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Going Out or Staying In: How the COVID-19 Pandemic has Influenced College Students' Drinking and Socializing

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Author Note

Abstract

People's daily social activities have been altered during the pandemic since they carry risk for contracting COVID-19. Prior to the pandemic, drinking socially has been the highlight of many college students' lives. This study explores how COVID-19 has impacted college students' drinking and social activities. We examined samples from a large, southern, public university both prior (*N*=65, Mean age=22.15, *SD*=2.03, 78.87% female) and during COVID-19 (*N*=47, Mean age=22.42, *SD*=1.64, 75.47% female). Students filled out an alcohol-related Timeline Followback measure (TLFB), in which they recalled their drinking over the past 30 days using anchor events inputted into a calendar. The events were qualitatively coded and assigned a COVID-19-risk behavior (CRB) score based on the Texas Medical Association's 9-point scale. Activities now known to contain risk for COVID-19 contraction were classified as follows: Moderate CRB (ranked 5-6; e.g., visiting friends), Moderate-High CRB (ranked 7; e.g., attending a party), and High CRB (ranked 8-9; e.g., going to a bar). Results revealed that students who engaged in CRBs that were ranked 5 and above were more likely to report greater number of drinks on one occasion in the past 30 days (e.g., peak drinks) and more drinks over the entire month (e.g., total monthly drinks). Although total alcohol consumption (e.g., peak drinks and total monthly drinks) remained unchanged, and students were less likely to partake in the highest ranked CRBs (e.g., ranked 8-9) during the pandemic, those who were participating in the highest ranked CRBs (e.g., ranked 8-9) may have been more likely to contract or spread COVID-19.

Keywords: college students, COVID-19 risk behaviors, alcohol consumption

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College has been known to be a time for socialization and gaining unique experiences among young adults. The age range of 18 to 24 years, a time in which individuals typically attend college, has been identified as a peak period of alcohol use (Osberg et al., 2010). Given that college students tend to drink socially, their behaviors may be problematic because drinking and socializing now carry a risk for COVID-19 contraction. Few studies have explored the social activities among college students, now referred to as COVID-19 risk behaviors (CRBs), in relation to their drinking habits. This study investigates the predictive relationship between CRBs and alcohol consumption among college students.

College Students' Drive to Keep Drinking

Peer Reputation Regarding Social Drinking

Peers are seen as the most notable social influencers in the college environment, particularly in relation to alcohol use (Perkins, 1997). College students view social distancing guidelines as a potential threat to their socialization and reputation with peers. Furthermore, adolescents with concerns of maintaining their reputation with peers was found to be predictive of face-to-face substance use with friends during the COVID-19 pandemic, which increases their participation in high-risk drinking behaviors in relation to contracting the virus (Dumas et al., 2020). These findings indicate that peer influence and maintenance of peer reputation play a considerable role in the development and maintenance of alcohol use during the COVID-19 pandemic.

Less Fear of COVID-19 Contraction

According to the CDC (2021), more than 80% of deaths from COVID-19 occur in individuals aged 65 and older, and 95% of deaths from COVID-19 occur in individuals aged 45 and older. Unless college students have preexisting conditions that place them at a greater risk for increased severity of COVID-19 symptoms, they may feel they are less at risk for the various health outcomes of COVID-19 when compared to adults. Furthermore, college students are in a stage of life in which risk-taking is a common occurrence to test their limits in order to determine who they are and how they fit in with their

peers (Dworkin, 2005). This suggests that college students are more willing to take risks to obtain social rewards since their fear of suffering from severe COVID-19 symptoms is minimal (Dumas et al., 2020).

Stress in Relation to Alcohol Use Among College Students

Stress has been known to be a common risk factor for both the onset and maintenance of alcohol misuse. Changes to an individual's daily routine can induce stress, thus the recommended social restrictions during the COVID-19 pandemic can potentially lead to alcohol misuse, relapse of addictive behaviors, or the onset of alcohol abuse (Clay & Parker, 2020). A recent study found that alcohol drinkers were less likely to report positive outlooks regarding the COVID-19 pandemic and were more likely to engage in negative coping strategies. There is a strong relationship between poor mental health and the use of alcohol as a coping mechanism, particularly among young adults (Chodkiewicz et al., 2020). This leads to the belief that stress induced by the COVID-19 pandemic may be a reason why young adults, specifically college students, are continuing to drink alcohol during the pandemic.

