Morning drinking during COVID-19 lockdowns

Dear editor

Our recent article in the February 2020 issue of *Psychiatry Research* suggested that harmful alcohol use and alcohol dependence had increased every month during the first six months of the COVID-19 pandemic (Killgore et al., 2021). Moreover, this effect was only evident for those who reported being under stay-at-home/lockdown restrictions at the time of the survey. In that article, we raised the speculative proposition that some of the increase in problematic alcohol use may have been due, in part, to increased daytime drinking among employed workers who were either required to work from home or were unable to attend their places of work due to COVID-19 lockdown restrictions. Since the publication of that article, we have received several inquiries asking for additional data that might clarify the extent to which the effects were driven by daytime drinking and whether this was associated with employment status. Accordingly, we conducted a follow-on analysis of the same data reported in the previous article, with a specific focus on morning drinking and employment status.

In our previously reported study, we collected data from the Alcohol Use Disorders Identification Test (AUDIT) (Babor et al., 2001), a 10-item questionnaire about problem drinking, and other demographic information from approximately 1000 participants each month between April and September 2020 (total $N = 5931$). The data collection procedures and sample demographics are described in greater detail elsewhere (Killgore et al., 2021). Briefly, participants ranged in age from 18 to 84 years and included 53.7% females, with 70.3% of the sample reporting that they were gainfully employed (i.e., employed for wages/salary; self-employed), versus 29.7 reporting that they were "not employed" (i.e., out of work and looking for work; out of work but not currently looking for work; homemaker; student; retired; unable to work). All participants provided written informed consent, and the protocol was approved by the Institutional Review Board of the University of Arizona.

While we were not able to measure the full range of daytime drinking behaviors, the AUDIT does include an item that addresses potentially harmful *morning drinking* by asking participants: "How often during the last year have you needed a first drink in the morning to get yourself going after heavy drinking?" The item is scored as: 0 (never), 1 (less than monthly), 2 (monthly), 3 (weekly), or 4 (daily or almost daily). The mean score for this item, and the percentage of individuals indicating any morning drinking (i.e., item score $\geq$ 1; classified as "morning drinking"), was calculated for each group at each time point. We also asked participants to indicate their current employment status and categorized them as either "gainfully employed" or "not employed," as defined earlier.

A repeated measures analysis of variance (ANOVA) showed a significant month x lockdown status x employment status interaction, $F_{(5,5907)}=2.99$, $p = .011$ (see Fig. 1, Top Panels). While there was no effect for those who were not employed, $F_{(5,1572)}=0.46$, $p = .803$ (Fig. 1, Top Left), there was a significant month x lockdown status interaction for those who were gainfully employed, $F_{(5,4155)} = 13.36$, $p < .0000001$ (Fig. 1, Top Right). For those who held a job, lockdowns were associated with significantly higher scores on the morning drinking item at each subsequent month of the pandemic between April and September of 2020, while those not under lockdown remained at a consistently low level of morning drinking. The findings were virtually unchanged when we controlled for age, sex, and annual income. For further clarity, we also examined the percentage of individuals reporting any "morning drinking" in the past year (Fig. 1, Bottom Panels). For those not gainfully employed, the percentage of respondents endorsing morning drinking did not differ between those under lockdown and those not under lockdown, regardless of month, $\chi^2(5)=2.065$, $p = .840$ (Fig. 1, Bottom Left). Yet, for individuals with gainful employment, the percentage of those reporting morning drinking was greater across each passing month if they were under lockdowns, while the rates did not differ across months if they were not under such restrictions $\chi^2(5)= 115.061$, $p < .0000001$ (Fig. 1, Bottom Left).

