Changes in alcohol use since the onset of COVID-19 are associated with psychological distress among sexual and gender minority university students in the U.S

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Abstract

Background: Sexual and gender minority (SGM) young persons are experiencing compounding effects of COVID-19 due to unique social inequalities and existent mental health and substance use challenges. Given that 41% of all young persons are enrolled in universities, and the increased vulnerabilities faced by SGM young persons during the pandemic, it is imperative to understand the effects of alcohol use on mental health among SGM university students amid COVID-19. This study aims to examine the associations between changes in alcohol use since the start of COVID-19 and mental distress among SGM university students in the U.S., and to explore sex-stratified differences.

Methods: A nonprobability cross-sectional sample of 509 SGM university students (M_{age} = 22.04 years, SD = 3.99) were retrospectively surveyed online between May-August 2020 and asked if their alcohol use had changed since the start of COVID-19. Statistical analyses explored the association between changes in alcohol use since the start of COVID-19 and mental distress.

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Results: Average psychological distress ($M = 27.79$, $SD = 7.82$) was relatively high as per existing research and established clinical cutoff scores. Roughly 32% had increased alcohol use since the start of COVID-19. Subsequently, greater alcohol use ($p < .05$) since the start of COVID-19 was associated with higher psychological distress among SGM university students, and among females but not males assigned at birth.

Conclusions: Higher education, medical, and behavioral health professionals should consider how to adapt their practice to address alcohol use and psychological burdens among SGM university students (especially females) who are facing health inequities during and beyond COVID-19, requiring SGM-affirmative care.

Keywords

1. Introduction

Sexual and gender minority (SGM) young persons are experiencing compounding effects of the COVID-19 pandemic due to unique social inequalities (e.g., lack of access to affirmative medical and mental health care, economic precarity) (McKay et al., 2020; Salerno et al., 2020a; Veldhuis, 2020), and existent risks for mental health and substance use challenges, including alcohol use disorders and anxiety and depression (Ploderl and Tremblay, 2015; Rice et al., 2019; Russell and Fish, 2016). Research has begun to document how SGM mental health inequities are exacerbated by the COVID-19 pandemic (Flentje et al., 2020; Gonzales et al., 2020; Salerno et al., 2020b). Further, substance use disorders are emerging and accelerating as a result of the pandemic (Dubey et al., 2020), especially among women (Rodriguez et al., 2020), university students (Lechner et al., 2020), and racial and ethnic minority and young persons (Czeisler et al., 2020). Among young adults between the ages of 18–24 specifically, 27.4% reported starting or increasing substance use to cope with COVID-19 pandemic-related stress or emotions (Czeisler et al., 2020). Still, research has yet to reveal how alcohol use specifically is associated with mental health among SGM populations as a result of COVID-19. Given that 41% of all young persons are currently enrolled in United States (U.S.) universities (Espinosa et al., 2019), and the increased mental health vulnerabilities of SGM young persons amid the pandemic (Flentje et al., 2020; Gonzales et al., 2020; Salerno et al., 2020b), it is imperative to understand how alcohol use affects mental health among SGM university students in the context of COVID-19. Considering that sex-differences have been identified in alcohol use disorders among SGM persons (Fish and Exten, 2020) and in the context of COVID-19 (Rodriguez et al., 2020), there is further a need to investigate stratified alcohol use to mental health pathways among SGM university students assigned male and assigned female at birth. Despite these needs, SGM persons and university students have received limited public health attention in this time, which is a missed public health opportunity given that these are priority populations for alcohol and substance use prevention and mental health support.

The current study aims to cross-sectionally and retrospectively examine the association between changes in alcohol use since the start of COVID-19 and psychological distress among SGM young persons in U.S. universities. We hypothesized that increased alcohol use

would be associated with greater psychological distress among SGM university students (i.e., primary hypothesis). We further hypothesized that the relationship would be stronger for SGM university students assigned female compared to assigned male at birth (i.e., secondary hypothesis). Findings from our study extend current research on the associations between mental health and COVID-19 among SGM persons and may inform medical and behavioral health and higher education research, practice, and policy to mitigate the mental health and alcohol use consequences of the pandemic on SGM young persons and university students.

