Discussing Marijuana in a Changing Legal Climate: Lessons Learned from a Legal State

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Today

- Big thanks to Kasey Evans and Eric Davidson
- Asked if I could address “marijuana use and college students that might be beneficial for practitioners” – I will try to deliver on that!
- Opportunities for conversations with students
- Some challenges and lessons learned in a legal state
- Time for your questions

Washington State Impact Report (mfiles.org)
Average potency (nation) = 11.16%
Average potency (Seattle) = 21.24%

Concentrates average potency (nation) = 55.45%
Concentrates average potency (Seattle) = 72.76%
MARIJUANA USE – onset

- When smoked...
  - Effects begin immediately
  - Last 1-3 hours
- When consumed in food or drink...
  - Effects begin 30-60 minutes
  - Last up to 4 hours

NIDA (2012)

MARIJUANA USE – effects after use

- Feel euphoric or "high" due to action in the reward system of the brain
- After euphoria passes, may feel sleepy or depressed
- Occasionally produces anxiety, fear, distrust, panic

NIDA (2012)

MARIJUANA USE – effects after use

- With high doses, may experience acute toxic psychosis
  - Hallucinations
  - Delusions
  - Depersonalization
- Seem more likely when high dose is consumed in food/drink rather than smoked
- Specific causes of symptoms unknown
From the date of legalization to the date of commercial sales starting, poison center calls increased 54.26%; for those under 20, calls increased 80%

**Norms**

Social norms: Perception versus reality

- People are influenced by their subjective interpretation of a situation rather than by the actual situation (Lewin, 1943).
- We are influenced by our perception of others’ attitudes, behaviors, and expectations rather than by their actual attitudes, behaviors, or expectations.
- Our perceptions and interpretations are often inaccurate.

Source: Neighbors & Kilmer (2008)
Norms Clarification

- Examines people’s perceptions about:
  - Acceptability of excessive behavior
  - Perceptions about the prevalence of use among peers
  - Perception about the rates of use by peers

NORM PERCEPTION

- In survey of 5990 participants, 67.4% of students said they hadn’t used MJ in the past year
  - Thus, “most” students don’t use marijuana
- Only 2% of students got this right!
  - 98% of students perceived the typical student to use at least once per year
- Misperceptions were related to use and consequences

Kilmer, et al. (2006)

- Although 56% do not use marijuana, only 2% get this correct. Over half (53%) estimate the typical person their age uses marijuana at least weekly

Washington Young Adult Health Survey, Cohort 1 (2014 data)
Substance use and sleep

Absorption and Oxidation of Alcohol

- Factors affecting absorption
  - What one is drinking
  - Rate of consumption
  - Effervescence
  - Food in stomach

- Factors affecting oxidation
  - Time!
  - We oxidize .016% off of our blood alcohol content per hour
Time to get back to .000%

- .08%?
  - 5 hours
    (.080%....064%....048%....032%....016%....000%)
- .16%?
  - 10 hours
    (.160%....144%....128%....112%....096%....080%....064%....048%....032%....016%....000%)
- .24%?
  - 15 hours
    (.240%....224%....208%....192%....176%....160%....144%....128%....112%....096%....080%....064%....048%....032%....016%....000%)
Stage 1
Stage 2
Stage 3
Stage 4

Next day, increase in:
• Daytime sleepiness
• Anxiety
• Irritability
• Jumpiness

Stage 1
Stage 2
Stage 3
Stage 4

Next day, increase in:
• Daytime sleepiness
• Anxiety
• Irritability
• Jumpiness
Next day, feel:
• Fatigue

Stage 1
Stage 2
Stage 3
Stage 4

With marijuana, two things happen...
Extension of Stage 4 or “deep” sleep and REM deprivation

Sleep impairment documented as persistent effect of marijuana use
NIDA (2012)
Impact on attention, concentration, and memory

