Nine Years of Findings from Washington's Young Adult Health Survey

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Before we get started…

- Special thank you to:
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  - Kevin Haggerty
  - Sandy Salivaras
  - Sarah Mariani

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Washington Young Adult Health Survey (YAHS)

- Funded by Division of Behavioral Health & Recovery (DBHR):
  - Sarah Mariani
  - Sandy Salivaras
- Young Adult Health Survey Team:
  - Jason Kilmer
  - Mary Larimer
  - Rose Lyles-Riebli
  - George Song
  - Isaac Rhew

Washington State Health Care Authority (Division of Behavioral Health and Recovery) (PI: Kilmer).

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Young Adult Health Survey Recruitment… A Reminder of the Main Steps

- Participants recruited using a combination of direct mail advertising to a random sample from DOL, as well as online advertising (Facebook, Craigslist, Instagram, study web site, etc.)
- 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 based on sex, race, and geographic region
- Weighted results are consistently very similar to non-weighted

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Young Adult Health Survey

- Each year we collect data from a new cohort of 18-25 year olds

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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
- Cohort 7 (2020)   1,643
- Cohort 8 (2021):   1,756
- Cohort 9 (2022):   1,110
- **TOTAL:**   **17,474**

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Young Adult Health Survey

- Each year we follow up with previous cohorts (Participants in Cohort 1, 18-25 in 2014, are largely 27-34 now)

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What do we see with nine years of data?

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Any past year "recreational"/non-medical/personal use: Cohorts 4-8 higher than Cohort 1

	Cohort 1 (2014)	Cohort 2 (2015)	Cohort 3 (2016)	Cohort 4 (2017)	Cohort 5 (2018)	Cohort 6 (2019)	Cohort 7 (2020)	Cohort 8 (2021)	Cohort 9 (2022)	Total across 9 years
18-20	43.27%	44.82%	40.94%	43.41%	44.42%	43.68%	40.39%	44.89%	39.11%	42.94%
21-25	43.67%	47.09%	46.55%	49.75%	50.87%	49.61%	52.29%	55.21%	53.60%	49.40%
TOTAL	43.51%	46.29%	44.76%	47.43%	48.49%	47.24%	47.94%	51.19%	47.26%	47.00%

Regression models:
Cohort 1 vs. Cohorts 2-9:
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)
- Cohort 7 (t=2.41, p<.05; odds ratio = 1.196)
- Cohort 8 (t=4.19, p<.001; odds ratio = 1.361)

Source: Young Adult Health Survey, Preliminary Data Report to DBHR, Kilmer (PI)

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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)	Cohort 7 (2020)	Cohort 8 (2021)	Cohort 9 (2022)	Total across 9 years
18-20	43.27%	44.82%	40.94%	43.41%	44.42%	43.68%	40.39%	44.89%	39.11%	42.94%
21-25	43.67%	47.09%	46.55%	49.75%	50.87%	49.61%	52.29%	55.21%	53.60%	49.40%
TOTAL	43.51%	46.29%	44.76%	47.43%	48.49%	47.24%	47.94%	51.19%	47.26%	47.00%

Regression models:
Linear trend from Cohort 1 to Cohort 9:
Significant (t=3.88, p<.001)
Odds ratio = 1.028 (odds of non-medical cannabis use are 2.8% higher with each successive year/cohort)
Age by cohort interaction:
Significant (t=3.69, p<.001)

Source: Young Adult Health Survey, Preliminary Data Report to DBHR, Kilmer (PI)

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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)	Cohort 7 (2020)	Cohort 8 (2021)	Cohort 9 (2022)	Total across 9 years
18-20	43.27%	44.82%	40.94%	43.41%	44.42%	43.68%	40.39%	44.89%	39.11%	42.94%
21-25	43.67%	47.09%	46.55%	49.75%	50.87%	49.61%	52.29%	55.21%	53.60%	49.40%
TOTAL	43.51%	46.29%	44.76%	47.43%	48.49%	47.24%	47.94%	51.19%	47.26%	47.00%

Model split by over/under 21
18-20:
No significant linear trend
21-25:
Significant increasing trend over time (t=5.76, p<.001)
Odds ratio = 1.054 (odds of recreational cannabis use are 5.4% higher with each successive year/cohort)

Source: Young Adult Health Survey, Preliminary Data Report to DBHR, Kilmer (PI)

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Non-medical (or "recreational") use in the past year by age group

Past year prevalence of non-medical use

— 18-20 year olds   — 21-25 year olds

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At least monthly "recreational"/non-medical/personal use: Final five cohorts higher than cohort 1