2. Methods

A nonprobability cross-sectional online survey was conducted in the U.S. among SGM university students between May 27th and August 14th, 2020 to retrospectively explore the association between alcohol use and mental distress on SGM university students since the start of COVID-19. Participants were recruited via email campaign at various universities across the U.S. and social media. Participants had to self-identify as full-time university students in the U.S., as SGM persons, and be least 18 years old to be eligible to participate. Survey duration was approximately 20–25 min and participants were offered the chance to enter into a drawing for a $50 Amazon.com gift card upon survey completion. Institutional review board approval and participant informed consent were obtained prior to commencing data collection. The current analytic sample includes a total of n = 509 SGM university students.

2.1. Measures

The previously validated Kessler-10 (K10) was used to measure current psychological distress using a 5-point Likert-type scale from (1) none to (5) all of the time (Kessler et al., 2002). A composite score was calculated using all 10-items (range = 10–50, α = .907). Participants were asked to indicate if their alcohol use had changed (response options: less use, no change, more use, have not used in the past year, and never used before) since the start of COVID-19. The alcohol use variable was recoded for statistical significance testing (0 = no increase, 1=increase).

2.2. Analytic strategy

Data analyses were conducted using IBM SPSS Statistics, Version 27. Following descriptive statistics, multivariate linear regression models were conducted to examine the association between changes in alcohol use since the start of COVID-19 on current psychological distress among SGM young persons in universities (i.e., primary hypothesis). To examine differences in effects by sex assigned at birth, stratified regression models were conducted (i.e., secondary hypothesis). Models were adjusted for tobacco, cannabis, and illicit substance use, nativity, age, sex, gender identity, sexuality, parental financial dependence, educational program type, ethnicity, race, and outness; these covariates were selected because they were hypothesized to be related to the independent variable (alcohol use) and/or the dependent variable (psychological distress) (VanderWeele, 2019) as per existing epidemiological and SGM health research.

3. Results

Sample demographics are presented in Table 1. Average psychological distress ($M = 27.79$, $SD = 7.82$) was relatively high as per the established K10 clinical cutoff scores (Kessler et al., 2002) and existing research (Dunbar et al., 2017). Since the start of COVID-19, approximately 32% of the sample reported increased alcohol use.

3.1. Primary hypothesis

Regression models are presented in Table 2. Model 1 showed that compared to SGM university students that did not report such increases, those who did report increased alcohol use since the start of COVID-19 were significantly more likely to report greater psychological distress ($B = 1.957$, p = .009); significant covariates included tobacco use (1) vs. non-use (0) ($B = 3.626$, p = .005), other race (1) vs. white (0) ($B = 3.236$, p = .023), undergrad (1) vs. grad (0) ($B = 2.548$, p = .009), queer gender (1) vs. cisgender (0) ($B = 2.713$, p = .022), transgender (1) vs. cisgender (0) ($B = 3.892$, p = .002), and female sex (1) vs. male sex (0) ($B = 2.859$, p = .001).

3.2. Secondary hypothesis

The regression model stratified by sex assigned at birth (Model 2) showed that the effect of increased alcohol use on psychological distress since the start of COVID-19 was non-significant for assigned males ($B = 3.182$, p = .123). Conversely, the effect of increased alcohol use on psychological distress since the start of COVID-19 was significant for assigned females ($B = 2.026$, p = .013); significant covariates included foreign-born (1) vs. U.S. born (0) ($B = -3.119$, p = .044), undergrad (1) vs. grad (0) ($B = 2.713$, p = .012), queer gender (1) vs. cisgender (0) ($B = 3.080$, p = .018), and transgender (1) vs. cisgender (0) ($B = 2.867$, p = .048).

4. Discussion

This study aimed to explore whether changes in alcohol use since the start of COVID-19 were associated with greater psychological distress among SGM university students, and to examine for differences in these associations by sex assigned at birth. Our primary and secondary hypotheses were supported; study results suggested that increased alcohol use was associated with greater psychological distress among SGM students (i.e., primary hypothesis), and stratified models suggested that the pathways were significant for SGM students assigned female at birth, but not among those assigned male at birth (i.e., secondary hypothesis). Our findings build upon emerging research and are among the first to highlight the potential link between increased alcohol use amid COVID-19 and psychological distress among SGM university students, and especially among SGM students assigned female at birth. Given our study results, medical and behavioral health providers and higher education stakeholders must act in order to mitigate the alcohol use and mental health ramifications faced by SGM young persons and university students during COVID-19.