Marijuana and cognitive abilities

- Effects on the brain
  - Hippocampus
    - Attention, concentration, and memory
    - Research with college students shows impact on these even 24 hours after last use (Pope & Yurgelun-Todd, 1996)
    - After daily use, takes 28 days for impact on attention, concentration, and memory to go away (Pope, et al., 2001)
  - Hanson et al. (2010):
    - Deficits in verbal learning (no longer significant at 2 weeks)
    - Deficits in verbal working memory (no longer significant at 3 weeks)
    - Deficits in attention (still present at 3 weeks)
Driving after use

Impaired driving and duration of effects

- Effects on the brain
  - Reaction time is impacted
  - DUI implications – I-502 set DUI at 5 ng THC/ml of blood for those over 21 years of age
  - Why 5 ng? Same deficits behind wheel of car that we see at .08% for alcohol
  - How long does it take to drop below 5 ng?
  - Grotenhermen, et al., (2007) suggest it takes 3 hours for THC levels to drop to 4.9 ng THC/ml among 70 kg men
  - From a public health standpoint, Hall (2013) recommends waiting up to 5 hours after use before driving

Driving (among those who reported using at least once in the past 30 days)

Washington Young Adult Health Survey, Cohort 1 (2014 data)
Mental Health

Cannabis Use Associated with Risk of Psychiatric Disorders (Hall & Degenhardt, 2009; Hall, 2009; Hall 2013)

- Schizophrenia
  - Those who had used cannabis 10+ times by age 18 were 2.3 times more likely to be diagnosed with schizophrenia
  - “13% of schizophrenia cases could be averted if cannabis use was prevented (Hall & Degenhardt, 2009, p. 1388)”

- Depression and suicide
  - “Requires attention in cannabis dependent” (Hall, 2013)

- Screening suggestions
  - Revised CUDIT-r
Information for student-athletes

29 = beats per minute increase in heart rate after marijuana use

16 = number of tobacco cigarettes a person would need to smoke to have same impact on vital lung capacity as one joint
The use of marijuana by the elite athlete prior to competition may result in danger to that particular athlete or others as a result of impairment of response or inappropriate decision making.” (Hilderbrand, 2011, p. 628)

Because of...“decreased exercise performance, possibly secondary to increases in heart rate and blood pressure, which may alter perceived exertion, marijuana may be considered an ergolytic agent.” (Pesta, et al., 2013, p. 10)

ergolytic

95 = number of days in which THC-COOH can be detected in urine

Separating reported medical use from management of withdrawal
Motivations for Use

- Research team utilized qualitative open-ended responses for using marijuana among incoming first year college students to identify which motivations were most salient to this population

Lee, Neighbors, & Woods (2007)

<table>
<thead>
<tr>
<th>Motive Category</th>
<th>Proportion of Open-Ended Responses</th>
<th>Proportion of Motive</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Enjoyment/Fun</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overconsumption (e.g., feels high, enjoy feeling)</td>
<td>82.14%</td>
<td>24.25%</td>
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<tr>
<td>Conformity (e.g., peer pressure, friends like it)</td>
<td>64.16%</td>
<td>23.89%</td>
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<tr>
<td>Social enhancement (e.g., more experienced, cool people)</td>
<td>47.20%</td>
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<tr>
<td><strong>Social enhancement/Reward</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overconsumption (e.g., feeling better, getting a positive feeling)</td>
<td>85.12%</td>
<td>29.09%</td>
</tr>
<tr>
<td>Conformity (e.g., feels high, enjoy feeling)</td>
<td>84.65%</td>
<td>26.91%</td>
</tr>
<tr>
<td>Social enhancement (e.g., friends enhancing, trying to be cool)</td>
<td>45.71%</td>
<td>20.52%</td>
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<tr>
<td><strong>Boredom</strong></td>
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<tr>
<td>Overconsumption (e.g., something to do, nothing better to do)</td>
<td>82.35%</td>
<td>25.87%</td>
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<tr>
<td>Conformity (e.g., feels high, enjoy feeling)</td>
<td>81.97%</td>
<td>25.07%</td>
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<td>Social enhancement (e.g., feeling better, getting a positive feeling)</td>
<td>46.71%</td>
<td>22.51%</td>
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<td><strong>Altered perception</strong></td>
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<td><strong>Image enhancement/Celebration</strong></td>
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Withdrawal: Cannabis

Diagnostic Criteria

292.0 (F12.298)

Withdrawal of cannabis use that has been heavy and prolonged (i.e., usually daily or almost
daily use over a period of at least a few months).

