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The Impact of Helping Children with Distance Learning During COVID-19 on U.S. Parents' Alcohol Consumption

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Abstract

We examined the impact of distance learning-related parental stress due to COVID-19 on parental alcohol consumption using an online survey in May 2020 with a convenience sample of U.S. adults. This article focuses on the 361 parents who had children under the age of 18 living with them. Seventy-eight percent had children who were engaged in distance learning; 59% reported being stressed because they were not sure how to help their children with distance learning. Stressed parents reported consuming significantly more alcohol and binge drinking more often than parents who were not stressed by distance learning. We hope that public health professionals can use our findings to better target alcohol prevention programs aimed at parents to reduce parental stress, and hopefully, parental alcohol consumption.

Keywords

adult, drinking, stress, prevention, pandemic

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The COVID-19 pandemic caused a massive disruption to the way that schooling is traditionally provided in the United States. Prior to the pandemic, over 96% of children in the United States attended schooling in brick-and-mortar classrooms (U.S. Department of Education, 2019). However, starting in March 2020, 93% of school-age children in the United States engaged in some form of distance learning while most in-person classes were suspended (Mcelrath, 2020). In most cases, this meant that the children attended virtual classes at home which were led by teachers while parents provided educational and technical assistance (Sonnenschein et al., 2021). This, often substantial, amount of assistance was provided on-top of the work-related and household-related duties the parents also had to engage in, leading many to report increased levels of stress and burnout (Griffith, 2022; Pew Research Center, 2020; Sonnenschein et al., 2021).

This is cause for concern as previous studies have found that people, including parents, who report increased stress due to psychological or physical events also reported increased alcohol consumption (Boscarino et al., 2011; Keyes et al., 2012; Vetter et al., 2008; Wu et al., 2008). Current research has found the same pattern of increased alcohol consumption during COVID-19 (Barbosa et al., 2020; Grossman et al., 2020; Pollard et al., 2020). However, whether parents whose stress is specifically due to distance learning during COVID-19 also increased their alcohol consumption has not yet been studied. This paper examines the impact of distance learning-related parental stress on parental alcohol consumption.

Alcohol consumption is a public health problem in the United States that has been exacerbated by the COVID-19 pandemic (Barbosa et al., 2020; Grossman et al., 2020; Pollard et al., 2020). Prior to the pandemic, excessive alcohol consumption – defined by the Centers for Disease Control and Prevention (CDC) as including binge drinking, heavy drinking, and any drinking by pregnant women or people under the age of 21 (CDC, n.d. (a)) – was the fourth leading preventable cause of death in the United States (Stahre et al., 2014). Each year, excessive alcohol consumption is responsible for approximately 95,000 deaths in the United States (CDC, n.d. (b)), including deaths due to alcohol-related suicides, homicides, chronic diseases, cancers, and more (Kaplan et al., 2014; Nelson et al., 2013; Rehm & Shield, 2014; Snowden, 2019). Alcohol also plays a significant role in motor vehicle crashes, sexually transmitted diseases, burns, and other intentional or accidental injuries or deaths (Cook & Duncan, 2005; National Highway Traffic Safety Administration (NHTSA), 2018; Rehm & Shield, 2014).

Additionally, research has found a connection between people experiencing stress and alcohol consumption. When individuals experience economic or psychological stress, they often report increased alcohol consumption several years after the stressful event (Boscarino et al., 2011; Keyes et al., 2012; Vetter et al., 2008; Wu et al., 2008). Given research findings on prior stressful events, it is no surprise that both stress and alcohol consumption have increased during the COVID-19 pandemic (Barbosa et al., 2020; Grossman et al., 2020; Pollard et al., 2020).

More specifically, research has found that parental stress has increased due to the COVID-19 pandemic. For example, Patrick et al. (2020) surveyed parents in June 2020 and found that 27% of them reported that their mental health had worsened since March 2020, which is considered to be the start of the COVID-19 pandemic. Feinberg et al. (2022) found that U.S. parents were 2.4 times more likely to report high levels of depression during April and May 2020 compared to pre-pandemic levels. And Giannotti et al. (2021) found that parental stress, especially among mothers, increased in Italy in April and May 2020.

Several studies have found that these high levels of parental stress are due to concerns over distance learning for their children. For example, Adams et al. (2021) surveyed U.S. parents in May (T1 – the peak of stay-at-home mandates) and September 2020 (T2 – when some children returned to school) and found that most parents reported increased levels of stress from before COVID-19 to T1. Their stress levels were still elevated at T2. Parents reported being stressed by changes in their children's routines and online schooling demands. Moscardino et al. (2021) found that Italian parents' perceived stress was associated with parents' difficulties managing their children's distance education. Sonnenschein et al. (2021) reported that 70% of U.S. parents in their sample of 361 who reported engaging in distance learning with their children also reported being stressed by not knowing how to help their children with distance learning. And Davis et al., (2021) found that U.S. parents whose children were struggling with distance learning reported elevated levels of anxiety and depression.

