

Six Years of Outcomes from the Young Adult Health Survey

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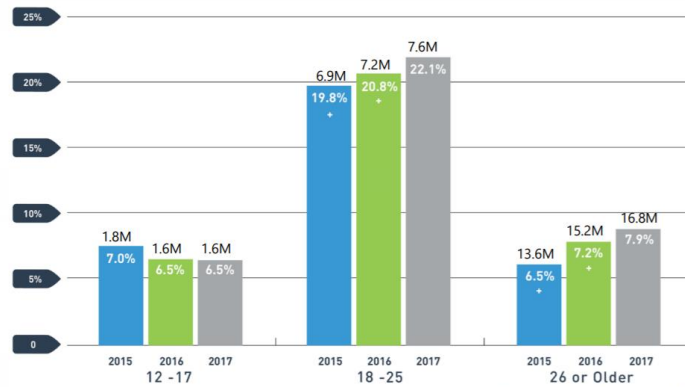
Acknowledgements

- Big thank you to Sandy Salivaras and Sarah Mariani, DBHR/HCA, as well as numerous others associated with survey input/assistance
- Thank you to all of you for doing what you do to promote health and support prevention efforts in our state

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Marijuana Use

PAST MONTH, 2015 - 2017, 12+



See figure 13 in the 2017 NSDUH Report for additional information.

+ Difference between this estimate and the 2017 estimate is statistically significant at the .05 level.

SAMHSA
Substance Abuse and Mental Health
Services Administration

Source: SAMHSA NSDUH

Why 18-25
year olds?

Higher rates of
cannabis/
marijuana use
than any age
group in US

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Young Adult Health Survey Recruitment

- UW Center for the Study of Health and Risk Behaviors (CSHRB) partnered with DBHR to conduct internet survey starting in 2014, and aimed to collect all Year One data before the first store opened in July 2014.
- Participants recruited using a combination of direct mail advertising to a random sample from DOL, as well as online advertising (Facebook, Craigslist, study web site)
- Assessed demographics on ongoing basis and modified strategies to recruit under-represented groups
- Convenience sample, not a random sample

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Post-stratification weighting and analyses

- To improve generalizability, used post-stratification weights to make demographic composition of sample more similar to state census data for young adults
- Weights based on gender, race, and geographic region
- Weighted results were very similar to non-weighted
- **Regression models:**
 - Cohort 1 vs. Cohorts 2-6
 - Linear trend from Cohort 1 to Cohort 6
 - Age by cohort interaction
- **Model split by over 21/under 21**
 - Stratified by age, in order to see whether the trends differed by age group.

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REPEATED CROSS-SECTIONAL ANALYSES

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Sample sizes over time

- Cohort 1 (2014): 2,101
- Cohort 2 (2015): 1,675
- Cohort 3 (2016): 2,493
- Cohort 4 (2017): 2,342
- Cohort 5 (2018): 2,412
- Cohort 6 (2019): 1,942
- **TOTAL: 12,965**

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Any past year medical use: Significant increasing trend for 21-25 year olds

	Cohort 1 (2014)	Cohort 2 (2015)	Cohort 3 (2016)	Cohort 4 (2017)	Cohort 5 (2018)	Cohort 6 (2019)	Total across 6 years
18-20	14.02%	12.73%	8.33%	12.02%	12.90%	11.75%	11.95%
21-25	15.20%	15.53%	14.77%	16.83%	16.80%	18.05%	16.15%
TOTAL	14.74%	14.54%	12.68%	15.04%	15.42%	15.53%	14.62%

Regression models:

Cohort 1 vs. Cohorts 2-6:

Non-significant

Linear trend from Cohort 1 to Cohort 6:

Non-significant

Age by cohort interaction:

Non-significant

Model split by over/under 21

18-20:

Non-significant

21-25:

Significant increasing trend over time ($t=1.98$, $p<.05$)

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Perceived norms of medical marijuana use increasing over time

PERCEPTIONS OF MEDICAL MARIJUANA

"How often do you think the typical person your age living in Washington State used the following substance (in any form) during the past 12 months? Just give your best estimate for each substance."