Excessive Alcohol Consumption has Adverse Effects on Immune Responses

Having a substance use disorder such as alcoholism can make individuals more susceptible to the severe symptoms of COVID-19 (CDC, 2021). Current literature has revealed that heavy alcohol intake profoundly changes pulmonary immunity and suppresses mucociliary clearance. Without this defense mechanism, a person who participates in binge drinking, defined as consuming 4/5 or more drinks for women/men, may have an increased risk of contracting COVID-19 and developing more severe symptoms that lead to critical care measures (Bailey et al., 2020; Esser et al., 2014).

The Current Study

This study bridges the gap in the current research by exploring how CRBs are predictive of both total drinks in 30 days (e.g., total drinks per month) and the highest number of drinks consumed in one day in a 30-day period (e.g., peak drinks) among college students. Due to possible increased stress, we expect drinking to increase in response to the COVID-19 pandemic (H1). Additionally, we predict that there will be a positive association between highly ranked CRBs (ranked 5 and above) and drinking, since college students may still be drinking socially (H2). However, due to possible restrictions of larger

gatherings, we anticipate that the participation in the highest ranked CRBs (e.g., ranked 8-9) would decrease during the COVID-19 pandemic (H3).

Methods

Participants and Procedure

College students from a large, southern, public university took part in a one-time, cross sectional study both pre-COVID-19 and during the COVID-19 pandemic. This study was conducted to validate a social media and alcohol-related Timeline Followback Measure (TLFB). In order to qualify, participants had to be between the ages of 18-26. Furthermore, female participants needed to report that they consumed two or more drinks in one sitting and that they were not pregnant, and male participants had to report three or more drinks in one sitting. Additionally, each participant, in the past month, needed to have posted alcohol related content (ARC) to one of the social media platforms assessed by the ARC scale (e.g., Snapchat, Instagram, Twitter, and/or Facebook). A participant that completed the study prior to the date of March 15, 2020 was considered to be a part of the pre-COVID-19 sample, and a participant that completed the study after the date of March 15, 2020 was considered to be in the during COVID-19 sample. The pre-COVID-19 sample (N=65, Mean age= 22.15, SD= 2.03, Range age=18-26) was 78.87% female. The during COVID-19 sample (N=47, Mean age=22.42, SD=1.64, Range age=18-26) was 75.47% female. See Tables 3 and 4 for the correlations of the samples prior to the pandemic and during the pandemic.

Measures

Drinking Measures

Data was collected using the TLFB, in which participants recalled their drinking and the context that they were drinking in over the past 30 days (L. Sobell & M. Sobell, 1995). The outcome variables of the total number of drinks consumed in the 30-day period (total monthly drinks) was quantitatively computed by summing drinks across the 30 days. Peak drinks represented the highest number of drinks that participants consumed on one occasion across the 30 days.

CRB Measures

Participants were asked to input anchor dates such as holidays into an electronic calendar to help participants recall their drinking. These activities were then qualitatively coded and assigned a CRB ranking based on the Texas Medical Association's 9-Point Scale (Annear & Cooper, 2020). Two independent coders looked through participants' responses written in the calendar and constructed a coding scheme to code and rank the CRBs. Activities now considered to be CRBs are categorized as follows: Low CRB (ranked 1-2; e.g., takeout or camping), Moderate CRB (ranked 5-6; e.g., visiting friends/family or going to a bonfire), Moderate-High CRB (ranked 7; e.g., attending a party or eating at a restaurant), and High CRB (Ranked 8-9; e.g., going to a bar/brewery or going to a club). Participants did not report engaging in any events in the Low-Moderate CRB Category (ranked 3-4).

Results

Negative Binomial Regression Analysis

Prediction models focused on the sample collected during the COVID-19 pandemic because CRBs now hold implications for COVID-19 contraction. Since the outcome variables of total drinks per month and peak drinks were positively skewed, negative binomial models were employed and are presented in Tables 1 and 2. Gender and the CRBs were entered as predictors of drinking (e.g., total drinks per month and peak drinks), the outcome variables of interest. Exponentiated parameter estimates (e^B) are interpreted as incidence rate ratios (IRR), which represent the expected percentage of change in the drinks per month or peak drinks for each unit increase in one of the predictor variables. Exponentiated values above one represent proportional increases in the percentage of drinks per month or peak drinks as a result of the predictor variables whereas a value below one represents a proportional decrease in drinks per month or peak drinks. Regarding the exponentiated beta coefficient, the variables that had p-values less than or equal to 0.05 were considered to be significant predictors of alcohol consumption.