Other studies conducted during COVID-19 have found increases in parental alcohol consumption. For example, Dodge et al. (2021) found that 18.6% of parents in their sample of 931 U.S. adults and adolescents reported increased alcohol use since the pandemic began. Studies examining parents with children under the age of 18 currently living in the home found that these parents reported consuming alcohol on a greater number of days, consuming more alcohol drinks on a typical occasion, and engaging in a greater number of heavy drinking episodes than non-parents (Grossman et al., 2020; Rodriguez et al., 2020).

However, although prior research has found increased parental stress due to concerns about distance learning during COVID-19, and increased parental alcohol consumption during this time period, no prior research has examined the relation between being stressed about their children's engaging in distance learning and parental alcohol consumption. Therefore, we sought to build on this previous research and better understand parental alcohol consumption in the United States during the early months of the pandemic given that many of these parents had children who were engaging in distance learning. We compared current alcohol consumption and prevalence of binge drinking in the past 30 days between parents who reported being stressed due to not knowing how to help their children with distance learning versus parents who were not stressed about distance learning or whose children were not engaged in distance learning.

Method

In May 2020, we conducted an online survey using a convenience sample of U.S. adults ages 21 and over to better understand the impact of COVID-19 and distance learning on adult stress and alcohol consumption. The University of Maryland, Baltimore County's Institutional Review Board (IRB) reviewed this study and determined that it met the requirements for exemption. Despite this, participants had to provide informed consent before participating in the study, with those who did not consent or who were under 21 years of age being exited from the online survey.

Participants

Although the full study included 832 participants, this article focuses on the 361 individuals who had children under the age of 18 currently living with them. As shown in Table 1, the majority of these individuals were female (89.6%), White (86.8%), non-Hispanic (93.7%), between the ages of 35 and 49 years (81.2%), and, had household incomes greater than \$100,000 USD (81.1%).

Procedures and survey

In May 2020, we recruited participants from across the United States through social media posts and emails sent via group listservs. We posted on Facebook (2 posts), Twitter (3 posts), and Instagram (1 post) and sent emails through the U.S. Alcohol Policy Alliance listserv (2 emails) and the Alcohol, Tobacco, and Other Drug's section of the American Public Health Association listserv (1 email). Each of the social media posts and emails contained a link to complete the online survey and an incentive for doing so (i.e., by completing the survey participants could win one of 15 \$25 Amazon gift cards). The posts and emails were then shared or distributed through snowball sampling.

Our research team, consisting of experts in developmental and educational psychology and alcohol consumption and policy, developed the online survey drawing from other measures in the field. The online survey consisted of 61 questions – 18 asked about alcohol consumption (14 of which were adapted from the 2018 National Survey on Drug Use and Health; NSDUH; Substance Abuse and Mental Health Services Administration, 2019); 14 asked about stress or lifestyle changes during COVID-19 (5 of which were adapted from The Pandemic Stress Index; Harkness, 2020); and 29 demographic questions. We used four of the questions from this survey for this article plus questions on demographics. The primary exposure variable was derived from a question adapted from The Pandemic Stress Index. The authors of that index vetted their items by having 20 experts in the field review them through an iterative process. The question we used asked, "Which of these issues are concerning you during COVID-19?" Participants were provided with six choices (e.g., "paying bills" or "social distancing") and told to check all that apply. This paper focuses on those parents who checked that they were

Table 1. Demographics of Full Sample, Parents Stressed by Distance Learning, and Parents Not Stressed by Distance Learning From Alcohol Use & COVID-19 Survey, 2020 (N=361).

Demographics	Full Sample (N = 361)	Parents Stressed by Distance Learning (N = 211)	Parents Not Stressed by Distance Learning (N = 150)
Gender			
Female	89.6	89.3	90.0
Male	10.4	10.8	10.0
Race			
White	86.8	89.8	82.4
Other Race	13.3	10.2	17.6
Hispanic/Latinx Ethnicity	6.4	6.5	6.2
Age in Years			
21–25	0.7	0	1.6
26–34	9.7	5.0	16.3
35–49	79.0	81.2	76.0
50–64	10.3	13.8	5.4
65 or older	0.3	0	0.8
Household Income, USD			
Less than \$39,999	2.6	1.1	4.7
\$40,000 to \$79,999	6.2	5.6	7.1
\$80,000 to \$99,999	9.8	7.8	12.6
\$100,000 to \$149,999	28.8	27.9	29.9
\$150,000 to \$199,999	23.2	24.0	22.1
More than \$200,000	29.4	33.5	23.6

concerned about “not knowing what to do to support your children’s distance learning.” The three outcome measures were adapted from the 2018 National Survey on Drug Use and Health, a psychometrically-sound government-run national survey, and included: (1) the number of days in the past 30 days on which alcohol was consumed; (2) the total number of drinks consumed over the past 30 days (calculated by multiplying the first outcome by the average quantity of drinks consumed per day); and (3) whether participants had engaged in binge drinking (i.e., having 4 (for females) or 5 (for males) or more drinks in one sitting at least once over the past 30 days).