	Cohort 1 2014	Cohort 2 2015	Cohort 3 2016	Cohort 4 2017	Cohort 5 2018	Cohort 6 2019
Never	34.10%	34.37%	32.87%	27.39%	28.98%	27.72%
Once a year	8.08%	8.19%	7.17%	8.56%	7.38%	5.27%
2 to 3 times a year	9.62%	10.46%	10.34%	11.10%	8.59%	8.44%
Every other month	6.46%	6.29%	4.94%	6.36%	4.36%	5.13%
Once a month	7.77%	6.53%	8.54%	7.58%	7.83%	7.03%
2 to 3 times a month	7.77%	8.96%	9.15%	11.02%	8.04%	9.19%
Once per week	5.30%	5.79%	6.32%	7.16%	8.86%	9.01%
More than once a week	11.44%	8.92%	10.85%	10.98%	12.37%	12.20%
Every other day	3.80%	4.32%	3.17%	3.81%	4.27%	4.51%
Every day	5.65%	6.15%	6.63%	6.05%	9.33%	11.50%

Cohorts 4, 5, and 6 are significantly higher than Cohort 1 ($p < .001$)

In ordinal logistic regression models, there is a significant increasing trend over time in the perception of medical marijuana norms ($t=8.47$, $p < .001$)

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Any past year "recreational"/non-medical/personal use: Final three cohorts higher than cohort 1

	Cohort 1 (2014)	Cohort 2 (2015)	Cohort 3 (2016)	Cohort 4 (2017)	Cohort 5 (2018)	Cohort 6 (2019)	Total across 6 years
18-20	43.27%	44.82%	40.94%	43.41%	44.42%	43.68%	43.37%
21-25	43.67%	47.09%	46.55%	49.75%	50.87%	49.61%	47.98%
TOTAL	43.51%	46.29%	44.76%	47.43%	48.49%	47.24%	46.30%

Regression models:

Cohort 1 vs. Cohorts 2-6:

Compared to Cohort 1, significantly higher prevalence for

- Cohort 4 ($t=2.29$, $p < .05$; odds ratio = 1.171)
- Cohort 5 ($t=2.96$, $p < .01$; odds ratio = 1.222)
- Cohort 6 ($t=2.11$, $p < .05$; odds ratio = 1.163)

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Any past year "recreational"/non-medical/personal use: Increasing over time

	Cohort 1 (2014)	Cohort 2 (2015)	Cohort 3 (2016)	Cohort 4 (2017)	Cohort 5 (2018)	Cohort 6 (2019)	Total across 6 years
18-20	43.27%	44.82%	40.94%	43.41%	44.42%	43.68%	43.37%
21-25	43.67%	47.09%	46.55%	49.75%	50.87%	49.61%	47.98%
TOTAL	43.51%	46.29%	44.76%	47.43%	48.49%	47.24%	46.30%

Regression models:

Linear trend from Cohort 1 to Cohort 6:

Significant ($t=2.84$, $p<.01$)

Odds ratio = 1.035 (odds of recreational marijuana use are 3.5% higher with each successive year/cohort)

Age by cohort interaction:

Non-significant

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Any past year "recreational"/non-medical/personal use: Increasing for 21-25 year olds

	Cohort 1 (2014)	Cohort 2 (2015)	Cohort 3 (2016)	Cohort 4 (2017)	Cohort 5 (2018)	Cohort 6 (2019)	Total across 6 years
18-20	43.27%	44.82%	40.94%	43.41%	44.42%	43.68%	43.37%
21-25	43.67%	47.09%	46.55%	49.75%	50.87%	49.61%	47.98%
TOTAL	43.51%	46.29%	44.76%	47.43%	48.49%	47.24%	46.30%

Model split by over/under 21

18-20:

No significant linear trend

21-25:

Significant increasing trend over time ($t=3.40$, $p<.001$)