	Cohort 1 (2014)	Cohort 2 (2015)	Cohort 3 (2016)	Cohort 4 (2017)	Cohort 5 (2018)	Cohort 6 (2019)	Cohort 7 (2020)	Cohort 8 (2021)	Cohort 9 (2022)	Total across 9 years
18-20	24.08%	24.88%	21.19%	23.56%	27.06%	23.24%	23.17%	24.16%	26.21%	24.11%
21-25	23.63%	23.56%	25.12%	28.07%	27.88%	29.55%	33.81%	33.86%	31.65%	28.08%
TOTAL	23.81%	24.03%	23.84%	26.46%	27.62%	27.09%	29.99%	30.11%	29.19%	26.62%

Regression models:
Cohort 1 vs. Cohorts 2-9:
Compared to Cohort 1, significantly higher prevalence for
- Cohort 5 (t=2.56, p<.01; odds ratio = 1.221)
- Cohort 6 (t=2.08, p<.05; odds ratio = 1.189)
- Cohort 7 (t=3.73, p<.001; odds ratio = 1.365)
- Cohort 8 (t=3.88, p<.001; odds ratio = 1.379)
- Cohort 9 (t=2.99, p<.01; odds ratio =1.320)

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At least monthly "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)	Cohort 7 (2020)	Cohort 8 (2021)	Cohort 9 (2022)	Total across 9 years
18-20	24.08%	24.88%	21.19%	23.56%	27.06%	23.24%	23.17%	24.16%	26.21%	24.11%
21-25	23.63%	23.56%	25.12%	28.07%	27.88%	29.55%	33.81%	33.86%	31.65%	28.08%
TOTAL	23.81%	24.03%	23.84%	26.46%	27.62%	27.09%	29.99%	30.11%	29.19%	26.62%

Regression models:
Linear trend from Cohort 1 to Cohort 9:
Significant (t=5.75, p<.001)
Odds ratio = 1.048 (odds of recreational cannabis use are 4.8% higher with each successive year/cohort)
Age by cohort interaction:
Significant (t=3.66, p<.001)

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At least monthly "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)	Cohort 7 (2020)	Cohort 8 (2021)	Cohort 9 (2022)	Total across 9 years
18-20	24.08%	24.88%	21.19%	23.56%	27.06%	23.24%	23.17%	24.16%	26.21%	24.11%
21-25	23.63%	23.56%	25.12%	28.07%	27.88%	29.55%	33.81%	33.86%	31.65%	28.08%
TOTAL	23.81%	24.03%	23.84%	26.46%	27.62%	27.09%	29.99%	30.11%	29.19%	26.62%

Model split by over/under 21
18-20:
No significant linear trend
21-25:
Significant increasing trend over time (t=6.94, p<.001)
Odds ratio = 1.074 (odds of recreational cannabis use are 7.4% higher with each successive year/cohort)

Source: Young Adult Health Survey,
Preliminary Data Report to DBHR, Kilmer (PI)

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Source: Young Adult Health Survey,
Preliminary Data Report to DBHR, Kilmer (PI)

At least monthly non-medical (or "recreational") use by age group

At least monthly prevalence of non-medical use

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At least weekly "recreational"/non-medical/personal use: Cohorts 7 and 8 higher than Cohort 1

	Cohort 1 (2014)	Cohort 2 (2015)	Cohort 3 (2016)	Cohort 4 (2017)	Cohort 5 (2018)	Cohort 6 (2019)	Cohort 7 (2020)	Cohort 8 (2021)	Cohort 9 (2022)	Total across 9 years
18-20	16.51%	13.43%	13.30%	15.40%	18.56%	14.41%	15.21%	16.86%	16.40%	15.63%
21-25	16.86%	16.21%	18.55%	18.42%	19.22%	21.39%	24.07%	24.59%	21.93%	19.79%
TOTAL	16.72%	15.23%	16.85%	17.37%	19.03%	18.59%	20.84%	21.62%	19.47%	18.26%

Regression models:
Cohort 1 vs. Cohorts 2-9:
Compared to Cohort 1, significantly higher prevalence for
• Cohort 7 (t=2.86, p<.01; odds ratio = 1.311)
• Cohort 8 (t=3.37, p<.001; odds ratio = 1.374)

Source: Young Adult Health Survey,
Preliminary Data Report to DBHR, Kilmer (PI)

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At least weekly "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)	Cohort 7 (2020)	Cohort 8 (2021)	Cohort 9 (2022)	Total across 9 years
18-20	16.51%	13.43%	13.30%	15.40%	18.56%	14.41%	15.21%	16.86%	16.40%	15.63%
21-25	16.86%	16.21%	18.55%	18.42%	19.22%	21.39%	24.07%	24.59%	21.93%	19.79%
TOTAL	16.72%	15.23%	16.85%	17.37%	19.03%	18.59%	20.84%	21.62%	19.47%	18.26%

Regression models:
Linear trend from Cohort 1 to Cohort 9:
Significant (t=4.88, p<.001)
Odds ratio = 1.047 (odds of recreational cannabis use are 4.7% higher with each successive year/cohort)
Age by cohort interaction:
Significant (t=2.07, p<.05)

