

Substance Use and Depressive Symptoms in Young People During the COVID-19 Pandemic

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HCSRN Annual Conference April 2022

COI Declaration & Funding

- No conflicts of interest to declare
- Funding:
 - Conrad N. Hilton Foundation, Grant #18454
 - National Institute on Alcohol Abuse and Alcoholism (NIAAA), R01AA027477

Background: Effects of the COVID-19 pandemic

- Effects of the pandemic, including social isolation, and economic hardship, resulting in negative impacts on mental health and substance use among many adults.
- Additional challenges for young people - separation from peers, virtual school, limited leisure time activities, staying at home, etc.

Aims:

- How are **young people (adolescents and young adults)** affected by the pandemic?
- Compare self-reported mental health symptoms and substance use data collected during primary care visits pre-pandemic onset versus post-pandemic onset/during the pandemic, as well as alcohol-related diagnoses within the KPNC healthcare system.



Methods: Setting - Kaiser Permanente Northern California



- 400,000+ adolescent (11-18 years) members
- ~1 million young adult (18-34 years) members
- Diverse membership: race/ethnicity, cultural/linguistic, geographic, SES

Methods: Pediatric & Adult Primary Care Visits Screening Data

- **Adolescents (13-18 years):**

- Patients are screened for mental health symptoms (depression, suicidality in prior 2 weeks) and substance use (alcohol and drug use in the prior year) at each WELL VISIT at their pediatrician: Teen Well Check Questionnaire (TWCQ)
- If screening results indicate mental health or substance use issues, further assessment takes place

- **Young adults (18-34 years):**

- During their annual visit with their primary care physician, they are asked about their current alcohol use (self-report)
- **Alcohol-related diagnoses** derived from all departments, including specialty Addiction Medicine and Psychiatry

Methods: Adult primary care-based alcohol screening

KPNC conducts **annual routine alcohol screening** in adult primary care. The screening questions include the evidence-based NIAAA single-item binge drinking item* (tailored to age and gender) and the quantity and frequency of drinks per week. The EHR automatically calculates the average number of drinks per week by multiplying the answers from #2 and #3.

- 1) How many times in the past three months have you had:
 - 5 or more drinks containing alcohol in a day? [for men aged 18-65]
 - 4 or more drinks containing alcohol in a day? [for men aged 66 or older and women of any age]
- 2) On average, how many days a week do you have an alcoholic drink?
- 3) On a typical drinking day, how many drinks do you have?

A **positive alcohol screening** result indicates drinking that exceeds either the daily drinking limit (≥ 5 drinks/day for men aged 18-65, or ≥ 4 for men aged 66 or older and women of any age) or the weekly drinking limit (> 14 drinks/week for men aged 18-65, or > 7 drinks/week for men aged 66 or older and women of any age) recommended by the NIAAA*.

*NIAAA. Helping patients who drink too much: a clinician's guide. 2005.
<https://pubs.niaaa.nih.gov/publications/Practitioner/CliniciansGuide2005/guide.pdf>


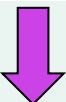


Methods: Time Frame, Sample Size & Statistical Analyses

- EHR data collected at pediatric well visits and annual adult primary care visits, alcohol-related diagnoses derived from all departments,
pre-pandemic onset (3/1/2019 – 12/31/2019) and
post-pandemic onset (3/1/2020 – 12/31/2020)
 - Adolescents (13-18 years): N=178,255
 - Young adults (18-34 years): N=1,290,206
- Statistical analyses:
 - **Adolescents:**
 - Chi-square tests comparing the prevalence of self-reported MH symptoms and substance use among adolescents pre-/post-pandemic onset
 - **Young adults:**
 - Calculation and plotting of **monthly positive alcohol screening rates** and **alcohol-related diagnoses** per 100,000 members
 - Inverse probability weighting (IPW) for alcohol screening to examine potential selection bias; IPW-weighted Poisson GEE model
 - Refitting of weighted Poisson GEE model to **estimate prevalence changes in unhealthy alcohol use**, accounting for patient characteristics/covariates