Odds ratio = 1.055 (odds of recreational marijuana use are 5.5% higher with each successive year/cohort)

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At least monthly "recreational"/non-medical/personal use: Increasing over time (and past two cohorts higher than first)

	Cohort 1 (2014)	Cohort 2 (2015)	Cohort 3 (2016)	Cohort 4 (2017)	Cohort 5 (2018)	Cohort 6 (2019)	Total across 6 years
18-20	24.08%	24.88%	21.19%	23.56%	27.06%	23.24%	24.01%
21-25	23.63%	23.56%	25.12%	28.07%	27.88%	29.55%	26.35%
TOTAL	23.81%	24.03%	23.84%	26.4%	27.62%	27.09%	25.52%

Regression models:

Cohort 1 vs. Cohorts 2-6:

Compared to Cohort 1, significantly higher prevalence for Cohort 5 ($t=2.56$, $p<.01$; odds ratio = 1.221) and Cohort 6 ($t=2.08$, $p<.05$; odds ratio = 1.189)

Linear trend from Cohort 1 to Cohort 6:

Significant increasing trend over time ($t=3.26$, $p<.001$; Odds ratio = 1.047)

Age by cohort interaction:

Not significant

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At least monthly "recreational"/non-medical/personal use: Increasing for 21-25 year olds

	Cohort 1 (2014)	Cohort 2 (2015)	Cohort 3 (2016)	Cohort 4 (2017)	Cohort 5 (2018)	Cohort 6 (2019)	Total across 6 years
18-20	24.08%	24.88%	21.19%	23.56%	27.06%	23.24%	24.01%
21-25	23.63%	23.56%	25.12%	28.07%	27.88%	29.55%	26.35%
TOTAL	23.81%	24.03%	23.84%	26.4%	27.62%	27.09%	25.52%

Model split by over/under 21

18-20:

No significant linear trend

21-25:

Significant increasing trend over time ($t=3.69$, $p<.001$)

Odds ratio = 1.069

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At least weekly "recreational"/non-medical/personal use: Increasing over time for whole sample

	Cohort 1 (2014)	Cohort 2 (2015)	Cohort 3 (2016)	Cohort 4 (2017)	Cohort 5 (2018)	Cohort 6 (2019)	Total across 6 years
18-20	16.51%	13.43%	13.30%	15.40%	18.56%	14.41%	15.42%
21-25	16.86%	16.21%	18.55%	18.42%	19.22%	21.39%	18.48%
TOTAL	16.72%	15.23%	16.85%	17.37%	19.03%	18.59%	17.38%

Regression models:

Linear trend

Significant ($t=2.49$, $p<.05$); Odds ratio = 1.043

Cohort 1 vs. Cohorts 2-6:

Not significant

Age by cohort interaction:

Non-significant

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At least weekly "recreational"/non-medical/personal use: Increasing for 21-25 year olds

	Cohort 1 (2014)	Cohort 2 (2015)	Cohort 3 (2016)	Cohort 4 (2017)	Cohort 5 (2018)	Cohort 6 (2019)	Total across 6 years
18-20	16.51%	13.43%	13.30%	15.40%	18.56%	14.41%	15.42%
21-25	16.86%	16.21%	18.55%	18.42%	19.22%	21.39%	18.48%
TOTAL	16.72%	15.23%	16.85%	17.37%	19.03%	18.59%	17.38%

Model split by over/under 21

18-20:

No significant linear trend

21-25:

Significant increasing trend over time ($t=2.69$, $p<.01$)

Odds ratio = 1.059

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Perceived norms of personal/non-medical use increasing over time