Data analysis

We conducted *t*-tests and χ^2 tests to determine any demographic differences between parents who were stressed by having to help their children with distance learning and parents who were either not stressed by it or whose children were not doing distance learning. We also performed two adjusted linear regressions and one adjusted logistical regression to assess whether the primary exposure variable (a binary variable coded as

“1” for parents who were stressed by having to help their children with distance learning and a “0” for all the other parents in the study) was associated with the number of days that alcohol was consumed, the total number of drinks consumed over the past 30 days, or the likelihood of engaging in binge drinking. We adjusted the analyses using covariates selected *a priori* based on the literature; these included gender, race, ethnicity, age, and household income (Chartier & Caetano, 2010; National Institute on Alcohol Abuse and Alcoholism [NIAAA], 2019; Wilsnack et al., 2009). Analyses were conducted using Stata (Stata Statistical Software: Release 16.1), with a significance level of .05. We present results in terms of parameter estimates or odds ratios, 95% confidence intervals (CI), and two-sided *p*-values.

Results

Seventy-eight percent of the parents ($n=281$) had children who engaged in distance learning in the Spring of 2020. In unadjusted analyses, parents who had children engaged in distance learning were older (42.4 years) than parents without children engaged in distance learning (36.8 years; $t(307) = -7.24$, $p < .001$). Parents who had children engaged in distance learning were also wealthier (i.e., 84.1% had household incomes greater than \$100,000) than parents without children who engaged in distance learning (71.0%; χ^2 ($df = 1$, $n = 302$) = 5.97, $p = .015$). There were no other demographic differences in unadjusted analyses between parents whose children were engaged in distance learning versus parents whose children were not.

Fifty-nine percent of parents reported that they were stressed because they were not sure how to help their children with distance learning. These stressed parents reported consuming alcohol on 14.4 ($S.D.=10.6$) days and consuming 29.9 ($S.D.=25.6$) drinks over the past 30 days. In comparison, parents who were not stressed by distance learning or whose children were not engaged in distance learning consumed alcohol on 11.2 ($S.D.=10.2$) days and 24.6 ($S.D.=25.9$) drinks over the past 30 days. In unadjusted analyses, more parents who were stressed by having to help their children with distance learning reported binge drinking (38.8%) than other parents in the sample (26.6%) (χ^2 ($df = 1$, $n = 274$) = 4.34, $p = .037$).

In adjusted analyses, parents who were stressed by not knowing how to help their children with distance learning reported consuming more drinks ($\beta = 3.04$; CI [0.41, 5.68]; $p = 0.024$) and drinking on more days ($\beta = 6.6$; CI [-0.17, 13.46]; $p = .05$) over the past 30 days than the parents who were not stressed or whose children were not engaged in distance learning. These stressed parents were also over two times more likely to report binge drinking than other parents ($OR = 2.37$; CI [1.29, 4.37]; $p = .006$).

Discussion

This study examined the impact of stress due to distance learning on parental alcohol consumption. A little over three-fourths of the 361 parents in this cross-sectional study

had children who engaged in distance learning in the Spring of 2020. Fifty-nine percent of parents in the sample reported that they were stressed because they were not sure how to help their children with distance learning. Those stressed parents also reported consuming significantly more alcohol (on more days and more total drinks) than parents who were not stressed by distance learning or whose children were not engaged in distance learning. Parents who were stressed by distance learning reported consuming alcohol an average of 14 days and 30 drinks over the past 30 days with more than a third (38%) reporting binge drinking. These same parents were also over two times more likely to report binge drinking in the past 30 days than parents who were not stressed by distance learning or whose children were not engaged in distance learning.

These findings are cause for concern because research shows that excessive alcohol consumption leads to increases in alcohol-related harms (CDC, n.d. (a)). More people die each year from consuming alcohol than from motor vehicle crashes, guns, or illegal drugs (CDC, n.d. (a); CDC, n.d. (b); Stahre et al., 2014). Increased alcohol consumption is also related to violence, crime, poverty, sexually transmitted diseases and many other public health problems (Cook & Duncan, 2005; Kaplan et al., 2014; Nelson et al., 2013; NHTSA, 2018; Rehm & Shield, 2014; Snowden, 2019). Consuming alcohol is especially dangerous during this pandemic, as alcohol use weakens one's immune system thus increasing the likelihood of getting COVID-19 and of having worse outcomes if one does get it (World Health Organization (WHO), 2020).

