

**Results:** Examination of t-scores for PROMIS™ sleep-related and sleep disturbances revealed that our sample endorsed slightly higher values than the general U.S. population. Greater COVID-19 distress was associated with more sleep disturbances ( $b = 0.09$ ,  $p < .001$ ,  $sr^2 = .04$ ) and sleep-related impairment ( $b = 0.20$ ,  $p < .001$ ,  $sr^2 = .12$ ). Generational status was not associated with sleep, nor did it modify associations between COVID-19 distress and sleep.

**Conclusion:** In our sample, we found that psychological distress triggered by the pandemic (e.g., fear of contamination, fear of the dangerousness of the virus, socioeconomic worries) was associated with greater sleep difficulties. Our findings highlight the importance of developing targeted interventions to cope with stress and sleep disturbances during the pandemic, particularly among vulnerable populations, such as those exposed to trauma. Our results did not support the immigration paradox: stress and sleep associations were similar regardless of generational status. Future studies are needed to better understand the role of generational status on sleep across different immigrant subgroups.

**Support (If Any):**

### 0043

#### JOB LOSS, FINANCIAL HARDSHIP, AND SLEEP DURING THE COVID-19 PANDEMIC: DIFFERENCES BY SEX/ GENDER AND RACE/ETHNICITY

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**Introduction:** In the United States (US), health and financial consequences of COVID-19 have disproportionately impacted minoritized groups. Yet, few US studies have investigated COVID-related financial loss/consequences and sleep health disparities.

**Methods:** To investigate differences by sex/gender and race/ethnicity in cross-sectional associations between both job/business loss and substantial financial hardship (SFH) with sleep health, we used data collected from 12/2020 to 2/2021 among 4,726 men and women in the nationally representative COVID-19 Unequal Racial Burden (CURB) Study (N=5,500 American Indian/Alaska Native (AI/AN), Asian, Black, Hispanic/Latino, Multiracial, Native Hawaiian/Pacific Islander (NH/PI), and non-Hispanic (NH)-White adults). Participants reported job/business loss since the start of the pandemic (yes, no) and SFH (e.g., unable to pay for housing costs). Poor sleep health was defined as concurrence of self-reported fair/poor sleep quality, non-restorative sleep, sleep problems, and difficulty falling asleep in the past week. Adjusting for sociodemographic and health characteristics and receipt of financial assistance, weighted Poisson regression with robust variance estimated prevalence ratios (PRs) for poor sleep overall, by sex/gender, and by race/ethnicity.

**Results:** Men and women equally reported both job/business loss (20%) and SFH (11% men and 12% women). Minoritized racial/ethnic groups except Asians most frequently reported job/business loss (20%-25% vs. 16% Asian, 13% NH-White) and SFH (11%-15% vs. 9% NH-White, 5% Asian). Poor sleep health was more prevalent among women (21%) than men (14%) and among AI/AN, NH/PI, and Multiracial adults (each 22% vs. 11%-19% remaining racial/ethnic groups). Both job/business loss and SFH were associated with a higher prevalence of poor sleep health, overall. Compared to women, men had stronger associations for both job/business loss (PRmen=1.80 [95% CI:1.39,2.33], PRwomen=1.23

[1.01,1.50]; pinteraction=0.01) and SFH (PRmen=4.46 [3.18,6.26], PRwomen= 1.82 [1.45,2.30]; pinteraction=0.01). For job/business loss, associations were strongest among Asians (PR=2.07 [1.32,3.23] vs. PR range=0.88-1.89; pinteraction=0.09).

**Conclusion:** COVID-19 related job/business loss and financial hardship were both associated with poorer sleep health, and associations for job/business loss were strongest among men and Asian adults.