2. These (or similar) of the following signs and symptoms develop within approximately 1 week
after criterion A:

1. Irritability, anger, or aggression.

2. Nervousness.

3. Sleep problems (e.g., insomnia, disturbing dreams).

4. Increased appetite or weight loss.

5. Restlessness.

6. Agitation.

7. At least one of the following physical symptoms causing significant discomfort:
   abdominal pain, shakiness/tremors, sweating, fever, chills, muscle pain.

C. The signs or symptoms in Criterion B cause clinically significant distress or impairment in
   social, occupational, or other important areas of functioning.

D. The signs or symptoms are not attributable to another medical condition and are not better
   explained by another mental disorder, including intoxication or withdrawal from another
   substance.

Other “current events” and emerging questions

Emergence of more visible “open-air drug market”
On 4/21/15 from Seattle Times:

“City officials and business leaders say they are embarking on an ambitious effort to shut down open-air drug dealing and associated crime in Seattle's downtown core with its new '9½ Block Strategy.'”

“Seattle residents and visitors should not be forced to navigate a dangerous open-air drug market between the downtown retail core and Pike Place Market,” Murray said.

From Seattle Times, April 23, 2015

The arrests, dubbed "Operation Crosstown Traffic," involved undercover officers who made 177 purchases of heroin, meth, marijuana, crack cocaine and other drugs from 186 street dealers.”
Impact of advertisements needs to be assessed


Potential role of media

- Impact of media exposure related to alcohol (including television, advertisements, and movie content)
  - In a review of 13 studies, 12 of the 13 showed media exposure was associated with increased likelihood of:
    - Initiating drinking among abstainers
    - Increased consumption among those already drinking

Impact to minors, including sales to minors, and to children

Local News

4 pot stores sold marijuana to underage buyers in state sting

In the state’s first crackdown on recreational marijuana stores, four of 12 stores sold pot to underage buyers, according to the Liquor Control Board.

By Evan Bush

In the state’s first crackdown on recreational marijuana stores, four of 12 stores sold marijuana to underage buyers, according to the Liquor Control Board.

The state’s health assessment in response to a bill to make it harder to sell pot to minors.

If asked for identification, the buyers were directed either to say they did not have ID or present a real and turned identification. People must be 21 and older to legally buy marijuana.

Source: Seattle Times

Local News

State sting finds 19 pot shops selling to minors

In a sting using undercover investigators, the Liquor Control Board found that 19 of 128 recreational marijuana stores sold marijuana to minors.

By Bob Young

In a sting using undercover investigators, the Liquor Control Board found that 19 of 128 recreational marijuana stores sold marijuana to minors.

Just two days after the start of the state’s first marijuana sales, the agency said it would be taking action to seize the stores.

Source: Seattle Times
Opportunities and lessons learned:

How you talk about marijuana matters...a lot!
Remember the highlights of motivational-enhancement based brief interventions

**Brief Interventions and Motivational Interviewing**

- Non-judgmental
- Non-confrontational
- Meet people where they are
- Elicit personally relevant reasons to change
- Explore and resolve ambivalence
- Discuss behavioral change strategies when relevant

**Goals of a Brief Intervention**

- When there are signs of potential risks and/or existing harms, provide early intervention
- If ultimately in line with what motivates the individual, prompt contemplation of change
- If ultimately in line with what motivates the individual, prompt commitment to change or even initial action
- Reduce resistance/defensiveness
- Explore behavior change strategies and discuss skills to reduce harms
What are the differences/challenges compared to brief interventions with alcohol?