Source: Young Adult Health Survey,
Preliminary Data Report to DBHR, Kilmer (PI)

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At least weekly "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)	Cohort 7 (2020)	Cohort 8 (2021)	Cohort 9 (2022)	Total across 9 years
18-20	16.51%	13.43%	13.30%	15.40%	18.56%	14.41%	15.21%	16.86%	16.40%	15.63%
21-25	16.86%	16.21%	18.55%	18.42%	19.22%	21.39%	24.07%	24.59%	21.93%	19.79%
TOTAL	16.72%	15.23%	16.85%	17.37%	19.03%	18.59%	20.84%	21.62%	19.47%	18.26%

Model split by over/under 21
18-20:
No significant linear trend
21-25:
Significant increasing trend over time (t=5.60, p<.001)
Odds ratio = 1.068 (odds of recreational marijuana use are 6.8% higher with each successive year/cohort)

Source: Young Adult Health Survey,
Preliminary Data Report to DBHR, Kilmer (PI)

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Source: Young Adult Health Survey,
Preliminary Data Report to DBHR, Kilmer (PI)

At least weekly non-medical (or "recreational") use by age group

At least weekly prevalence of non-medical use

— 18-20 year olds   — 21-25 year olds

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Perceived norms of non-medical cannabis use

	Cohort 1 2014	Cohort 2 2015	Cohort 3 2016	Cohort 4 2017	Cohort 5 2018	Cohort 6 2019	Cohort 7 2020	Cohort 8 2021	Cohort 9 2022
Never	2.41%	2.42%	1.61%	2.31%	2.06%	1.50%	2.38%	1.92%	3.05%
Once a year	1.82%	2.10%	1.74%	1.92%	1.27%	0.75%	1.32%	1.15%	1.37%
2 to 3 times a year	8.22%	10.12%	6.73%	6.40%	3.89%	3.31%	2.23%	3.87%	3.95%
Every other month	6.98%	7.29%	5.32%	4.59%	3.14%	3.90%	4.42%	3.48%	2.93%
Once a month	9.74%	11.15%	10.41%	9.07%	6.88%	5.51%	6.39%	7.07%	6.63%
2-3x/month	17.98%	19.68%	19.83%	18.91%	13.47%	13.93%	14.32%	14.04%	14.38%
Once per week	12.65%	12.72%	15.43%	13.89%	14.28%	12.91%	12.64%	14.11%	13.24%
More than 1x/wk	22.08%	20.70%	21.42%	23.94%	27.12%	25.90%	28.57%	29.17%	25.76%
Every other day	9.27%	6.87%	8.56%	8.65%	11.10%	12.25%	13.10%	10.45%	13.14%
Every day	8.84%	6.95%	8.96%	10.31%	16.79%	20.03%	14.62%	14.75%	15.57%

** In ordinal logistic models, Cohort 4 (t=2.57, p<.01), Cohort 5 (t=10.66, p<.001), Cohort 6 (t=12.36, p<.001), Cohort 7 (t=9.72, p<.001), Cohort 8 (t=9.02, p<.001), and Cohort 9 (t=8.10, p<.001) have higher perceived non-medical marijuana norms compared to cohort 1; but cohort 2 has lower norms compared to cohort 1 (t= -3.35 p<.001) **
** Overall, a significant increasing linear trend over time (t=18.27, p<.001) **

In Cohort 9, 19.47% use at least weekly (meaning most don't), yet 67.71% think the typical person their age uses weekly

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Decreasing trend significant
Increasing trend significant

WHERE DO PEOPLE GET CANNABIS?: 18-20 YEAR OLDS

	Cohort 1 2014	Cohort 2 2015	Cohort 3 2016	Cohort 4 2017	Cohort 5 2018	Cohort 6 2019	Cohort 7 2020	Cohort 8 2021	Cohort 9 2022
From friends	72.86%	76.24%	69.68%	77.40%	63.75%	60.74%	66.87%	65.62%	59.68%
Gave money to someone	23.29%	26.47%	34.72%	41.45%	39.29%	43.17%	40.55%	39.80%	37.62%
Got it from someone w/ medical mj. card	17.60%	14.12%	4.30%	5.24%	2.79%	2.82%	4.27%	4.58%	4.10%
Got it from a medical dispensary	13.65%	18.99%	5.58%	4.72%	6.50%	8.28%	8.41%	12.03%	3.40%
Got it at a party	22.99%	22.14%	23.08%	24.92%	20.12%	22.91%	8.82%	24.67%	16.43%
Got it from family	5.65%	5.18%	11.75%	9.75%	11.24%	10.92%	13.49%	7.09%	11.36%
Got it some other way	11.64%	4.12%	6.12%	9.02%	7.30%	6.21%	5.04%	6.24%	3.62%
Bought from retail store	0.99%	4.58%	1.73%	1.92%	2.03%	3.55%	1.58%	1.03%	3.08%
Got it from parents w/ permission	5.75%	6.02%	12.33%	10.44%	11.69%	12.91%	13.08%	13.91%	12.38%
Grew it themselves	1.91%	1.15%	1.65%	0.23%	1.47%	2.78%	1.64%	0.42%	0.59%
Stole it from store/ dispensary	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	4.16%	2.40%	0.00%