4.1. Public health implications

Considering that SGM young persons and university students are facing elevated mental health and substance use challenges during COVID-19 (Flentje et al., 2020; Gonzales et al., 2020; Salerno et al., 2020b), which may lead to new substance use disorders and relapses of existing substance use disorders (Dubey et al., 2020), it is critical to enhance provider training and expand implementation of SGM-affirmative mental health and substance use prevention practice to meet rising needs among SGM populations during and beyond COVID-19 (Phillips et al., 2020), including tele-medicine/therapy services (Salerno et al., 2020a). SGM-affirmative practice includes awareness of SGM-related stressors (e.g., SGM-identity family rejection and concealment) (Salerno et al., 2020a), intersectionality (i.e., multiple marginalized identities and associated challenges) (Wilson et al., 2019), and identity development (e.g., coming out) (Bishop et al., 2020) concerns. SGM-affirmative practice may increase engagement and retention of SGM clients in substance use and mental health care during the time of COVID-19 and beyond. Our study findings especially highlight the importance of SGM-affirmative practice approaches in the context of COVID-19 that elevate the needs of SGM college students assigned female at birth. Unfortunately, emerging research has found a severe dearth of SGM-affirmative mental health and substance use services in the U.S. (Williams and Fish, 2020). These findings emphasize the urgent need for competent mental health and substance use care in the time of COVID-19 and beyond, particularly at colleges and universities.

It is further essential to ensure that existing patient data collection procedures adequately capture the SGM identity information (e.g., sex assigned at birth, gender identity, sexuality) necessary to identify these high risk groups, and prompt the provision of substance use disorder prevention practices with SGM young persons during and following the pandemic (Phillips et al., 2020; Salerno et al., 2020b, 2020c). It is imperative for medical and mental health providers to implement consistent substance use screening of young SGM clients in order to increase diagnoses and treatment of substance use disorders among these populations. More broadly, medical and behavioral health providers need to consider how to best adapt their practice to address substance use and mental health burdens among young SGM persons (especially those assigned female at birth), who are facing health inequities during and beyond COVID-19 that require SGM-affirmative intervention.

Higher education institutions can further impact the prevention of alcohol (and other substance) use and mental health burdens among SGM university students by providing affirmative mental health, social, and community support resources (Gonzales et al., 2020; Salerno et al., 2020b). For example, universities can extend the capacity of existing SGM-affirmative campus mental health and alcohol use services, including professional individual and group treatment, and social support groups, with increased attention toward SGM college students assigned female at birth. Many universities implement alcohol use prevention campaigns across various departments (e.g., departments of residency, student services, student affairs, student health and counseling centers), which could benefit from SGM inclusivity and affirmation-focused adaptation. This could increase SGM student engagement in impactful alcohol use services and resources. Universities can also

disseminate existing SGM-affirming mental health and substance use support resources (e.g., Trevor Project, National LGBT Help Center, Q Chat Space).

4.2. Limitations

This study used a non-probability sampling strategy, which limits our ability to generalize findings to broader populations of SGM university students. The study also used a retrospective cross-sectional data collection strategy, which limits inferences on causality and temporal ordering of focal variables; such limitations are important to consider in the context of intervention development. Additionally, the study is subject to recall bias due to required memories of past events, and social desirability bias, as alcohol use and mental health burden are subject to negative stigmatizing attitudes; results should be interpreted with caution. Although models were adjusted for various sociodemographic categories, small cell sample sizes impacted our ability to examine effects by more specific subgroups, such as those by race, ethnicity, and socioeconomic status. Given the disproportionate impact of COVID-19 on racial and ethnic minorities and other socially disadvantaged populations (Czeisler et al., 2020), future researchers are urged to investigate the needs of SGM young persons situated at the intersections of multiple marginalized identities amid and beyond the pandemic. The current study also did not examine the impact of SGM-related stressors (e.g., family rejection, internalized homophobia) in alcohol use to psychological distress pathways. Considering that previous research has identified SGM stressors as impactful predictors of substance use among SGM youth populations (Goldbach et al., 2014), future research should investigate the impact of SGM-related stressors in the context of the COVID-19 pandemic to inform the development and adaptation of mental health and substance use services for SGM populations during this time. Lastly, students who were assigned female at birth accounted for a larger proportion of the sample compared to those assigned male at birth, which may have increased power to detect effects among assigned females relative to assigned males. Despite these limitations, this study provides important alcohol use, mental health, and higher education practice implications to consider in the context of COVID-19 and future societal-level crises related to the care of SGM young persons and students.