Results: Sample characteristics **adolescents (13-18 years)**, n=178,255

Characteristic	Pre-pandemic onset (n=124,611)	Post-pandemic onset (n=53,644)
Age in years, mean (SD)	14.9 (1.70)	14.9 (1.75)
Sex, n (%)		
-male	63,999 (51.4)	27,084 (50.5)
-female	60,594 (48.6)	26,550 (49.5)
Race/ethnicity, n (%)		
-White	40,653 (32.6)	18,762 (35.0)
-Asian, Pacific Islander	29,827 (23.9)	11,069 (20.6)
-Black	11,456 (9.2)	4,572 (8.5)
-Latino/Hispanic	34,767 (27.9)	14,962 (27.9)
-Native American	984 (0.8)	442 (0.8)
-Other/unknown	6,924 (5.6)	3,837 (7.2)
Any DUD, n (%)	80 (0.1)	6 (<0.1)
Any MH condition, n (%)	8,542 (6.9)	1,149 (2.1)

Results: Self-reported substance use and mental health symptoms, **adolescents (13-18 years)**, n=178,255

Self-reported	Pre-pandemic onset n=124,611 (n, percent)	Post-pandemic onset n=53,644 (n, percent)	χ^2	df	p
Alcohol use	9247 (7.42)	 4156 (7.75)	5.755	1	0.016
Marijuana use	8043 (6.45)	 3326 (6.20)	4.063	1	0.044
Other drug use	2974 (2.39)	1316 (2.45)	0.708	1	0.400
Feelings of sadness	29,976 (24.06)	 16,111 (30.03)	698.967	1	<0.001
Thoughts of killing oneself	1,619 (1.30)	 942 (1.76)	55.254	1	<0.001

Medical News & Perspectives

Another COVID-19 Fallout: Teens' Happy Hour With Parents

Anita Slomski, MA

His parents had the best of intentions when they handed Cameron (not his real name) his first beer at age 16 years. By supervising his drinking at home, they reasoned, they could satisfy their son's curiosity about alcohol and show him how to drink responsibly. They thought it would help when he inevitably came across alcohol-fueled parties as an older teen. But their tactic was premature.

"It's a myth that you can teach kids to drink," Sharon Levy, MD, MPH, director of the Adolescent Substance Use and Addiction Program at Boston Children's Hospital and associate professor of pediatrics at Harvard Medical School, said in an interview.



Liquor during lockdown: 1 in 6 parents allowed teens to drink during quarantine

12-Apr-2021 5:05 AM EDT, by University of Notre Dame (kristin.flores@notredame.edu/211462)



Mental Health and Substance Use Considerations Among Children During the COVID-19 Pandemic

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Published: May 26, 2021

Issue Brief

Introduction

During the COVID-19 pandemic, children have experienced major disruptions as a result of public health safety measures, including (<https://www.cdc.gov/coronavirus/2019-ncov/daily-life-coping/parental-resource-kit/index.html>) school closures, social isolation, financial hardships, and gaps in health care access. Many parents have reported poor mental health outcomes in their children throughout the pandemic – in May 2020, shortly after the pandemic began, 29% (<https://news.gallup.com/poll/312605/parents-say-covid-harming-child-mental-health.aspx>) said their child's mental or emotional health was already harmed; more recent research from October