	Cohort 1	Cohort 2	Cohort 3	Cohort 4	Cohort 5	Cohort 6
	2014	2015	2016	2017	2018	2019
Never	2.41%	2.42%	1.61%	2.31%	2.06%	1.50%
Once a year	1.82%	2.10%	1.74%	1.92%	1.27%	0.75%
2 to 3 times a year	8.22%	10.12%	6.73%	6.40%	3.89%	3.31%
Every other month	6.98%	7.29%	5.32%	4.59%	3.14%	3.90%
Once a month	9.74%	11.15%	10.41%	9.07%	6.88%	5.51%
2 to 3 times a month	17.98%	19.68%	19.83%	18.91%	13.47%	13.93%
Once per week	12.65%	12.72%	15.43%	13.89%	14.28%	12.91%
More than once a week	22.08%	20.70%	21.42%	23.94%	27.12%	25.90%
Every other day	9.27%	6.87%	8.56%	8.65%	11.10%	12.25%
Every day	8.84%	6.95%	8.96%	10.31%	16.79%	20.03%

- ** In ordinal logistic models, Cohort 4 ($t=2.57$, $p<.01$), Cohort 5 ($t=10.65$, $p<.001$), and Cohort 6 ($t=12.36$, $p<.001$) have higher perceived recreational marijuana norms compared to cohort 1; but cohort 2 has lower norms compared to cohort 1 ($t=-3.34$, $p<.001$) **
- ** Overall, a significant increasing linear trend over time ($t=17.08$, $p<.001$) **

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Where 18-20 year olds get marijuana decreasing for medical sources and friends, increasing for family, parents, and paying someone

Decreasing trend significant

Increasing trend significant

WHERE DO PEOPLE GET MARIJUANA, 18-20 year olds

	Cohort 1	Cohort 2	Cohort 3	Cohort 4	Cohort 5	Cohort 6
	2014	2015	2016	2017	2018	2019
From friends	72.86%	76.24%	69.68%	77.40%	63.75%	60.74%
Gave money to someone	23.29%	26.47%	34.72%	41.45%	39.29%	43.17%
Got it from someone						
w/medical mj. card	17.60%	14.12%	4.30%	5.24%	2.79%	2.82%
Got it from a med. disp.	13.65%	18.99%	5.58%	4.72%	6.50%	8.28%
Got it at a party	22.99%	22.14%	23.08%	24.92%	20.12%	22.91%
Got it from family	5.65%	5.18%	11.75%	9.75%	11.24%	10.92%
Got it some other way	11.64%	4.12%	6.12%	9.02%	7.30%	6.21%
Bought from retail store	0.99%	4.58%	1.73%	1.92%	2.03%	3.55%
Got it from parents						
with permission	5.75%	6.02%	12.33%	10.44%	11.69%	12.91%
Grew it themselves	0.91%	1.15%	1.65%	0.23%	1.47%	2.78%
Stole it from store/disp.	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

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Where 21-25 year olds get marijuana increasing for retail store and decreasing for most other sources

Decreasing trend significant

Increasing trend significant

WHERE DO PEOPLE GET MARIJUANA, 21-25 year olds

	Cohort 1 2014	Cohort 2 2015	Cohort 3 2016	Cohort 4 2017	Cohort 5 2018	Cohort 6 2019
From friends	67.50%	54.89%	42.78%	36.51%	33.80%	25.72%
Gave money to someone	19.87%	10.72%	8.10%	5.64%	4.97%	3.63%
Got it from someone w/medical mj. card	18.85%	9.41%	2.53%	2.02%	0.17%	0.65%
Got it from a med. disp.	20.65%	13.03%	12.60%	9.96%	10.15%	14.23%
Got it at a party	11.81%	10.76%	10.93%	8.06%	6.54%	5.76%
Got it from family	11.48%	8.26%	4.08%	7.04%	5.76%	4.37%
Got it some other way	5.13%	6.68%	3.29%	3.41%	3.71%	3.71%
Bought from retail store	8.80%	51.86%	72.60%	76.31%	80.06%	78.03%
Got it from parents with permission	4.56%	3.50%	2.02%	4.28%	4.47%	3.15%
Grew it themselves	1.51%	3.01%	1.49%	1.82%	1.81%	0.71%
Stole it from store/disp.	2.84%	0.17%	0.60%	0.29%	0.17%	0.11%

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Driving after marijuana use decreasing (though still at high rates)

Driving after marijuana use

"During the past 30 days, how many times did you drive a car or other vehicle within three hours after using cannabis (e.g., marijuana, hashish, edibles)?"