Additionally, when individuals experience economic or psychological stress, they often report increased alcohol consumption (Boscarino et al., 2011; Keyes et al., 2012; Vetter et al., 2008; Wu et al., 2008). For example, two years after the 2001 attacks on the World Trade Center, adults in New York City who were suffering from posttraumatic stress disorder also reported increased alcohol use and binge drinking (Boscarino et al., 2011). Quarantined individuals in China during the 2003 SARS epidemic were more likely to report using alcohol as a coping mechanism and have increased alcohol use three years after the outbreak than non-quarantined individuals (Wu et al., 2008). Given that our study has found that parents are stressed by distance learning and that this is associated with an increase in their alcohol consumption, more resources should be spent on prevention and treatment for this population.

Previous studies have found that COVID-19 has led to increased stress among parents (Feinberg et al., 2022; Giannotti et al., 2021; Patrick et al., 2020), that stress is often due to distance learning (Adams et al., 2021; Davis et al., 2021; Moscardino et al., 2021; Sonnenschein et al., 2021), and that parental alcohol consumption is increasing (Dodge et al., 2021; Grossman et al., 2020; Rodriguez et al., 2020). However, this is the first study, to our knowledge, to assess associations between stress due to distance learning and parental alcohol consumption during the COVID-19 pandemic.

Even so, this study does have limitations. First, the fact that it was a convenience sample and not a random sample representative of the U.S. population limits the

generalizability of our findings and causal explanations (Dearing & Zachrisson, 2019; Etikan et al., 2016). The study sample also included a more highly educated and more well-off group of parents. Given that evidence shows that economic affluence is associated with consuming alcohol in greater quantities and frequencies (Humensky, 2010; Martin & Pritchard, 1991; Patrick et al., 2012), targeting affluent school districts might be warranted. However, it is important to note that these sample demographics are comparable to what has been found by other such surveys in the United States (Dworkin et al., 2016; Keeter & McGeeney, 2015; Whitaker et al., 2017), and does not necessarily mean the findings do not apply to less educated or lower-income parents. This study provides preliminary data that can be used as a starting point to conduct longitudinal studies and further explore the impact that COVID-19 and distance learning has had on parents of varying demographics across the U.S.

Second, due in part to our use of a snowball sampling method, we were not able to document the total number of potential parents who saw the recruitment materials through social media and listserv posts, nor were we able to link completed surveys with a specific recruitment method. Third, although most parents who accessed the survey completed it (85%), there may have been some differences between those who completed it versus those who did not. Fourth, given that the data on alcohol consumption are self-reported, parents may have under- or over-reported their estimated alcohol consumption. However, research has shown that drinkers often underestimate their consumption (Knibbe & Bloomfield, 2001). Despite these limitations, we think these findings make an important contribution to our knowledge of the relation between parental stress and alcohol consumption during COVID-19.

Of course, more research is still needed. Given that previous studies have shown that alcohol consumption increases a few years after stressful physical or psychological events (Boscarino et al., 2011; Keyes et al., 2012; Vetter et al., 2008; Wu et al., 2008), future research should continue to study the impact that COVID-19 and, particularly, distance learning has on parents. We also hope that our research can be expanded to include a larger and more diverse sample. It would also be interesting to see whether parents' self-efficacy and confidence in distance learning methods increased during COVID-19, and the relation between that and parental drinking behaviors. In addition, it will be important to examine whether these parents' drinking behaviors have been permanently changed or whether their alcohol consumption decreases now that children have mostly returned to in-person school. Research has also shown associations between parental burnout – defined as parenting-related stress that has escalated to a chronic and overwhelming stress-related disorder – and increased rates of child abuse and neglect (Griffith, 2022). We would expect that alcohol consumption would increase this association, but more research is needed. Additionally, our study focused on adult alcohol consumption; however, we know that there is an inherent connection between adult alcohol consumption, the home environment, and underage alcohol consumption (Aiken et al., 2020; Staff & Maggs, 2019; Thor et al., 2002). Therefore, we hope that future research will examine the short and

long-term impacts that parental stress, distance learning, and increased alcohol consumption had and may continue to have on children.

Our study provides preliminary data from the early months of the pandemic on the impact that distance learning due to COVID-19 had on parental alcohol consumption. Namely, parents who were stressed by distance learning consumed more alcohol than parents who were not stressed or whose children were not engaged in distance learning. We hope that public health professionals will use the information from this study to better target alcohol prevention programs aimed at parents. Additionally, although children have mostly returned to in-person school, many school districts have discussed the use of distance learning when the children cannot get to school (e.g., during a snowstorm; Nicosia, 2021). If, and when, these occasions occur, we hope that teachers can work with parents to provide more support, thus reducing parental stress and hopefully, also reducing parental alcohol consumption.


Declaration of Conflicting Interests

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