

Habitual Sleep Changes Following COVID-19 Outbreak

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INTRODUCTION

The ongoing COVID-19 pandemic emerges as one of the most impressive and strenuous events of the century, with unthinkably huge global effects. We aimed at analyzing if and how does the pandemic affect sleep and related behaviors.



METHODS

We reviewed 48,047 nights (from 3381 users) recorded with the Sleeprate application in the US during a period of 2 years, December 2018 - November 2020.

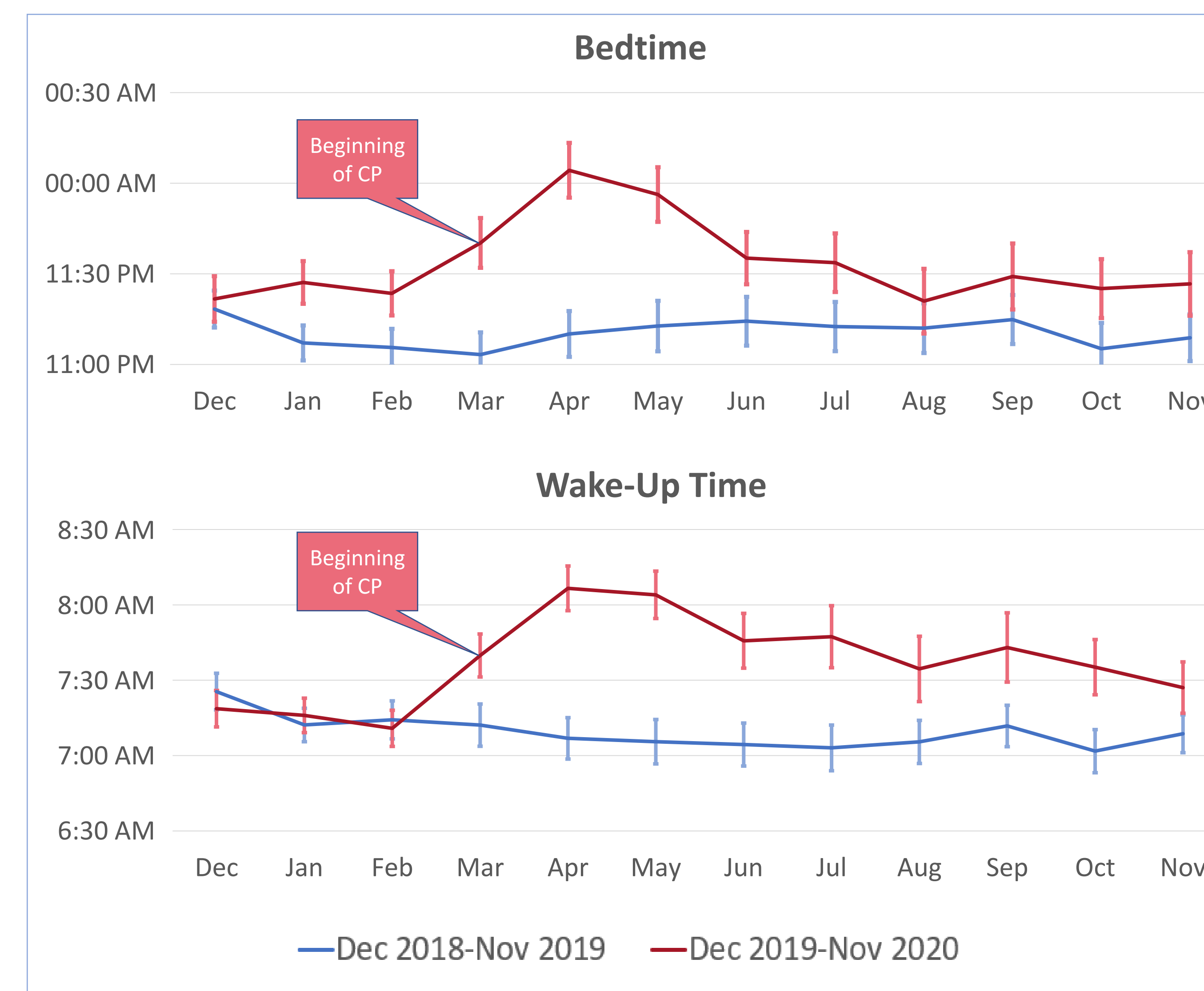
Nightly data included:

- ✓ Reported sleep times
- ✓ Perceived sleep parameters (Sleep Efficiency, Sleep Duration)
- ✓ Sleep satisfaction (scale 1-10)
- ✓ Perceived daytime stress and sleepiness (scale 1-10)

We analyzed the monthly variability of all parameters and compared their values during the COVID-19 period March-November 2020 (CP) with those during the corresponding period in 2019, the pre-COVID-19 period (PCP).

