



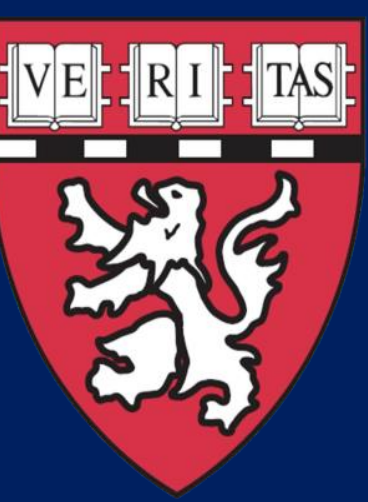
# Impact of the Coronavirus Disease 2019 Pandemic on Adolescent Alcohol Use Behaviors

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## Background

Among adolescents and young adults (AYA), alcohol use is common, and results in chronic and acute health risks, and "binge" drinking is significant health risk behavior (Wisk&Weitzman 2016; Chung 2018). The COVID-19 pandemic has had unprecedented impacts on the mental health of AYA, affecting their experiences at home, school, and in the community (U.S. DHHS 2021). Little is known about the implications of pandemic experiences on AYA alcohol use.

## Objectives

Measure associations among pandemic experiences and alcohol use/binge drinking among AYA

## Methods

**Survey and Sample:** An electronic REDCap survey was administered from 10/28/2020 to 5/24/2021 to AYA ages 16-23 years receiving health care at an urban hospital.

**Measures: Outcome:** Self-reported any binge level consumption (defined using age/sex cutoffs) during the past 3M, among the alcohol users (screened by S2BI tool). **Predictor:** Pandemic exposure, impact, and distress assessed by the COVID-19 Exposure and Family Impact Adolescent and Young Adult Version (CEFIS AYA).

**Analyses: Logistic regressions** were used to estimate the associations among pandemic exposure/impact/distress outcomes and past 3M binge drinking, adjusting for clinics, demographics, depression, anxiety, past3M cannabis use, pandemic risk mitigation practices and surveyed month. We used SAS9.4. Statistical significance was considered at p<0.05.

## Results

Table 1. CEFIS and sample characteristics by alcohol use past 12months.

	Total (N = 469)	Past 12M alcohol use		P Value
		Yes	No	
<b>N (%)</b>		277 (59.1%)	192 (40.9%)	
<b>Surveyd period</b>				
2020Oct-2021Jan	397 (84.6%)	242 (87.4%)	155 (80.7%)	<b>0.050</b>
2021Feb-2021May	72 (15.4%)	35 (12.6%)	37 (19.3%)	
<b>Demographics, health and CEFIS</b>				
Age, Mean (SD)	19.3 (1.6)	19.8 (1.4)	18.6 (1.6)	<b>&lt;0.001</b>
Female	320 (68.2%)	202 (72.9%)	118 (61.5%)	<b>0.009</b>
White non-Hispanic	271 (57.8%)	163 (58.8%)	108 (56.3%)	0.58
Parent college education	333 (71.0%)	202 (72.9%)	131 (68.2%)	0.27
Depression (PHQ-2 score >= 3)	84 (17.9%)	55 (19.9%)	29 (15.1%)	0.19
Anxiety (GAD-2 score >= 3)	124 (26.4%)	81 (29.2%)	43 (22.4%)	0.10
CEFIS Impact <sup>a</sup> , Mean (SD)	2.3 (0.8)	2.4 (0.7)	2.0 (0.8)	<b>&lt;0.001</b>
CEFIS Exposure <sup>b</sup> , Mean (SD)	8.8 (3.6)	9.0 (3.5)	8.6 (3.7)	0.16
CEFIS Distress <sup>c</sup> , Mean (SD)	5.9 (2.4)	6.3 (2.1)	5.4 (2.6)	<b>&lt;0.001</b>

**Results:** Of N=469 participants with complete outcome data, **59% reported past 12M alcohol use. Compared to those with non-alcohol use, AYA w/alcohol use had more CEFIS Exposures;**

- Family/self COVID exposure (41% vs 31%, p=.03).
- Difficulty accessing essentials (e.g., masks/cleaning supplies) (34.7% vs 25%, p=.03).
- Decreased family/self income (49% vs 39%, p=.03)