Results from Table 1 indicate that gender and the CRBs ranked 5-6, 7, and 8-9 were all significantly associated with total drinks per month (H2). Since gender was dummy-coded to mean that males represented one, whereas females represented zero, there was a 91% increase in documented total

drinks per month during the COVID-19 pandemic for men (b=0.65, IRR=1.91, p=0.00). For the Moderate

CRB category ranked 5-6, it was found that for every additional event that participants reported engaging

within that category, there was a 9% increase in documented total drinks per month during the COVID-19

pandemic (b=0.09, IRR=1.09, p<0.0001). In the Moderate-High CRB category ranked 7, for every

additional event that participants reported engaging in, there was a 25% increase in documented total

drinks per month during the COVID-19 pandemic (b=0.23, IRR=1.25, p=0.00). Lastly, in the High CRB

category ranked 8-9, for every additional event that participants reported engaging in, there was a 23%

increase in documented total drinks per month during the COVID-19 pandemic (b=0.21, IRR=1.23,

p=0.04).

In Table 2, the results revealed that CRBs ranked 5-6, 7, and 8-9 were all significantly associated

with peak drinks (H2). However, in this model, there was no significant difference in peak drinks between

men and women during the COVID-19 pandemic. For the Moderate CRB category ranked 5-6, it was

found that for every additional event participants reported engaging within that category, there was a 3%

increase in documented peak drinks during the COVID-19 pandemic (b=0.03, IRR=1.03, p=0.05). In the

Moderate-High CRB category, for every additional event that participants reported engaging in, there was

an 11% increase in documented peak drinks during the COVID-19 pandemic (b=0.11, IRR=1.11,

p=0.04). Lastly, in the High CRB category ranked 8-9, for every additional event that participants

reported engaging in, there was a 24% increase in documented peak drinks during the COVID-19

pandemic (b=0.22, IRR=1.24, p=0.01).

Independent T-Test Analysis

A series of independent sample t-tests were also conducted to determine if there were mean

differences in drinking and CRBs prior to the COVID-19 pandemic versus during the COVID-19

pandemic. Contrary to expectations (H1), results revealed there were no significant mean differences in

total drinks per month [t(116)=-0.61, p=.542] or peak drinks [t(113)=-0.37, p=.71] between the pre-

COVID-19 and during COVID-19 samples. Furthermore, results revealed there were no significant

differences between Low [1-2; t(46)=-1.66, p=.10], Moderate [5-6; t(73)=-1.54, p=.13], and Moderate-

High [7; $t(109)=1.47$, p=.14] CRBs between the pre-COVID-19 and during COVID-19 samples. However, there was a significant mean difference in High CRBs [8-9; $t(91)=4.43$, p=<.0001] between the pre-COVID-19 and during COVID-19 samples, which indicated that students appeared to engage in a greater number of High CRBs prior to the pandemic (H3).

Discussion

The results of this study indicate that college students' alcohol consumption has not changed in response to the COVID-19 pandemic, which is not consistent with our prediction that drinking would increase (H1). This indicates that college students have continued drinking during a pandemic, perhaps because they feel they are not susceptible to the health impacts of COVID-19. Therefore, they did not view COVID-19 as a reason to change their drinking habits. Regardless of the context in which they reported their drinking, our findings suggest our sample population (college students aged 18-26) can be classified as binge drinkers. This is concerning because according to the CDC (2019), binge drinking is the most common and dangerous pattern of excessive alcohol use in the United States.

Consistent with our prediction (H2), if participants engaged in a CRB ranked 5 or above, then they were more likely to report heavier drinking since these high-risk behaviors commonly involve drinking within social contexts. This is particularly concerning because heavy or binge drinking is associated with diminished immune responses. Therefore, these college students may have an increased risk of contracting COVID-19 and suffering from the severe symptoms of the virus (Bailey et al., 2020). Furthermore, this research suggests that college students' perceived invincibility with respect to COVID-19 contraction may be a reason behind why this population continues to engage in highly ranked CRBs during the pandemic. Their participation in highly ranked CRBs, most of which probably involve drinking, may be contributing to community spread of COVID-19.

As anticipated, during the COVID-19 pandemic, students were less likely to participate in the highest ranked CRBs (8-9) (H3). This may be because bars and clubs were temporarily shut down on March 17, 2020 in the state the students were living in due to their high level of risk for contracting and

spreading COVID-19 (Eyewitness News, 2020). However, the re-opening of such locations may be problematic since COVID-19 remains a persistent health crisis.