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### 0044

#### PRE-PANDEMIC CIRCADIAN PHASE PREDICTS PANDEMIC SLEEP, DEPRESSION, AND ALCOHOL USE AMONG ADOLESCENTS

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**Introduction:** Growing evidence links later circadian timing during adolescence to worse sleep, more severe depression, and greater alcohol involvement, perhaps due to circadian misalignment and sleep restriction imposed by early school start times. School schedules initially shifted later during the COVID-19 pandemic, which hypothetically should reduce circadian misalignment and sleep restriction for adolescents with later circadian timing, and thus may mitigate any problems with sleep, depression, and alcohol. Here we used the pandemic as a natural experiment to test whether adolescent drinkers with later circadian timing, relative to those with earlier circadian timing, showed improved sleep, depressive symptoms, and alcohol involvement.

**Methods:** We studied 42 high school students reporting alcohol use (aged 16-18; 27 female participants), assessing circadian phase via the dim light melatonin onset (DLMO) during pre-pandemic conditions, and then following them over four remote assessments every 3 months during the pandemic. Sleep characteristics were assessed via the Munich Chronotype Questionnaire, depressive symptoms were assessed via the Quick Inventory of Depressive Symptomatology, and alcohol use was assessed via a 90-day Timeline Followback. Mixed-effect models focused on the pre-pandemic baseline, COVID baseline (Apr/May 2020), and COVID-9-mo (Jan/Feb 2021) timepoints, and covaried for age, time between pre-pandemic and COVID baselines, and current school/work status.

**Results:** In the pre-pandemic period, compared to those with earlier circadian timing, individuals with later circadian timing (later DLMO) got relatively less sleep (shorter total sleep time) on school nights. During the pandemic, earlier and later groups no longer differed on school night sleep. Over the course of the pandemic, compared to the earlier group, individuals with later circadian timing also reported larger increases in alcohol use (number of drinks, drinking days, and maximum drinks). Individuals with later circadian timing reported relatively greater depressive symptoms both pre-pandemic and 9-months into the pandemic.

**Conclusion:** While individuals with later circadian timing benefited in terms of more school night sleep during the pandemic, this did not translate to mitigating depression or alcohol use. These findings suggest that later circadian timing may contribute to risk

for depression and alcohol use over and above effects due to insufficient sleep.

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### 0045

#### EXAMINING THE ASSOCIATION OF TRAIT SLEEP REACTIVITY WITH CHANGES IN SLEEP, DEPRESSION, AND ANXIETY IN THE COVID-19 PANDEMIC

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**Introduction:** Sleep Reactivity (SR), a trait-like tendency for stressful events to trigger sleep disturbances, is an established diathesis for insomnia and depression. However, no studies to date have examined SR in the context of the COVID-19 pandemic and its related restrictions. Thus, the goal of this analysis is to test whether SR confers a vulnerability for greater sleep and mood symptoms due to the stress of COVID-19 and its related restrictions. We hypothesized that (1) The onset of the pandemic will trigger greater increases in insomnia symptoms in highly sleep reactive individuals. 2) Sleep-reactive individuals would experience reduced recovery of insomnia, anxiety, and depression symptoms over the course of the pandemic.

**Methods:** SR, insomnia, anxiety, and depressive symptoms were assessed by the Ford Insomnia Response to Stress Test (FIRST), Insomnia Severity Index (ISI), Beck Anxiety Inventory (BAI), and Beck Depression Inventory (BDI II), respectively, at two time points (early-pandemic, 6-month follow-up). Additionally, participants retrospectively reported ISI prior to the pandemic. N = 253 adults from Stanford's COVID-19 Pandemic Sleep Study (April-November 2020) provided baseline insomnia measures, and were excluded if they reported pre-pandemic clinical insomnia (ISI >10). Ranked-correlation tests were used to test the current hypotheses. Paired t-tests were used to evaluate changes in mean insomnia, depression, and anxiety scores. Covariates included essential worker status, sex, and age.