	Cohort 1 2014	Cohort 2 2015	Cohort 3 2016	Cohort 4 2017	Cohort 5 2018	Cohort 6 2019
Never	50.59%	55.29%	58.19%	58.56%	58.73%	61.80%
1 time	14.13%	13.13%	12.50%	12.85%	12.11%	8.32%
2-3 times	13.28%	12.34%	11.97%	11.98%	10.59%	11.66%
4-5 times	6.43%	4.35%	3.48%	4.48%	6.04%	4.00%
6 or more times	15.57%	14.88%	13.85%	12.12%	12.52%	14.21%

***There are declines in driving after marijuana use between cohort 3 and cohort 1 ($p < .05$), between cohort 4 and cohort 1 ($p < .01$), between cohort 5 and cohort 1 ($p < .05$), and between cohort 6 and cohort 1 ($p < .01$), as well as a significant linear trend ($p < .01$). ***

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Average age of initiation going up for marijuana because more people are starting at an older age, holding steady for alcohol and cigarettes

AGE OF INITIATION

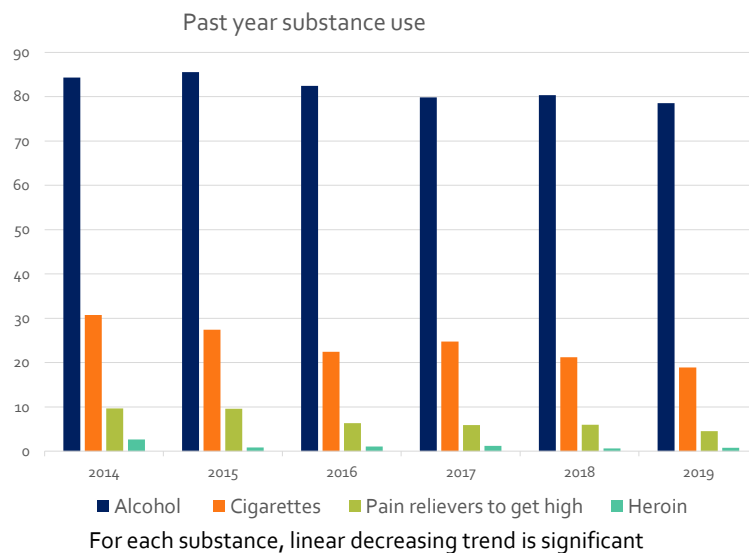
Average age of initiation

	Cohort 1 2014	Cohort 2 2015	Cohort 3 2016	Cohort 4 2017	Cohort 5 2018	Cohort 6 2019
Alcohol	16.59	16.51	16.76	16.70	16.70	16.72
No differences across cohorts, no significant linear trend						
Cigarettes	16.47	16.64	16.64	16.58	16.64	16.52
No differences across cohorts, no significant linear trend						
Marijuana	16.67	17.01	17.06	17.02	17.10	16.92

****** For marijuana, each cohort is significantly older than cohort 1, meaning more people are initiating at an older age (for Cohort 2, $t=2.69$, $p<.01$; for Cohort 3, $t=3.46$, $p<.001$; for Cohort 4, $t=3.11$, $p<.01$; for Cohort 5, $t=3.87$, $p<.001$; for Cohort 6, $t=2.08$, $p<.05$). The linear trend for marijuana is significant, too ($t=2.24$, $p<.05$). ******

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Other substance use is trending downward



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Perceived risk of marijuana use continues to decrease; Perceived risk of alcohol use increases (with one exception)

- **Marijuana**

- Physical risk of occasional marijuana use
- Psychological/emotional risk of occasional marijuana use
- Physical risk of regular marijuana use
- Psychological/emotional risk of regular marijuana use

