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## Letter to the Editor

## Comment on “Anti-COVID-19 measures threaten our healthy body weight: Changes in sleep and external synchronizers of circadian clocks during confinement” Clinical Nutrition 2021

**Keywords:**

COVID-19  
Mental health  
Circadian rhythm  
Sex characteristics

*Dear Editor*

We congratulate Baquerizo-Sedano et al. [1] for the relevant study, which evaluated the impact of 12-week confinement on the body weight of 521 university students aged between 16 and 35 years, considering changes in several external synchronizers of the biological clock.

First, our attention was directed to sample heterogeneity. Because when evaluating in adults and adolescents, of both sexes, the behavioral and physiological diversity related to different age groups and genders must be considered. In this way, among the analyzes the researchers evaluated changes in eating times, and it is known that factors such as stress, secretion of gonadal hormones, food restriction and environmental conditions affect eating behavior in different ways between genders [2]. Allocating participants into groups, or evaluating just one of them, could mitigate possible biases related to these aspects. An online questionnaire developed by the research group was also used, and it was not clear whether this instrument was validated for the population evaluated, to increase the reliability of the findings.

Second, we emphasize that in this study it would be interesting to assess the emotional state. Since circadian rhythm alterations promoted by home isolation were positively associated with mental health among university students during the COVID-19 pandemic period [3]. In addition, it is known that negative changes in physical activity and sleep patterns are associated with symptoms of depression, anxiety, and stress during the current pandemic. With a higher incidence of psychological suffering presented by women [4], emphasizing the importance of investigating emotional health in studies with similar objectives.

Third, we observed that data normality was analyzed using the Shapiro Wilk test, which is generally indicated for samples with up to 50 observations. We suggest the use of tests such as Kolmogorov Smirnov, for example, as they have greater reliability in the analysis of samples larger than 50 subjects [5]. We emphasize that the eventual inadequate choice of the test can promote the type 2 error, related to the sample selection bias.

Finally, we once again highlight the relevant contribution of the study by Baquerizo-Sedano et al. to the scientific community. And we ratify our suggestions for conducting future studies, with the aim of contributing with analyzes that help explain the health effects caused by COVID-19.

**Author contributions**

APSS, MSSF, WMAB and VONS: concept, interpretation, writing of the manuscript.

All authors critically reviewed the manuscript for important intellectual content and approved the final version of the manuscript.

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**Conflict of interest**

None.

**References**

- [1] Baquerizo-Sedano L, Chaquila JA, Aguilar L, Ordovás JM, González-Muniesa P, Garaulet M. Anti-COVID-19 measures threaten our healthy body weight: changes in sleep and external synchronizers of circadian clocks during confinement. *Clin Nutr* 2021:S0261-5614 [cited 2021 Sep 21]; Available from: <https://pubmed.ncbi.nlm.nih.ez16.periodicos.capes.gov.br/34246488/>.
- [2] Anversa RG, Muthmainah M, Sketriene D, Gogos A, Sumithran P, Brown RM. A review of sex differences in the mechanisms and drivers of overeating. *Front Neuroendocrinol* 2021;63:100941 [cited 2021 Sep 21]; Available from: <https://linkinghub.elsevier.com/retrieve/pii/S0091302221000431>.
- [3] Tao S, Wu X, Li S, Ma L, Yu Y, Sun G, et al. Circadian rhythm abnormalities during the COVID-19 outbreak related to mental health in China: a nationwide university-based survey. *Sleep Med* 2021;84 [cited 2021 Sep 21]; Available from: 165–72, <https://pubmed.ncbi.nlm.nih.ez16.periodicos.capes.gov.br/34153799/>.
- [4] Stanton R, To QG, Khalesi S, Williams SL, Alley SJ, Thwaite TL, et al. Depression, anxiety and stress during COVID-19: associations with changes in physical

- activity, sleep, tobacco and alcohol use in Australian adults. *Int J Environ Res Publ Health* 2020;17(11):1–13 [cited 2021 Sep 21]; Available from: <https://pubmed.ncbi.nlm.nih.ez16.periodicos.capes.gov.br/32517294/>.
- [5] Mohd Razali N, Bee Wah Y. Power comparisons of shapiro-wilk, Kolmogorov-Smirnov, lilliefors and anderson-darling tests. *J Stat Model Anal* 2011;2(1):13–4.

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