**Results:** ISI after COVID-19 was significantly higher than retrospective, pre-pandemic ISI ( $t = 8.2$ ,  $d = 0.55$ ,  $p < 0.0001$ ). However, SR was not significantly correlated with the pandemic-related increase in ISI ( $\rho = 0.07$ ,  $p = 0.34$ ). Depression significantly increased after 6-months ( $t = 2.0$ ,  $d = 0.27$ ,  $p = 0.047$ ), whereas anxiety did not ( $t = 1.7$ ,  $d = 0.26$ ,  $p = 0.10$ ). Neither changes in depression nor anxiety were predicted by SR (Depression:  $\rho = 0.15$ ,  $p = 0.32$ ; Anxiety:  $\rho = -0.13$ ,  $p = 0.40$ ).

**Conclusion:** Insomnia and depression, but not anxiety, increased with the onset of the pandemic. However, trait SR was not a predisposing factor for pandemic-related sleep and mood changes. This is the first analysis examining SR as a risk factor for insomnia and mood symptoms in the pandemic.

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### 0046

#### CIRCADIAN MISALIGNMENT IS ASSOCIATED WITH COVID-19 INFECTION

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**Introduction:** Sleep disturbances are frequently reported in patients infected by Covid-19, but the role of sleep-wake behaviors

as a risk factor to contract Covid-19 has up to now poorly been studied. The aim of this study was to explore the relationship between usual sleep-wake behaviors and the risk of Covid-19 infection in a population of subjects suspect of contact or infection with SARS-CoV-2.

**Methods:** Cross-sectionnal monocentric study set during a non-confined period in winter 2021. Recruitment took place in a Covid-19 ambulatory screening platform. Subjects between 18 and 45 years old were included whether they were symptomatic or not, healthcare workers or not, in contact with a Covid-19 case or not. They were asked about their usual sleep-wake behaviors. Usual sleep duration and sleep timing were explored during workdays and free days. Circadian misalignment was defined as at least 2 hours shift of circadian alignment (defined as the difference between mid-sleep during workdays and mid-sleep during free days, mid sleep as the middle between bedtime and getting up time).

**Results:** One thousand eighteen subjects were included in our study (acceptance rate: 10.8%, 39% of men, mean age of  $28 \pm 8$ ). Habitual mean sleep duration was equivalent in both groups (7h47 vs 7h49,  $p = 0.733$ ). Circadian misalignment greater than 2 hours concerned 33% of subjects in the Covid-19 group versus 20% of the control group ( $p = 0.026$ ). After adjustment on age, gender, BMI and work schedules, subjects presenting a circadian misalignment superior to 2 hours had 2.07 more chances to be tested positive than subjects which respected on identical sleep-wake timing between workdays and free days (OR=2.07, 95%CI= [1.12-3.80],  $p = 0.024$ ).

**Conclusion:** Altered sleep not only is present in subjects infected by Covid-19 but could be responsible of a higher change to be infected. Chronobiological impact on immune system and higher chances to be exposed to social contacts could explain our findings which deserve to be confirmed through a future large cohort study. Ultimately regular sleep-wake pattern could constitute a privileged prevention target to fight Covid-19 infection.

**Support (If Any):**

### 0047

#### RELATIONSHIP OF EMOTIONS, SOCIAL ISOLATION, AND COVID-RELATED MEDIA TO SUBJECTIVE SLEEP QUALITY DURING THE COVID-19 PANDEMIC

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**Introduction:** The COVID-19 pandemic safety restrictions led to changes in social interactions and information seeking about the virus. For some, these led to increased negative emotions, feelings of social isolation, and increased COVID-related media consumption. We examined the relationship of these variables to subjective sleep quality from participant daily diaries kept early in the pandemic.

**Methods:** From April 20th-May 12th, 2020, college (students, faculty/staff, alumni, parents) and local (churches, community centers, libraries) community members (N=94, 72 women, ages 18-77) completed a 30-minute survey for before and during social distancing (measuring: mental health, personality, social distancing, and demographics) for possible prizes. Participants then completed daily evening and morning diaries for 5-14 days describing daily affect, social isolation, emotion regulation, COVID media consumption, and subjective sleep quality.

**Results:** Emotions: During the pandemic, poor sleep quality was predicted by less positive mood ( $r(91) = .486$ ,  $p < .001$ ) and more