NEWS RELEASES

Thursday, June 24, 2021

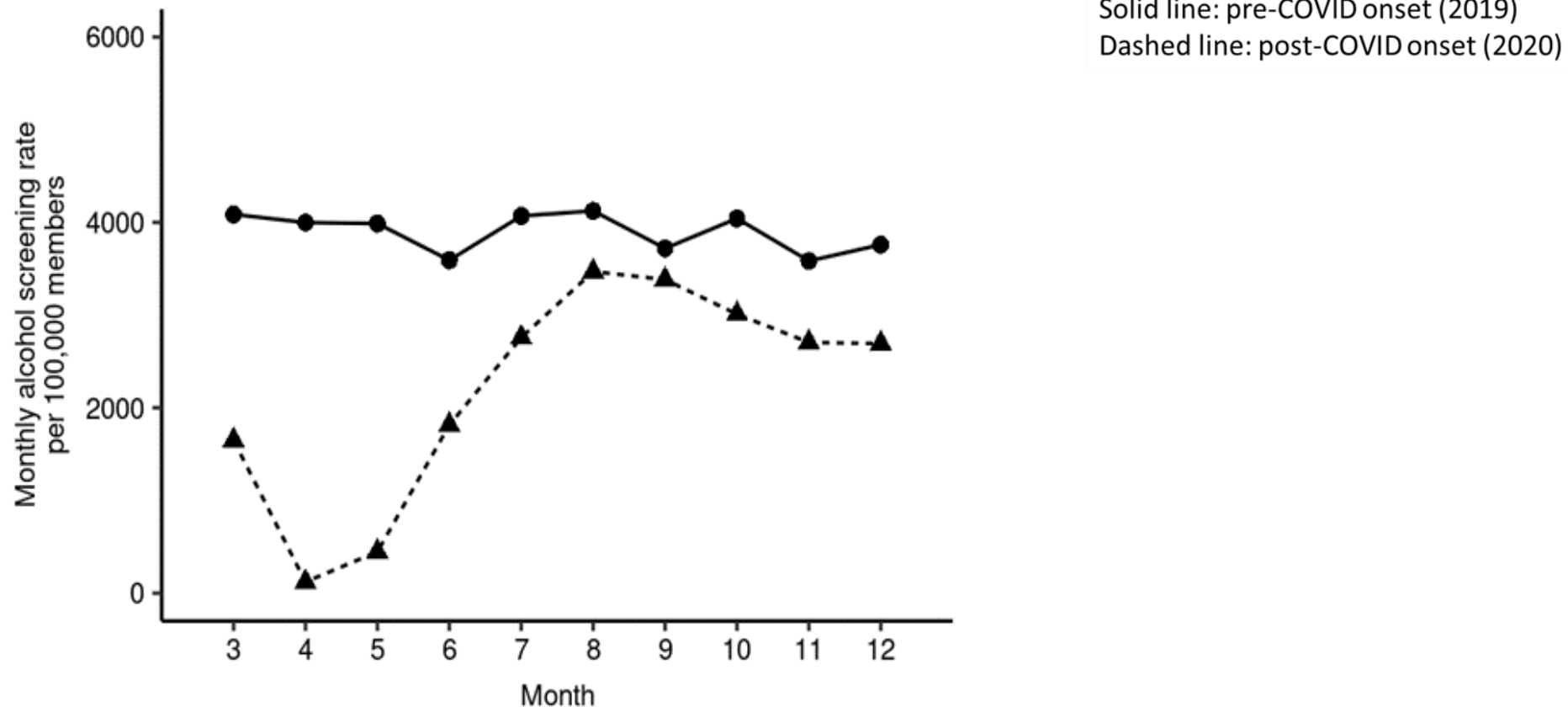
Adolescent marijuana, alcohol use held steady during COVID-19 pandemic

Adolescent marijuana use and binge drinking did not significantly change during the COVID-19 pandemic, despite record decreases in the substances' perceived availability, according to a survey of 12th graders in the United States. The study's findings, which appeared online on June 24, 2021, in *Drug and Alcohol Dependence*, challenge the idea that reducing adolescent use of drugs can be achieved solely by limiting their supply. The work was led by researchers at the University of Michigan, Ann Arbor, and funded by the National Institute on Drug Abuse (NIDA), part of the National Institutes of Health.