RESULTS

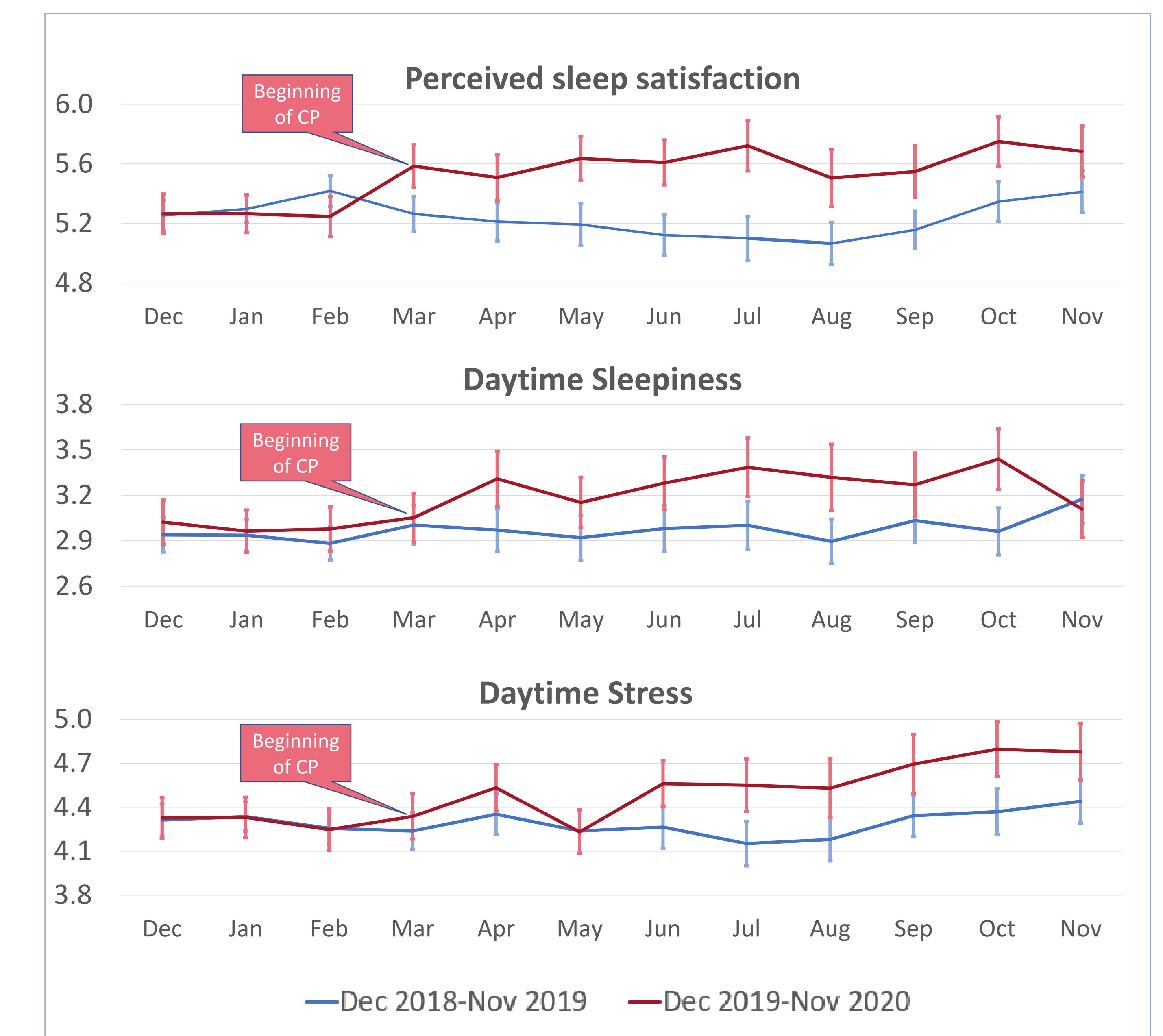
- Bedtime was significantly delayed and returned to PCP values relatively fast.
- Wake-up time was significantly delayed in CP relative to PCP.
 - The latest wake-up time was detected in April 2020, an hour later than in April 2019, allowing for a longer sleep opportunity at this time.
 - The delay in wake-up time started to decrease in June 2020, reaching by the end of CP values only slightly higher than their PCP counterparts.



All plots present Mean \pm SE

- Usual weekend delays in bedtime and wake-up time were observed during CP also.
- No consistent differences in sleep duration were detected between CP and PCP.

- Perceived sleep satisfaction was significantly higher in CP relative to PCP most of the time.
- Daytime sleepiness and daytime stress were higher during most of CP compared to PCP.



CONCLUSION

Our data shows the pandemic's effect on sleep in the US. Users in this study adapted to the new situation by delaying sleep schedule and having a higher sleep opportunity at times. The higher sleep satisfaction may be connected to later wake-up time, better fitting human biological clocks late tendency. The reported increased stress and sleepiness reflect the emotional, job instability uncertainty related to the COVID-19 crisis.