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## Clinical Nutrition

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## Letter to the Editor

# Response to comment: Anti-COVID-19 measures threaten our healthy body weight: Changes in sleep and external synchronizers of circadian clocks during confinement

## Keywords:

Covid-19  
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Biological clocks  
External synchronizer  
Obesity

Thank you for the opportunity to respond to Souza et al. letter [1]. We appreciate the positive comments of the authors about our study "Anti-COVID-19 measures threaten our healthy body weight: Changes in sleep and external synchronizers of circadian clocks during confinement [2], published in Clinical Nutrition 2021. Their comments and suggestions will contribute to a better understanding of our study.

First, Souza et al. bring up a significant point. They suggest accounting for sex as an essential biological variable, and analyzing men and women separately. This was our initial intention; however, formal analyses of the interaction between sex and changes in the different outcomes of the study during confinement were not significant. Furthermore, our preliminary analyses did not show significant differences between men and women in the changes during confinement. Therefore, we decided to present the results without separating for sex. We also agree with Souza et al. about the relevance of evaluating the emotional state as a possible disruptor of the synchronizers, and we are addressing this component in a more extensive study.

Another key point brought up by Souza et al. related to the validity of the questionnaire used. In our study, we used a compendium of validated instruments such as the Munich chronotype [3], the IPAQ [4], and several questions related to sleep and to food timing previously used by other groups and us that are effective in evaluating these circadian-related behavioral aspects [5,6].

We understand the concerns of Souza et al. about data normality analyses. Nevertheless, although the Shapiro–Wilk test is commonly applied to samples of less than 50 observations, some authors recommend its use in larger samples because of its greater power [7,8]. Nevertheless, a comparative analysis using both methods (Table 1) revealed similar results, demonstrating that this was not a source of error in this study.

We thank Souza et al. for taking the time to comment on our original manuscript bringing interest on this highly relevant topic.

Table 1

Normality comparison between Shapiro–Wilk and Kolmogorov–Smirnov Test.

	Normality Tests	
	Shapiro–Wilk	Kolmogorov Smirnov
<b>Body Mass Index</b>		
First week of confinement	<0.001	<0.001
Thirteenth week of confinement	<0.001	<0.001
<b>Daily habits</b>		
<b>Sunlight exposure duration</b>		
First week of confinement	<0.001	<0.001
Thirteenth week of confinement	0.000	<0.001
<b>Sedentary duration</b>		
First week of confinement	<0.001	<0.001
Thirteenth week of confinement	0.011	<0.001
<b>Screen exposure time</b>		
First week of confinement	<0.001	<0.001
Thirteenth week of confinement	0.410	<0.001
<b>Sleep habits</b>		
<b>Ready for sleeping</b>		
First week of confinement	<0.001	<0.001
Thirteenth week of confinement	<0.001	<0.001
<b>Duration of sleep latency</b>		
First week of confinement	<0.001	<0.001
Thirteenth week of confinement	<0.001	<0.001
<b>Sleep time</b>		
First week of confinement	<0.001	<0.001
Thirteenth week of confinement	<0.001	<0.001
<b>Time to wake up</b>		
First week of confinement	<0.001	<0.001
Thirteenth week of confinement	<0.001	<0.001
<b>Sleep duration</b>		
First week of confinement	0.019	<0.001
Thirteenth week of confinement	0.019	<0.001
<b>MPS</b>		
First week of confinement	<0.001	<0.001
Thirteenth week of confinement	<0.001	0.010
<b>Feeding time</b>		
<b>Breakfast</b>		
First week of confinement	0.006	<0.001
Thirteenth week of confinement	0.001	<0.001
<b>Lunch</b>		
First week of confinement	0.347	<0.001
Thirteenth week of confinement	<0.001	<0.001
<b>Dinner</b>		
First week of confinement	<0.001	<0.001
Thirteenth week of confinement	0.068	<0.001
<b>MPI</b>		
First week of confinement	<0.001	<0.001
Thirteenth week of confinement	0.001	<0.001
<b>Night fasting duration</b>		
First week of confinement	0.001	<0.001
Thirteenth week of confinement	0.003	<0.001

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## Author contributions

All authors wrote the paper, and reviewed the manuscript.

## Conflict of interest

The authors declare no conflict of interest.

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