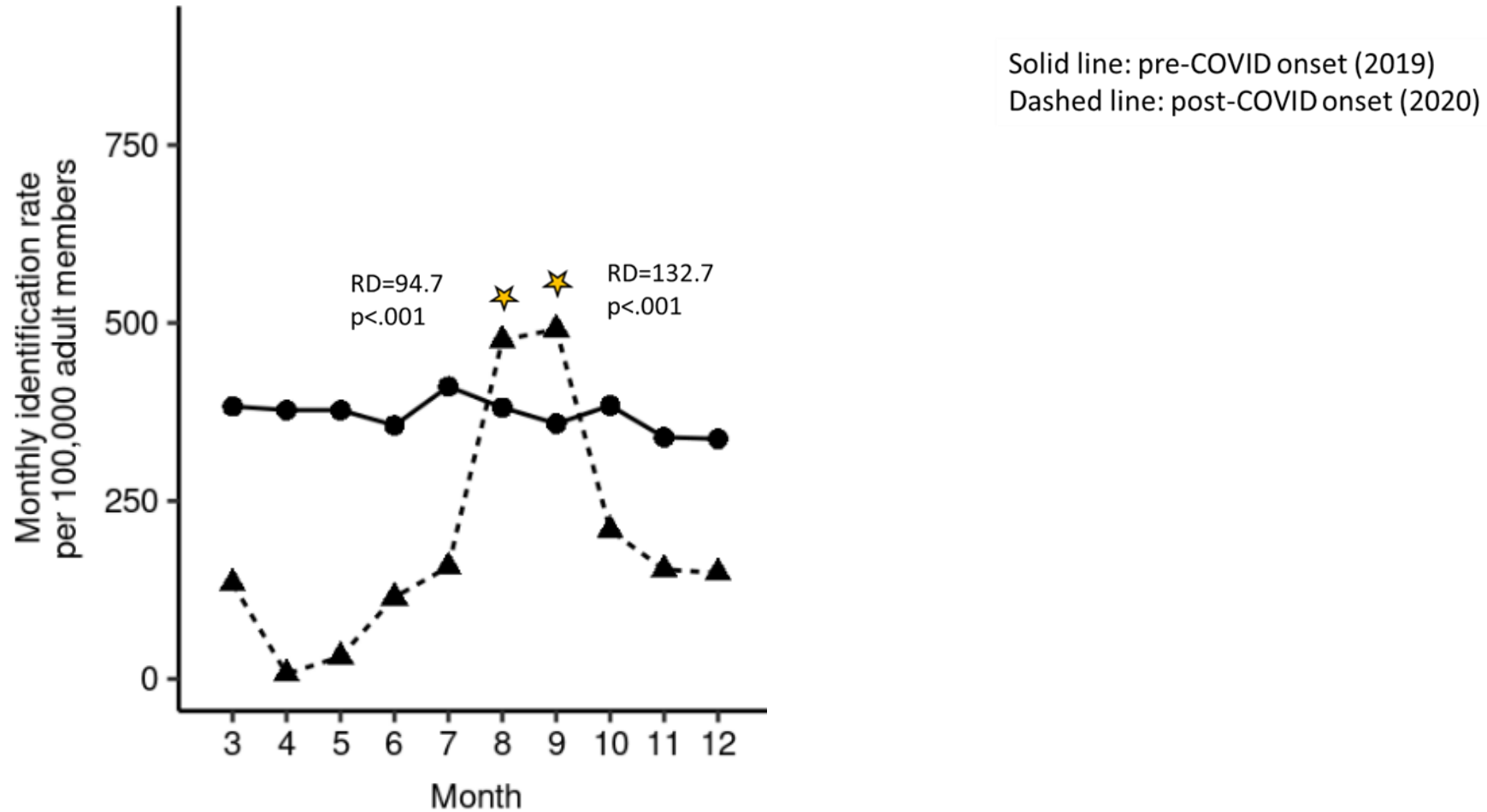
In contrast to consistent rates of marijuana and alcohol use, nicotine vaping in high school seniors declined during the pandemic, along with declines in perceived availability of vaping devices at this time. The legal purchase age is 21 for nicotine products and alcohol in all states, and for cannabis in states that have legalized nonmedical cannabis use.

"Last year brought dramatic changes to adolescents' lives, as many teens remained home with parents and other family members full time," said NIDA Director Nora D. Volkow, M.D. "It is striking that despite this monumental shift and teens' perceived decreases in availability of marijuana and alcohol, usage rates held steady for these substances. This indicates that teens were able to obtain them despite barriers caused by the pandemic and despite not being of age to legally purchase them."