## Wellbeing and Alcohol: AYA w/ past 12M alcohol use had more reporting of the pandemic made aspects of their wellbeing "a lot/little worse" than AYA w/o alc use (CEFIS Impacts):

- How family/household members get along (59% vs 38%, p<.001)
- Ability to care for self-health (56% vs 38% , p<.001)
- Ability to be independent (63% vs 44% , p<.001)
- Physical wellbeing - eating (64% vs 48%, p<.001)
- Physical wellbeing - sleeping (53% vs 39%, p<.001)
- Emotional wellbeing - loneliness (79% vs 64%, p<.001)
- Emotional wellbeing - anxiety/ worry (84% vs 64% , p<.001)
- Emotional wellbeing - mood (82% vs 59% , p<.001)

Table 2. CEFIS and sample characteristics by any binge drinking past 3M.				
Among the past 12M alcohol users	Total (N = 277)	Any binge drinking past 3M		P Val
		Yes 113 (40.8%)	No 164 (59.2%)	
<b>CEFIS</b>				
CEFIS Impact <sup>a</sup> , Mean (SD)	2.4 (0.7)	2.5 (0.7)	2.4 (0.7)	<b>0.022</b>
CEFIS Exposure <sup>b</sup> , Mean (SD)	9.0 (3.5)	9.8 (3.7)	8.4 (3.2)	<b>&lt;0.001</b>
CEFIS Distress <sup>c</sup> , Mean (SD)	6.3 (2.1)	6.2 (2.1)	6.4 (2.1)	0.67
<b>Mental health</b>				
Depression (PHQ-2 score >= 3)	55 (19.9%)	24 (21.2%)	31 (18.9%)	0.63
Anxiety (GAD-2 score >= 3)	81 (29.2%)	37 (32.7%)	44 (26.8%)	0.29
<b>Substance use</b>				
Drinking days past 3M, Mean (SD)	9.4 (11.9)	14.7 (13.1)	5.8 (9.4)	<b>&lt;0.001</b>
Any cannabis use past 12M	170 (61.4%)	80 (70.8%)	90 (54.9%)	<b>0.007</b>
Any vaping past 12M	152 (54.9%)	76 (67.3%)	76 (46.3%)	<b>&lt;0.001</b>
<b>Pandemic related concerns and NPI (non-pharmaceutical intervention)</b>				
When outside your home in public, how regularly do you:Wear a mask covering your nose and mouth?				
Always	204 (73.6%)	72 (63.7%)	132 (80.5%)	<b>0.002</b>
Never/Rarely/Sometimes/Usually	73 (26.4%)	41 (36.3%)	32 (19.5%)	
Over the past 2 weeks, on average, how much have you been concerned with; personally contracting COVID-19				
Not at all/Slightly	111 (40.1%)	57 (50.4%)	54 (32.9%)	<b>0.009</b>

Figure 2.