These findings suggest that problematic morning drinking increased month-by-month during the first six months of the COVID-19 pandemic, a pattern that was only evident for gainfully employed individuals who were under lockdown/stay-at-home orders. We speculate that the lockdown restrictions had a greater disruptive effect on the daily activities of gainfully employed individuals compared to those who were not employed, potentially contributing to elevated morning drinking. During pandemic lockdowns, it is likely that many employed individuals found themselves either (1) having to adjust to working from home, (2) being at risk of losing their incomes because they were no longer allowed to attend their workplace to carry out their typical work activities, or (3) having to continue to attend their workplace under conditions that could potentially increase their exposure to the virus. Our data suggest that many individuals attempted to cope with pandemic-related stresses through increased alcohol use (Killgore et al., 2021). Furthermore, the shift to working from home likely increased access to alcohol during regular work hours and decreased concerns over negative sanctions for daytime consumption (Alpers et al., 2021), potentially allowing many individuals who were working from home to "drink on the job." This trend is concerning, as increased alcohol consumption is associated with reduced productivity and quality of work (Thorrisen et al., 2019), while morning drinking is associated with an increased probability of alcohol dependence (York, 1995). Morning drinking during pandemic lockdowns is a growing concern with the potential to contribute to increases in health, occupational, and social problems.
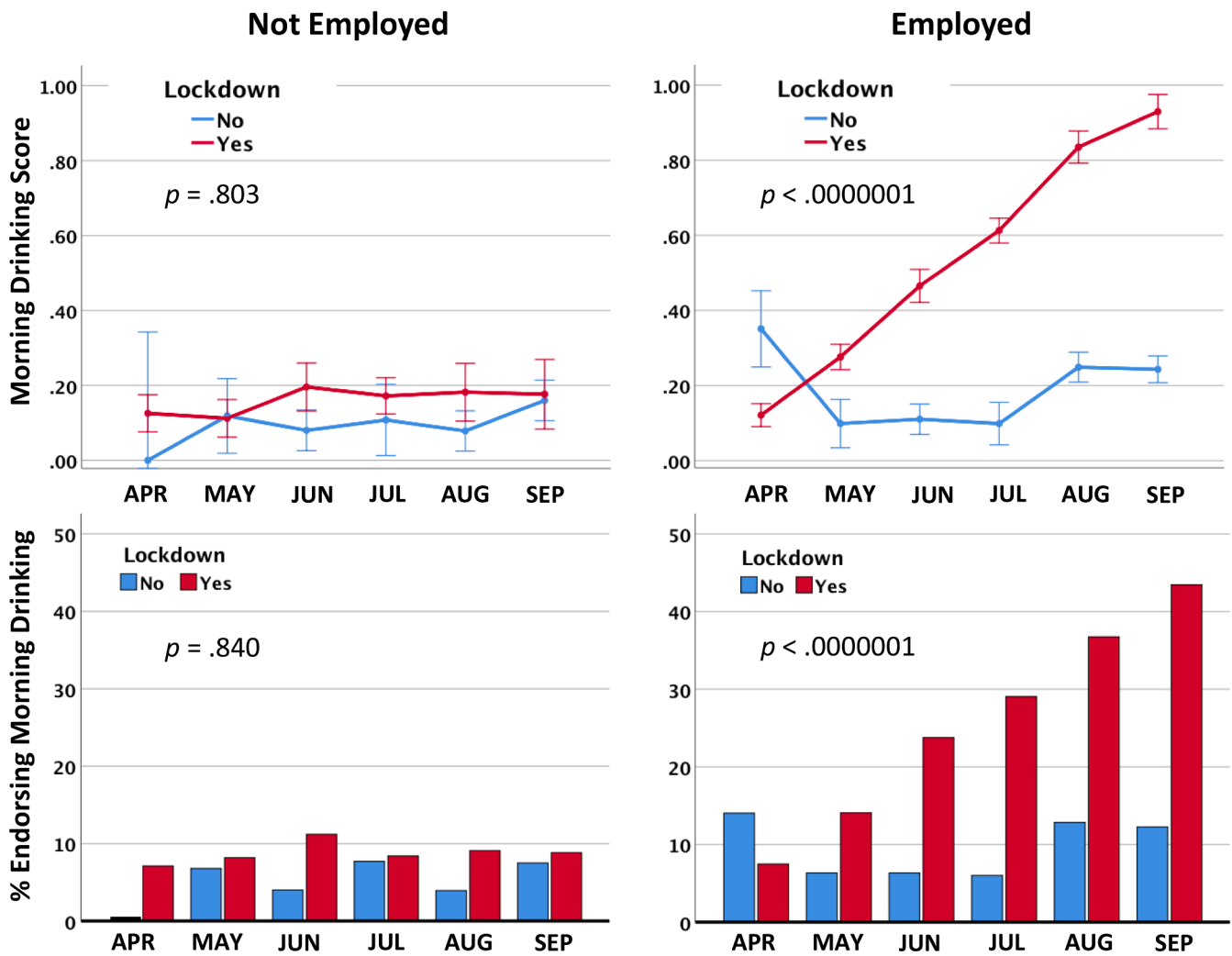
Fig. 1. (Top Row) ANOVA results showing mean scores for the morning drinking item (score ranges from 0 to 4) on the Alcohol Use Disorders Identification Test (AUDIT) for those under lockdown (red) versus no lockdown (blue). **(**Bottom Row**)** The percentage of participants endorsing any morning drinking (i.e., Item score $\geq$ 1) on the Alcohol Use Disorders Identification Test (AUDIT) for those under lockdown (red) versus no lockdown (blue). *Left***:** Participants who were not employed; *Right***:** Participants who were gainfully employed.

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William D.S. Killgore[*], Sara A. Cloonan, Emily C. Taylor, John R. Vanuk, Natalie S. Dailey

University of Arizona College of Medicine, United States

[*] Corresponding author.

E-mail address: killgore@psychiatry.arizona.edu (W.D.S. Killgore).