4.3. Conclusion

To our knowledge, our findings are among the first to reveal that increased alcohol use among SGM university students is associated with greater psychological distress in the context of COVID-19. Study findings emphasize the importance of culturally responsive mental health, alcohol use, and higher education practice and response to address the needs of SGM university students amid and beyond COVID-19.

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Table 1

Sample sociodemographic characteristics among sexual and gender minority university students (n = 509).

Characteristics	n (%)
Sex assigned at birth	
Female	397 (78.3)
Male	110 (21.7)
Gender Identity	
Cisgender	353 (69.3)
Transgender	45 (8.8)
Non-binary	62 (12.2)
Queer	49 (9.6)
Sexual Orientation	
Bisexual	167 (32.8)
Gay/Lesbian	161 (31.6)
Queer	76 (14.9)
Another sexual identity	105 (20.6)
Age [M, (SD)]	22.04 (3.99)
Hispanic or Latinx Ethnicity	
Yes	76 (14.9)
No	433 (75.1)
Race[a]	
Asian	72 (14.1)
white	385 (75.6)
Black or African American	52 (10.2)
Another non-white race	37 (7.3)
Nativity	
United States-born	467 (92.1)
Foreign-born	40 (7.9)
Parental Financial Dependence	
Yes	426 (83.9)
No	82 (16.1)
Educational Program	
Undergraduate	358 (70.3)
Graduate	151 (29.7)
Psychological Distress Composite[b] [(KM, SD)]	27.79 (7.82)
Alcohol Use	
Decrease	126 (24.8)
No change	108 (21.2)
Increase	164 (32.2)
Never used before	88 (17.3)
Have not used in over a year	23 (4.5)
Tobacco Use	

Characteristics	n (%)
Decrease	25 (4.9)
No change	24 (4.7)
Increase	40 (7.9)
Never used before	327 (64.2)
Have not used in over a year	93 (18.3)
Cannabis Use	
Decrease	73 (12.9)
No change	43 (7.6)
Increase	113 (22.2)
Never used before	197 (38.7)
Have not used in over a year	83 (16.3)
Illicit Substance Use	
Decrease	13 (2.6)
No change	23 (4.5)
Increase	22 (4.3)
Never used before	460 (90.6)
Have not used in over a year	86 (16.9)
Outness[c] [(M, SD)]	15.35 (4.70)

[a] Total percent in this category will not add up to 100, as participants were instructed to select all that apply.

[b] This category refers to current reported level during COVID-19 (past 30 days).

[c] Outness composite score ranged from 5 to 24.

Table 2

Regression models testing associations between changes in alcohol use since COVID-19 and psychological distress among sexual and gender minority university students (n = 500).