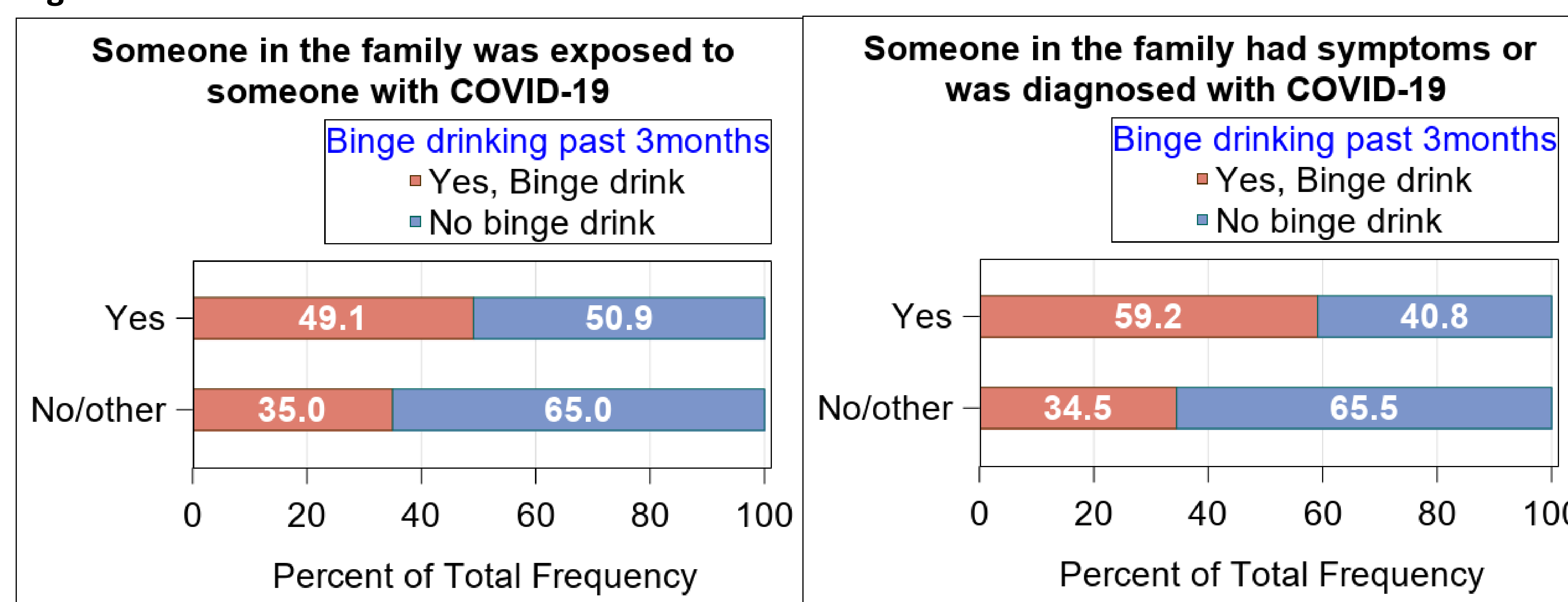


Table 3. The association between CEFIS and the past 3M binge drinking.

Predictor:( one unit (=1) increase)	Any binge drinking during the past 3months (vs No)					
	Unadjusted		Adjusted <sup>x</sup>			
	OR	95% CI		AOR	95% CI	
CEFIS Exposure	1.13	1.05	1.21	1.17	1.08	1.27
CEFIS Impact	1.50	1.03	2.19	1.61	1.04	2.49
CEFIS Distress	0.97	0.86	1.08	1.00	0.87	1.15

**Notes:** a.The Impact Score (range:0-4): the mean of 15 impact items measuring emotional/physical /social wellbeing (0=NA, 1=A lot better 4=A lot worse). b.The Exposure Score (range: 0-28) : the sum of COVID-19 related events. c.Distress Score: (1=No distress 10= Extreme distress)

X. Logistic regression adjusted for clinics (General vs Specialty, dichotomized), the frequency of cannabis use past 3M, age, biological sex, race, parental education, NPI (mask wearing important/regular), survey month (dichotomized as before/after Feb2021), depression and anxiety.

## Results (cont'd);

There were N=277 with past 12M alcohol use, 73% were female, 62% were white, 82% were non-Hispanic, and mean age was 19.8 (SD 1.4). Of these, **41% reported binge drinking** past 3M.

In bivariate analyses (**Table 2, Fig 2**), the binge group reported:

- Fewer COVID concerns
- Less regular mask use
- Higher mean CEFIS Exposure & Impacts
- Greater levels of family member COVID exposure (p=.02), and symptoms (p <.001)

In adjusted models (**Table 3**), among AYA reporting past 12M alcohol use, greater number of COVID-19 related events was associated with an increased odds of reporting past 3-month binge drinking (AOR: 1.18; 95% CI, 1.09 -1.27).

## Discussion

- AYA w/alcohol use appeared to report the more severe burden of CEFIS Exposure and Impact
- AYA w/alcohol use reported less regular mask use and lower concern for personally contracting COVID-19
- Among the AYA w/alcohol use , binge drinking was associated with and greater CEFIS Exposure.

## Limitations

Findings should be interpreted in the context of limitations, including the cross-sectional nature of the data which preclude understanding causal relationships, a sample drawn from a single institution limiting generalizability, and self-reported nature of the data.

## Conclusion

Positive associations among binge alcohol use and COVID-19 related exposures and impacts were found. Screening and supportive interventions are needed to address risks considering youth reporting negative pandemic exposures may be at heightened risk for binge drinking and the converse.

## Contact and Funding

Contact: Machiko.Minegishi@childrens.harvard.edu  
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**Reference:**

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