

LETTERS TO THE EDITOR

On the role of moderators on children's sleep health in response to COVID-19

Response to Lecuelle F, Leslie W, Huguelet S, Patrica F, Putois B. Did the COVID-19 lockdown really have no impact on young children's sleep? *J Clin Sleep Med.* 2020;16(12):2121. doi:10.5664/jcsm.8806.

Francesca Lionetti, PhD^{1,2}; Mirco Fasolo, PhD¹; Antonio Dellagiulia, PhD³

¹Department of Neurosciences, Imaging and Clinical Sciences, University "G. D'Annunzio," Chieti-Pescara, Italy; ²Department of Biological and Experimental Psychology, Queen Mary University of London, United Kingdom; ³Department of Psychology, Salesian University of Rome, Rome, Italy

Several studies have investigated the impact of the corona virus 10 (COVID-19) lockdown on the well-being of the general population, including children,¹ and a few seminal studies considered sleep quality as a marker of children's adjustment to COVID-19 restrictions. Despite a theoretical consensus on the potential detrimental effect of the lockdown on sleep quality in the pediatric population,² empirical results are mixed.³ We propose that considering methodological and psychological moderators can help in understanding the variability in results.

First, the type of population should be considered. Children with diagnosed psychopathologies, medical conditions, or presenting sleep difficulties could be more vulnerable to changes in routine and hence present a greater increase in sleep problems in response to lockdown restrictions. For example, children with attention-deficit hyperactivity disorder or autism spectrum disorder are more likely to resent from changes in daily routine, including the bedtime routine.² We found a linear decrease in quality of bedtime routine, but our sample was normative and low risk.⁴

A second moderator is the timescale of the studies. Studies currently available highlighted the short-term effect of COVID-19 restrictions, and none reported information on sleep quality before the lockdown on the same sample; however, from a developmental perspective, emotional difficulties in response to an event might become manifested only with time passing. Also, a greater impact of the lockdown on sleep can be expected after a persisting limitation of physical activities and a prolonged reduced exposure to sunlight. Hence, long-term analyses are recommended. In our study, considering daily variation during the first month of the COVID-19 lockdown, we found a rapid decrease in children's sleep quality with a stabilization after the first weeks,⁴ but these results cannot be generalized to later periods.

Third, most studies have neglected the moderating role of individual and environmental variables. In line with the environmental sensitivity framework, some children are more affected by the impact of the environment than others. These children, known as *highly sensitive*, have been often reported to be more at risk for sleep problems. It is likely that these children, if exposed to low-quality parenting,⁵ have

been impacted more than others by lockdown restrictions. On the contrary, children reared by supportive and warm parents might have experienced during the lockdown an enriching opportunity of deeper connection with family members. If the interplay between individual and environmental variables is not investigated, the impact of COVID-19 lockdown on sleep might be underestimated, overestimated, or misunderstood. In our sample, we observed a significant variability within families, but because of the limited sample size, we did not explore complex interaction effects.

Fourth, the age at assessment (eg, the sample of Lecuelle³ is younger compared with the other studies reviewed), and fifth, measures used for investigating children's sleep characteristics (parent report vs objective measures) should be considered. Lastly, if we want to more clearly understand the impact of COVID-19 lockdown on sleep, Bayesian analyses, model comparison, or simply more descriptive approaches that allow identifying and quantifying what counts, when, and for whom might provide more information than null-hypothesis significant testing.

CITATION

Lionetti F, Fasolo M, Dellagiulia A. On the role of moderator on children's sleep health in response to COVID-19. *J Clin Sleep Med.* 2021;17(2):353–354.

REFERENCES

1. Lee J. Mental health effects of school closures during COVID-19. *Lancet Child Adolesc Health.* 2020;4(6):421.
2. Becker SP, Gregory AM. Editorial Perspective: Perils and promise for child and adolescent sleep and associated psychopathology during the COVID-19 pandemic. *J Child Psychol Psychiatry.* 2020;61(7):757–759.
3. Lecuelle F, Leslie W, Huguelet S, Patrica F, Putois B. Did the COVID-19 lockdown really have no impact on young children's sleep? *J Clin Sleep Med.* 2020;16(12):2121.

4. Dellagiulia A, Lionetti F, Fasolo M, Verderame C, Sperati A, Alessandri G. Early impact of COVID-19 lockdown on children's sleep: a 4-week longitudinal study. *J Clin Sleep Med* 2020;16(9):1639–1640.
5. Lionetti F, Aron EN, Aron A, Klein DN, Pluess M. Observer-rated environmental sensitivity moderates children's response to parenting quality in early childhood. *Dev Psychol*. 2019;55(11):2389–2402.

SUBMISSION & CORRESPONDENCE INFORMATION

Submitted for publication October 19, 2020

Submitted in final revised form October 19, 2020

Accepted for publication October 19, 2020

Address correspondence to: Francesca Lionetti, Department of Neurosciences, Imaging and Clinical Sciences, University "G. D'Annunzio", Chieti-Pescara, Italy, 0039 (0)8713554212; E-mail: francesca.lionetti@unich.it

DISCLOSURE STATEMENT

Work for this study was performed at University "G. D'Annunzio," Chieti-Pescara, Italy, Salesian University of Rome. All authors approved the final manuscript as submitted and agree to be accountable for all aspects of the work. The authors report no conflicts of interest. Francesca Lionetti was supported by Programma Operativo Nazionale (PON) - AIM to G. D'Annunzio University.