The health implications of the current study call for creating awareness among college students whose drive to drink socially outweighs their fear of contracting COVID-19. Public health promotion efforts targeting college students need to emphasize that students' participation in the higher ranked CRBs may be exacerbating COVID-19 transmission within their local communities.

Limitations and Future Direction

Although this study possesses valuable findings, it is not without limitations. In an ideal scenario, data would have been collected from the same participants both prior to and during the COVID-19 pandemic. A paired t-test would have demonstrated possible fluctuations in the same participant's drinking habits and participation in CRBs both prior to and during the COVID-19 pandemic rather than the independent t-test which identifies mean differences in drinking among two different samples. Additionally, the study was limited since a small sample size was collected from a single university. Furthermore, participants needed to have drunk alcohol and posted ARC to their social media in order to participate. Thus, it is possible that the type of students who drink and post ARC may differ in terms of their drinking when compared to those who drink but do not post ARC. This may suggest that pre-selection and selection bias are limitations to the study's results.

With data collection from a larger, more diverse sample, future studies can explore potential factors that drive college students to continue both their drinking habits and participation in high-risk behaviors during the pandemic. Additionally, since this study's sample drank quite heavily, binge drinking among college students and the identity characteristics they possess can be another potential interest of future studies.

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Table 1

Negative Binomial Regression Results During COVID-19 Total Drinks per Month

Outcome	Predictor	b	$SE\ b$	p	e^B	95% CI
Total Drinks	Intercept	2.58	0.16	<.0001	13.14	[2.26-2.89]
	Gender	0.65	0.19	0.00	1.91	[0.27-1.02]
	Low Risk (1-2)	-0.20	0.24	0.40	0.82	[-0.68-0.27]
	Moderate Risk (5-6)	0.09	0.02	<.0001	1.09	[0.05-0.12]
	Moderate High Risk (7)	0.23	0.07	0.00	1.25	[0.10-0.35]
	High Risk (8-9)	0.21	0.10	0.04	1.23	[0.01-0.40]

Note. N=47. e^B are exponentiated coefficients, which are interpretable as rate ratios; Male = 1; Female = 0.

Table 2

Negative Binomial Regression Results During COVID-19 Peak Drinks

Outcome	Predictor	b	SE b	p	e^B	95% CI
Peak Drinks	Intercept	1.51	0.14	<.0001	4.55	[1.25-1.78]
	Gender	0.25	0.16	0.12	1.29	[-0.06-0.57]
	Low Risk (1-2)	-0.23	0.25	0.34	0.79	[-0.71-0.25]
	Moderate Risk (5-6)	0.03	0.02	0.05	1.03	[0.00-0.06]
	Moderate High Risk (7)	0.11	0.05	0.04	1.11	[0.00-0.21]
	High Risk (8-9)	0.22	0.09	0.01	1.24	[0.05-0.38]

Note. N=47. e^B are exponentiated coefficients, which are interpretable as rate ratios; Male = 1; Female = 0.

Table 3

Zero-order Correlations Between the Main Variables Pre-COVID-19

Variable	1.	2.	3.	4.	5.	6.
1. Gender	--					
2. Peak Drinks	0.08	--				
3. Total Monthly Drinks	0.00	0.70***	--			
4. Moderate Risk (5-6)	0.04	0.25*	0.60***	--		
5. Moderate High Risk (7)	-0.05	0.12	0.20	-0.26*	--	
6. High Risk (8-9)	0.19	0.35**	0.58***	0.24	-0.13	--
Means	-	6.12	27.64	2.66	1.23	1.48
Standard Deviation	-	3.78	26.26	2.73	1.70	1.82

Note. N=65. p<.05*. p<.01**, p<.001***; Male = 1; Female = 0

Table 4

Zero-order Correlations Between the Main Variables During COVID-19

Variable	1.	2.	3.	4.	5.	6.	7.
1. Gender	--						
2. Peak Drinks	0.11	--					
3. Total Monthly Drinks	0.21	0.75***	--				
4. Low Risk (1-2)	-0.01	-0.12	-0.08	--			
5. Moderate Risk (5-6)	0.00	0.21	0.54***	0.02	--		
6. Moderate High Risk (7)	-0.13	0.19	0.17	0.04	-0.11	--	
7. High Risk (8-9)	-0.11	0.34*	0.16	-0.12	-0.02	0.09	--
Means	-	6.60	31.67	0.09	3.74	0.81	0.36
Standard Deviation	-	3.88	26.05	0.35	4.21	1.33	0.76

Note. N=47. $p<.05$*. $p<.01$**, $p<.001$***; Male = 1; Female = 0