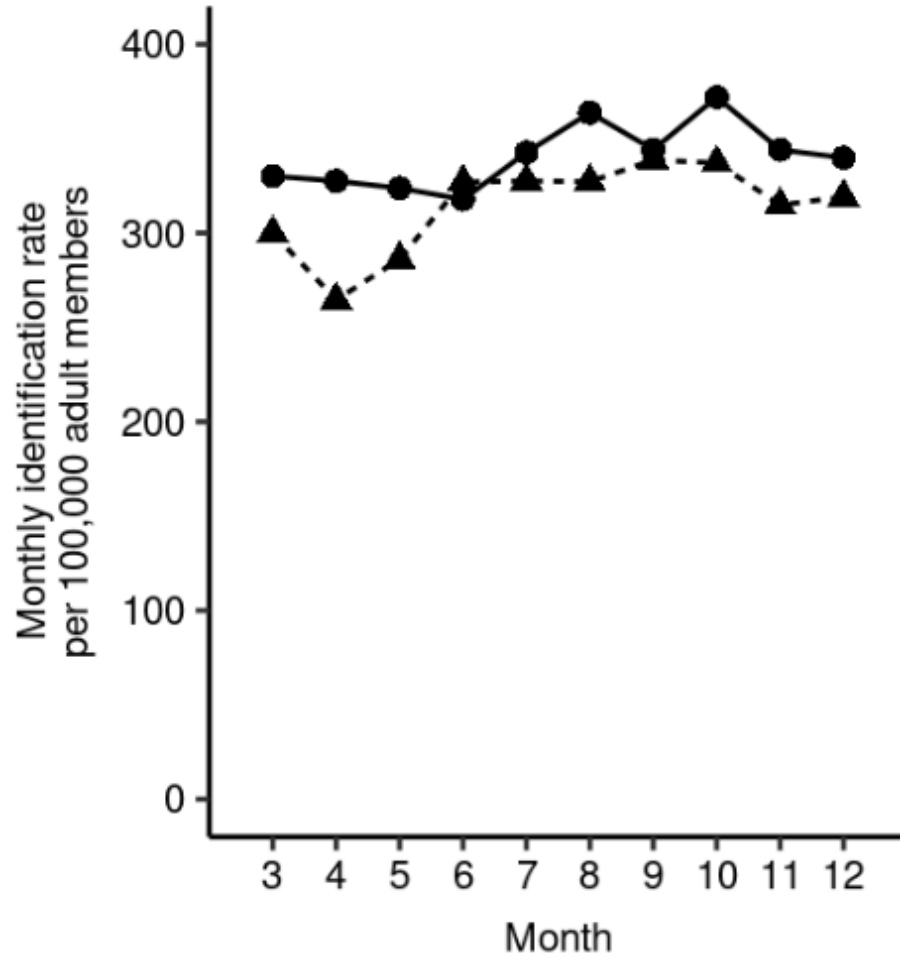
Results: Monthly alcohol screening rates per 100,000 young adults (18-34 years), pre-COVID onset vs. post-COVID onset



Results: Monthly positive alcohol screening rates per 100,000 young adults, pre-COVID onset vs. post-COVID onset



Results: Monthly identification rates of alcohol-related diagnoses per 100,000 young adults, pre-COVID onset vs. post-COVID onset



Solid line: pre-COVID onset (2019)
Dashed line: post-COVID onset (2020)

Results: Sample characteristics **young adults (18-34 years), utilizing primary care pre-/post-COVID onset**

Characteristic	Pre-COVID onset, n=663,111	Post-COVID onset, n=627,095
Age in years, mean (SD)	26.8 (4.8)	26.8 (4.8)
Sex, n (%)		
-male	262,291 (39.6)	252,260 (40.2)
-female	400,820 (60.4)	374,835 (59.8)
Race/ethnicity, n (%)		
-White	246,709 (37.2)	224,708 (35.8)
-Asian, Pacific Islander	154,569 (23.3)	133,712 (21.3)
-Black	53,185 (8.0)	51,376 (8.2)
-Latino/Hispanic	171,126 (25.8)	171,029 (27.3)
-Native American	5,542 (0.8)	5,252 (0.8)
-Other/unknown	31,980 (4.8)	41,018 (6.5)
Neighborhood deprivation index quartile, n (%)		
Q1 (lowest)	170,164 (25.7)	154,601 (24.7)
Q2	169,171 (25.5)	158,183 (25.2)
Q3	165,123 (24.9)	156,686 (25.0)
Q4 (highest)	157,413 (23.7)	156,417 (24.9)
Any DUD, n (%)	610 (1.8)	369 (2.0)
Any MH condition, n (%)	7,406 (21.3)	4,847 (25.8)
Had an alcohol screening, n (%)	343,889 (51.9)	186,711 (29.8)

Results: Prevalence ratios of unhealthy alcohol use among young adults who were screened, weighted by IPW