	B	95% CI	*p*	r^2
Model 1: Overall Linear Regression[a](n = 500)				
Increased Alcohol Use[b]	1.957	(.493, 3.422)	**.009**	.111
Tobacco Use	3.626	(1.120, 6.132)	**.005**	.120
Cannabis Use	.647	(−1.051, 2.345)	.455	.032
Illicit Substance Use	.478	(−2.822, 3.778)	.776	.012
Age	.143	(−.087, .373)	.224	.052
Race - Asian	−1.049	(−3.109, 1.010)	.317	−.042
Race - Black	−.770	(−3.020, 1.481)	.502	−.028
Race - Other	3.236	(.458, 6.014)	**.023**	.097
Hispanic Ethnicity	−.820	(−2.859, 1.219)	.430	−.033
Parental Financial Dependence	.949	(−1.345, 3.242)	.417	.034
Nativity	−.413	(−3.006, 2.180)	.754	−.013
Outness	−.113	(−.261 .035)	.135	−.063
Educational Program	2.548	(.637, 4.460)	**.009**	.111
Gay/Lesbian	.268	(−1.467, 2.003)	.762	.013
Queer Sexual Orientation	1.057	(−1.148, 3.263)	.347	.040
Heterosexual/straight	−8.394	(−17.253, .466)	.063	−.079
Sexual Orientation - Other	1.265	(−.619, 3.150)	.188	.056
Queer Gender	2.713	(.400, 5.026)	**.022**	.098
Transgender	3.892	(1.414, 6.369)	**.002**	.131
Non-binary Gender	1.994	(−.157, 4.146)	.069	.077
Female Sex	2.859	(1.155, 4.563)	**.001**	.140
Model 2: Male Stratified Regression[a](n = 108)				
Increased Alcohol Use (males)[b]	3.182	(5.232, 44.863)	.123	.142
Tobacco Use	8.185	(1.634, 14.736)	**.015**	.226
Cannabis Use	−.896	(−5.599, 3.808)	.706	−.034
Illicit Substance Use	2.663	(−5.127, 10.454)	.499	.062
Age	.047	(−.583, .677)	.882	.014
Race - Asian	−3.519	(−8.361, 1.323)	.152	−.132
Race - Black	−.599	(−6.266, 5.068)	.834	−.019
Race - Other	3.932	(−1.948, 9.812)	.187	.121
Hispanic Ethnicity	−1.564	(−6.248, 3.120)	.509	−.060
Parental Financial Dependence	−.806	(−6.874, 5.263)	.793	−.024
Nativity	4.685	(−.870, 10.241)	.097	.153
Outness	−.196	(−.591, .199)	.326	−.090
Educational Program	1.358	(−3.644, 6.361)	.591	.049
Gay/Lesbian	−1.032	(−5.696, 3.633)	.661	−.040

	B	95% CI	p	r²
Queer Sexual Orientation	.852	(−6.298, 8.001)	.813	.022
Queer Gender	.772	(−5.208, 6.752)	.798	.023
Transgender	6.330	(.557, 12.104)	**.032**	.198
Non-binary Gender	3.149	(−3.973, 10.270)	.382	.080
Model 3: Female Stratified Regression[a] (n = 392)				
Increased Alcohol Use (females)[b]	2.026	(.422, 3.629)	**.013**	.121
Tobacco Use	1.903	(−.887, 4.693)	.181	.065
Cannabis Use	1.308	(−.533, 3.149)	.163	.068
Illicit Substance Use	.014	(−3.694, 3.723)	.994	.000
Age	.117	(−.133, .367)	.357	.045
Race - Asian	.476	(−1.884, 2.837)	.692	.019
Race - Black	−.807	(−3.306, 1.691)	.526	−.031
Race - Other	2.519	(−.737, 5.775)	.129	.074
Hispanic Ethnicity	.489	(−1.901, 2.880)	.688	.020
Parental Financial Dependence	1.641	(−.881, 4.162)	.202	.062
Nativity	−3.119	(−6.148, −.090)	**.044**	−.099
Outness	−.124	(−.289, .041)	.140	−.072
Educational Program	2.713	(.610, 4.815)	**.012**	.124
Gay/Lesbian	1.124	(−.806, 3.054)	.253	.056
Queer Sexual Orientation	1.316	(−1.003, 3.635)	.265	.054
Heterosexual/straight	−6.630	(−15.450, 2.190)	.140	−.072
Queer Gender	3.080	(.534, 5.626)	**.018**	.116
Transgender	2.867	(.029, 5.704)	**.048**	.097
Non-binary Gender	1.695	(−.565, 3.955)	.141	.072

Notes: Models adjusted for tobacco use, cannabis use, illicit substance use, age (years), race (ref = white), Hispanic ethnicity (ref = not Hispanic), parental financial dependence (ref = no financial dependence), nativity (ref = U.S.-born), outness (composite; range = 5–24), educational program type (ref = graduate), sexual orientation (ref = bisexual), gender identity (ref = cisgender), and sex assigned at birth (ref = male).

[a] Psychological distress coded as a continuous composite score (range = 10–50).

[b] Reference category for increased alcohol use is "no increase".