race/ethnicity, parent’s level of education, injunctive norms, outcome expectations, and group identity.
Each additional online source of cannabis advertising was associated with a 43% increase in youths’ odds of past year cannabis use.
Youth who liked or followed a cannabis marketer on at least one social media platform had nearly **7 times greater odds** of lifetime cannabis use.
Nine out of ten adolescents in state with legal non-medical (retail) cannabis are exposed to cannabis advertising and promotions.
• Exposure to cannabis promotions on social media sites was associated with higher odds of cannabis use.

• Being exposed to cannabis advertisements and promotions on more media platforms (particularly on social media) was associated with higher odds of cannabis use.

• Engaging with cannabis social media pages (by liking or following) was associated with higher odds of cannabis use.
Strengths & Weaknesses

Weaknesses

• This is a non-probability and moderately-sized sample.

• Our measures of cannabis ad/promotion exposure were limited (e.g., did not systematically include Snapchat & YouTube).

Strengths

• The level and consequences of cannabis ad/promotion exposure is unknown.

• Our analysis is grounded in the Theory of Normative Social Behavior.
Policy Implications

• In 2018, a retail cannabis market was well established in Colorado, Washington and Alaska, just beginning in California, and absent in Maine and Nevada.

• States differ in their approach to regulating cannabis advertising, but no state prohibits advertising completely.

• Additional efforts to regulate cannabis promotions online are needed, as well as additional research into the impact of the cannabis advertising on cannabis use and related health outcomes.
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Acknowledgements:
Jennifer Whitehill
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