- **Alcohol**

- Physical risk of 2 drinks every day
- Psychological risk of 2 drinks every day
- Physical risk of 5+ drinks every weekend
- Psychological risk of 5+ drinks every weekend

** significant decreasing linear trend **

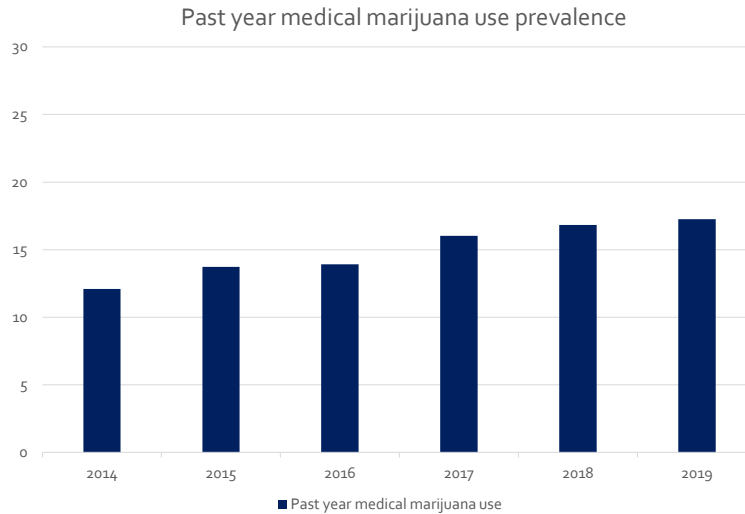
** significant increasing linear trend **

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**LONGITUDINAL DATA
(FOR PURPOSES OF TODAY,
JUST LOOKING AT COHORT 1,
N = 1571)**

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Past year medical marijuana use is significantly increasing

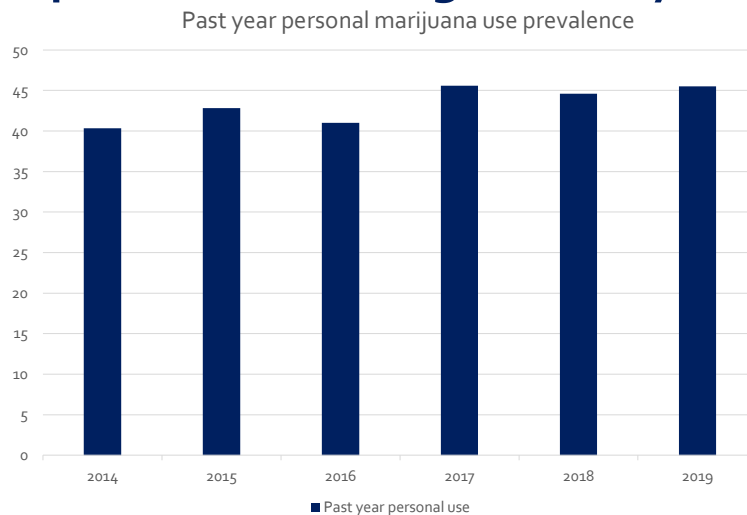


**** significant trend for increasing likelihood of medical marijuana use over time ($z=4.10$, $p<.001$; Odds ratio = 1.089)****

**** 2017, 2018, and 2019 are significantly higher than 2014 (year 4, 2017, $z=3.32$, $p<.001$, Odds ratio = 1.388; year 5, 2018, $z=3.63$, $p<.001$, Odds ratio = 1.472; year 6, 2019, $z=3.72$, $p<.001$, Odds ratio = 1.516)****

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Past year personal use is significantly increasing