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WHERE DO PEOPLE GET CANNABIS?: 21-25 YEAR OLDS

	Cohort 1 2014	Cohort 2 2015	Cohort 3 2016	Cohort 4 2017	Cohort 5 2018	Cohort 6 2019	Cohort 7 2020	Cohort 8 2021	Cohort 9 2022
From friends	67.50%	54.89%	42.78%	36.51%	33.80%	25.72%	20.26%	26.44%	26.04%
Gave money to someone	19.87%	10.72%	8.10%	5.64%	4.97%	3.63%	5.08%	4.61%	7.75%
Got it from someone w/ medical mj. card	18.85%	9.41%	2.53%	2.02%	0.17%	0.65%	0.27%	0.62%	1.16%
Got it from a med. dispensary	20.65%	13.03%	12.60%	9.96%	10.15%	14.23%	14.71%	15.62%	16.02%
Got it at a party	11.81%	10.76%	10.93%	8.06%	6.54%	5.76%	1.57%	7.12%	10.93%
Got it from family	11.48%	8.26%	4.08%	7.04%	5.76%	4.37%	4.02%	5.52%	4.56%
Got it some other way	5.13%	6.68%	3.29%	3.41%	3.71%	3.71%	1.24%	2.13%	1.85%
Bought from retail store	8.80%	51.86%	72.60%	76.31%	80.06%	78.03%	77.27%	74.42%	70.93%
Got it from parents w/ permission	4.56%	3.50%	2.02%	4.28%	4.47%	3.15%	2.75%	4.75%	4.41%
Grew it themselves	1.51%	3.01%	1.49%	1.82%	1.81%	0.71%	1.11%	1.74%	0.79%
Stole it from store/ dispensary	2.84%	0.17%	0.60%	0.29%	0.17%	0.11%	0.97%	0.43%	0.69%

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DRIVING AFTER CANNABIS 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	Cohort 7 2020	Cohort 8 2021	Cohort 9 2022
Never	50.59%	55.29%	58.19%	58.56%	58.73%	61.80%	65.00%	66.38%	64.64%
1 time	14.13%	13.13%	12.50%	12.85%	12.11%	8.32%	9.56%	10.25%	10.27%
2-3 times	13.28%	12.34%	11.97%	11.98%	10.59%	11.66%	11.24%	10.51%	11.50%
4-5 times	6.43%	4.35%	3.48%	4.48%	6.04%	4.00%	4.51%	4.39%	2.53%
6 or more times	15.57%	14.88%	13.85%	12.12%	12.52%	14.21%	9.69%	8.47%	11.05%

There are declines in driving after marijuana use between cohorts 3-9 and cohort 1 (cohort 3, p<.05; cohort 4, p<.01; cohort 5, p<.05; cohort 6, p<.01; cohort 7, p<.001; cohort 8, p<.001; cohort 9, p<.001), as well as a significant linear trend (p<.001).

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Medical cannabis

- Cohort 9 past year medical cannabis use (11.96%) is significantly lower than Cohort 1 (14.74%)
  - Same difference on overall frequency such that Cohort 9 is different than Cohort 1

- Perceptions of medical use increasing significantly (both a linear trend, and past 6 cohorts higher than cohort 1)

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Other substances

- Significant decreasing trend in:
  - Alcohol, at least once in past year
  - Alcohol, at least monthly
  - Cigarettes, at least once in the past year
  - Pain relievers to get high, at least once in the past year
  - Heroin use, at least once in the past year

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Perceived risk

- **Cannabis**
  - Physical risk of occasional cannabis use
  - Psychological/emotional risk of occasional cannabis use
  - Physical risk of regular cannabis use
  - Psychological/emotional risk of regular cannabis 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

Source: Young Adult Health Survey,
Preliminary Data Report to DBHR, Kilmer (PI)

** significant decreasing linear trend **
** significant increasing linear trend **

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Young Adult Health Survey

- We are collecting data in our 10th year of data at this moment
- Pausing on longitudinal follow-up of Cohorts 2-5 (and will reintroduce them in subsequent years).
- Sought input on survey items and have included new items this year emphasizing mental health (though also including fentanyl)

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Thank you!

- DBHR:
  - Sarah Mariani
  - Sandy Salivaras

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