Group	Subgroup	Pre-COVID onset % (95% CI)	Post-COVID onset % (95% CI)	Post vs. Pre, aPR (95% CI)	Type 3 p-value	p-value
Overall	-	9.2 (9.1,9.3)	9.0 (8.9,9.2)	0.98 (0.96, 1.00)	-	0.043
Age group	18-20 years	4.5 (4.3, 4.7)	4.9 (4.6, 5.1)	1.07 (1.00, 1.15)	0.007	0.037
	21-34 years	9.9 (9.8, 10.0)	9.7 (9.5, 9.8)	0.98 (0.96, 0.99)		0.007
Sex	Male	11.6 (11.5, 11.8)	10.3 (10.1, 10.5)	0.88 (0.86, 0.90)	<0.001	<0.001
	Female	7.5 (7.4, 7.7)	8.2 (8.0, 8.3)	1.08 (1.06, 1.11)		<0.001
Race/ethnicity	White	11.9 (11.8, 12.1)	11.6 (11.4, 11.9)	0.97 (0.95, 1.00)	<0.001	0.047
	Asian, Pacific Islander	6.4 (6.2, 6.5)	5.8 (5.6, 6.1)	0.91 (0.87, 0.96)		<0.001
	Black	8.0 (7.7, 8.4)	7.4 (7.0, 7.9)	0.92 (0.86, 0.99)		0.021
	Latino/Hispanic	8.1 (7.9, 8.3)	8.7 (8.5, 9.0)	1.07 (1.03, 1.11)		<0.001
	Native American	8.1 (7.2, 9.2)	6.4 (5.4, 7.8)	0.78 (0.63, 0.97)		0.028
	Other/unknown	9.2 (8.7, 9.6)	8.9 (8.4, 9.5)	0.97 (0.89, 1.04)		0.380
NDI quartile	Q1 (lowest)	10.9 (10.7, 11.1)	9.9 (9.6, 10.2)	0.91 (0.88, 0.94)	<0.001	<0.001
	Q2	9.2 (9.0, 9.4)	9.2 (8.9, 9.4)	0.99 (0.96, 1.03)		0.702
	Q3	8.4 (8.3, 8.6)	8.7 (8.4, 8.9)	1.02 (0.98, 1.06)		0.368
	Q4 (highest)	8.1 (7.9, 8.2)	8.5 (8.2, 8.7)	1.04 (1.00, 1.08)		0.071
MH condition	None	8.9 (8.8, 9.0)	8.8 (8.7, 9.0)	0.98 (0.96, 1.00)	0.898	0.072
	Any	10.2 (10.0, 10.4)	10.0 (9.7, 10.3)	0.98 (0.95, 1.02)		0.357
DUD	None	9.1 (9.0, 9.2)	9.0 (8.9, 9.1)	0.98 (0.97, 1.00)	0.120	0.075
	Any	13.7 (12.8, 14.7)	12.6 (11.5, 13.8)	0.90 (0.80, 1.01)		0.067

Results: Summary

- **Adolescents** reported increased alcohol use and feelings of sadness and suicidality, and slightly less marijuana use in our sample.
- Alcohol screening rates in adult primary care were decreased significantly in the first few months of the pandemic as patients were not seeing their doctors, but then caught up to pre-pandemic levels (incl. virtual visits).
- **Positive alcohol screens** among **young adults** showed a deep dip at the beginning of the pandemic (probably related to extremely low screening rates), and then returned to pre-pandemic levels, and even exceeded rates seen in the previous year.
- **Alcohol-related diagnoses** among **young adults** remained relatively stable and rates were comparable pre- and post-pandemic onset.

Results: Summary

- Overall, **prevalence of unhealthy alcohol use among young adults** slightly decreased pre- to post-COVID onset, whereas it **increased** for some subgroups:
 - Women
 - Youngest adults (18-20 years)
 - Latino/Hispanic members
- Although prevalence of unhealthy alcohol use **decreased** for
 - Men
 - White members
 - Members with lowest neighborhood deprivation index

these subgroups still have higher (post-COVID onset) prevalence of unhealthy alcohol use than the subgroups that increased their use

Conclusions

- Despite reduced contact to peers/access, **adolescents** reported increased alcohol use. They probably could access alcohol at home, in contrast to marijuana.
- Adolescents indicated more feelings of sadness and suicidality, perhaps related to less contact with peers.
- **Young adults** showed only small changes/decreases in unhealthy alcohol use pre- vs. post-pandemic onset, but findings raise concerns over increased drinking among vulnerable subgroups (women, youngest adults, Latino/Hispanic members).
- Findings suggest considerable behavioral health burden among young people, resulting from the pandemic, and the imminent need for youth-serving systems to prepare to address these concerns as people begin to seek care.
- Findings also hint at the negative consequences of social isolation for young people.

Thank you for your attention!

- I am available for questions after my presentation
- Please also feel free to e-mail me with any questions or feedback:

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