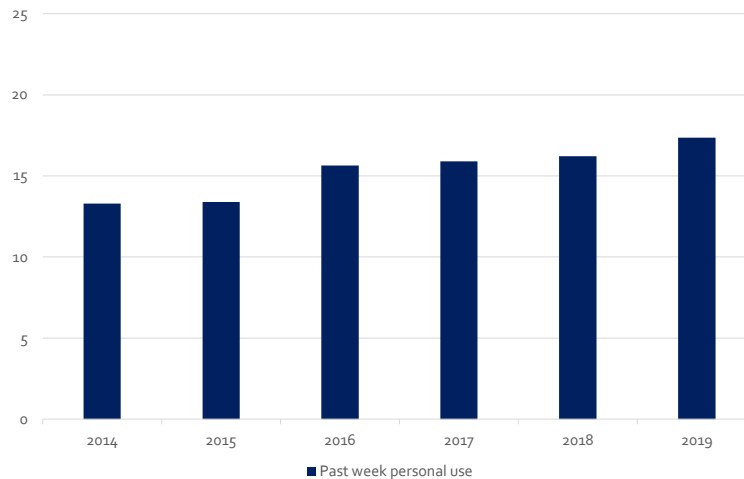
**** significant increasing trend in likelihood of any use ($z=2.96$, $p<.01$; Odds ratio = 1.043)****

**** 2017, 2018, and 2019 are significantly higher than 2014 (year 4, 2017, $z=3.20$, $p<.001$, Odds ratio = 1.238; year 5, 2018, $z=2.43$, $p<.05$, Odds ratio = 1.190; year 6, 2019, $z=2.91$, $p<.01$, Odds ratio = 1.234)****

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At least weekly personal use is significantly increasing

At least weekly personal marijuana use prevalence



** significant increasing trend in likelihood of weekly use ($z=3.24$, $p<.001$; Odds ratio = 1.067)**

** 2016, 2017, 2018, and 2019 are significantly higher than 2014 (year 3, 2016, $z=1.99$, $p<.05$, Odds ratio = 1.210; year 4, 2017, $z=2.18$, $p<.05$, Odds ratio = 1.232; year 5, 2018, $z=2.21$, $p<.05$, Odds ratio = 1.262; year 6, 2019, $z=3.09$, $p<.01$, Odds ratio = 1.371)**

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Where people get marijuana has increased for stores and decreased for almost everything else

WHERE DO PEOPLE GET MARIJUANA

Decreasing trend significant

Increasing trend significant

* = significantly different from year 1, $p<.05$

** = significantly different from year 1, $p<.01$

*** = significantly different from year 1, $p<.001$

	2014	2015	2016	2017	2018	2019
From friends	73.07%	60.98%***	51.30%***	41.57%***	30.18%***	25.66%***
Gave money to someone	20.48%	15.35%	10.14%**	6.38%***	3.41%***	3.73%***
Got it from someone						
w/medical mj. card	17.80%	11.85%*	3.42%***	1.26%***	1.10%***	1.03%***
Got it from a med. disp.	18.47%	18.75%	11.68%*	8.33%**	12.98%	11.40%*
Got it at a party	18.45%	13.80%	8.50%***	9.10%**	6.70%***	8.48%***
Got it from family	7.60%	4.41%*	8.16%	4.95%	5.61%	4.54%
Got it some other way	4.94%	4.47%	4.17%	0.67%**	2.34%	1.44%*
Bought from retail store	6.19%	34.23%***	58.19%***	68.13%***	72.42%***	76.72%***
Got it from parents						
with permission	5.15%	4.23%	3.38%	3.46%	2.25%*	1.75%*
Grew it themselves	1.78%	0.90%	1.29%	0.22%	0.96%	0.70%
Stole it from store/disp.	0.37%	0.91%	0.00%	0.34%	1.46%	0.45%

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Strengths and Limitations

- **Limitations**
 - Sample of convenience
 - Use of weights
 - Data collection started in 2014...would have been GREAT to have 2012
- **Strengths**
 - Sample of convenience! Allows us to reach harder-to-reach populations
 - Response rates for more population-based sampling approaches tend to not be very large
 - Has very much been a collaborative effort

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Next steps

- 7th year of data collection
- Added questions on use during quarantine/stay-at-home orders and impacts of COVID-19
- Continued dissemination to key stakeholders
- Secondary data analysis grant (PI: Katarina Guttmannova)

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Thank you!

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