- Unlike alcohol, no clear guidelines for a point at which risks are minimized
- Unlike alcohol, hard to estimate standard amount, intoxication levels, potency, etc.
  - Established measures of use and consequences are much less available
  - Those that are tend to be adapted from alcohol measures
- Being “into” marijuana use may reflect much larger lifestyle/identity
- Perceived risk for future consequences, even if ones already experienced by the student, can be low

Discussing marijuana...word choice matters

- “Do you smoke marijuana?”
  - A person who uses edibles daily can honestly say “no”
  - If screening with a yes/no, consider “do you use marijuana?”
- “Do you use marijuana?” or “have you used marijuana?” followed by, “What does your marijuana use look like?”

Finding potential hooks: An Example

- “What are the good things about __________ use for you?”
- “What are the ‘not-so-good’ things about __________ use?”
- “What would it be like if some of those not-so-good things happened less often?”
- “What might make some of those not-so-good things happen less often?”
Parents and communities matter, too

Implications and Opportunities for Prevention
How Can We Prevent & Reduce Harm from Marijuana?

• Correct Normative Misperceptions
  ▫ Most people are not using
  ▫ Most people are not driving under the influence
    ▪ Varies by frequency of use, such that higher frequency of use is associated with higher frequency of driving within 3 hours of use
      ▪ Those using 2-3 times per month or less: 18.7%
      ▪ Those using weekly or more: 51.0%
  ▫ The more people use, the more they think others are using:
    ▪ Perceived percentage of people your age using marijuana:
      ▪ Those who never use: 59.0%
      ▪ Those who use less than 2-3 times per month: 63.8%
      ▪ Those who use weekly or more: 69.3%
  ▫ Opportunity for positive community norms (e.g., Jeff Linkenbach)

Source: Washington Young Adult Health Survey, 2016

How Can We Use This Information to Prevent & Reduce Harm from Marijuana?

• Increase Risk Perception
  ▫ Target consequences young people report they do not like
    ▪ “The Munchies”
      ▪ Those using 2-3 times per month or less: 77.2%
      ▪ Those using weekly or more: 95.1%
    ▪ Low motivation
      ▪ Those using 2-3 times per month or less: 38.2%
      ▪ Those using weekly or more: 61.6%
    ▪ Trouble remembering
      ▪ Those using 2-3 times per month or less: 40.2%
      ▪ Those using weekly or more: 64.9%
  ▫ Provide information relevant to their individual concerns

Source: Washington Young Adult Health Survey, 2016

How Can We Use This Information to Prevent & Reduce Harm from Marijuana?

• Reduce Motivation to Use/Misuse
  ▫ Already signs of some efforts of wanting to change:
    ▪ Tried to set limits on use
      ▪ Those using 2-3 times per month or less: 34.1%
      ▪ Those using weekly or more: 54.0%
    ▪ Tried to cut down
      ▪ Those using 2-3 times per month or less: 27.0%
      ▪ Those using weekly or more: 39.5%
  ▫ Effective coping; healthy alternatives

Source: Washington Young Adult Health Survey, 2016
How Can We Use This Information to Prevent & Reduce Harm from Marijuana?

- **Increase Motivation to Change for Heavier Users**
  - Brief Motivational Interventions show promise
  - Pilots of brief interventions with mandated students (e.g., Marijuana and Other Drug workshop)
  - In-person, personalized feedback interventions with facilitators trained in motivational interviewing (e.g., Lee, et al., 2013)
  - Chance to provide education about addiction and withdrawal

- **Enforce Policy Restrictions on Access, Public Use**
  - NIAAA’s College Alcohol Intervention Matrix (CollegeAIM) emphasizes importance of environmental approaches, including enforcement
  - Provide resources for prevention, treatment, & research

Thanks again to Kasey Evans, Eric Davidson, and all of your for your interest in this topic and for what you do to impact student health on college campuses!

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