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pollution and violence may alter development trajectory, as it may disrupt the HPA-axis which plays an important role in how the human body reacts to environmental stressors affecting sleep. We propose that prenatal air pollution exposure may interact with violence to affect the efficiency of sleep, as this effect may be modified by exposure to violence.

Methods: We studied 412 children enrolled in Programming Research in Obesity, Growth, Environment and Social Stressors (PROGRESS), a birth cohort study in Mexico City. To estimate ambient air pollution, we used a spatio-temporal model to estimate individual daily prenatal PM2.5 exposure at each participant's residential address. We assessed the sleep efficiency (defined with time awake divided by time in bed) of all kids at age 4–7 years with assigned accelerometer worn during sleep, and recorded sleep patterns for a week. Exposure to violence is estimated with questionnaires and scored using a RASCH model. To examine the association between PM2.5 exposure and sleep efficiency and test effect modification from exposure to violence, we fitted a varying coefficient model, that relaxes the constant effect assumption on PM2.5 to sleep efficiency and estimated as a function of violence exposure.

Results: Participants are mostly low SES families (54.6%) with slightly lower proportion of low maternal education (42.1%) and are racial/ethnicity uniformed. Sleep efficiencies are normally distributed and ranging from 63.5 to 91.8. At age 4, children who were exposed to low-to-mid violence are more likely to have their sleep efficiency disrupted by prenatal PM2.5 exposure (ETV at 10%tile, $\beta=-0.26$, CI:-1.19,0.68; peak PM effect at ETV at 58%tile, $\beta=-0.96$, CI:-1.9,-0.001; ETV at 90%tile, $\beta=-0.27$, CI:-1.4,1.9;). The effect of PM2.5 is then attenuated as the exposure to violence increases. However, at age 6, we found that PM2.5 reduced sleep efficiency at even lower levels, but again we observed an U shape change of effect estimate (ETV at 10%tile, $\beta=-0.26$, CI:-1.05,0.54; peak PM effect at ETV at 36%tile, $\beta=-0.71$, CI:-1.5,0.09; ETV at 90%tile, $\beta=0.28$, CI:-1.155;), as the exposure to violence increases.

Conclusion: This research study adds to the literature by addressing the main effect of prenatal air pollution on sleep and examine effect modification between ambient air pollution and exposure to violence on sleep patterns among children, 4–7 years old. As the literature expands on sleep and sleep disparities, the sparseness of studies on children's sleep highlights a research void that if addressed could mitigate the adverse impact of child sleep disparities on long term health.

EFFECTS OF LONG COVID ON SLEEP HEALTH

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Introduction: COVID-19 has infected millions of people worldwide with growing evidence showing that those individuals may continue to show persistent post-COVID symptoms (long COVID). The aim of this study was to investigate sleep health in an international sample of individuals who reported previously testing positive for COVID-19.

Materials and Methods: 1001 individuals who reported a positive diagnosis of COVID-19, across different geographical regions, including North and South America, Sub-Saharan Africa, and Europe, completed an online survey between March 4–June 15, 2021. Self-reported sleep health was assessed using the RU-SATED scale, as recalled before a COVID-19 diagnosis and as reported currently.

Results: Individuals reported a poorer overall current sleep health, with

poorer ratings across the six dimensions of sleep health (sleep regularity, satisfaction, alertness, timing, efficiency, and duration) compared to their ratings as recalled before COVID-19 infection. Greater severity of symptoms during COVID-19 infection was the strongest predictor of poor current sleep health ($p < .001$), independent of demographics, presence of a pre-existing condition, and time since infection. Poor current sleep health was associated with poorer current quality of life ($p < .001$).

Conclusions: Poor sleep health is evident in individuals with a history of COVID-19, particularly those with more severe symptoms at the time of their COVID-19 infection, and is associated with a poorer quality of life. Clinicians and researchers should assess sleep health in COVID-19 survivors and investigate long-term associations with their mental and physical health, as well as potential benefits of improving sleep in this population.

Acknowledgements: Daniela Ramos-Usuga was supported by a predoctoral fellowship from the Basque Government (PRE_2019_1_0164). Dr Stella Iacovides is supported by NRF Thuthuka funding from the National Research Foundation of SA, and also NRF Incentive Funding for Rated Researchers Programme. We thank all the COVID long haulers who participated in this study for their time, and colleagues that help distributing the survey, especially Cristian Logatt.

EFFICACY OF A NOVEL ITERATIVE DEVICE AND MATERIAL

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Efficacy of a Novel Iterative Device and Material

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Introduction: Launching a new device design or use of a new material with optimistic expectations should always be undertaken with caution and an ounce of skepticism. When this novel device and material was first described in an IRB Abstract derivative report at the AASM, it was under the umbrella of a patient and provider preference survey. In April 2020, the broader availability post FDA clearance is providing strong early indications of excellent efficacy.

Methods: An analysis of data from four treatment centers using this novel device and material was undertaken. Patients were to be included if they had a diagnosis of mild, moderate, or severe OSA confirmed by a physician, and an AHI score >5 and a follow up study resulting in treatment success or failure. Results would be grouped as Complete Success = AHI <5 , Clinical Success = 50% reduction and <10 . All patients were to be treated with the Novel ProSomnus EVO Iterative advancement device.

Results: 55 total consecutive patients were treated at four centers for dental sleep medicine. 37 male and 18 female patients with an average age of 53.3 ranging from 30 to 78 with pre and post data were included and treated with a ProSomnus EVO. The initial AHIs ranged from 6.0 to 116.0 with an average of AHI pretreatment of 26.4 (15 mild, 23 moderate and 17 severe). Follow up testing for this group revealed an average overall reduction in AHI of 75%, from 26.4 to 6.6. Overall, 62% resolved to below an AHI of 5 (100% of mild, 65% of moderate and 24% of severe patients). Similarly, 85% resolved to below an AHI of 10 and a 50% reduction (100% of mild, 96% of moderate and 59% of severe patients)

Conclusions: This novel interactive device and material combination appear, after early analysis, appear to yield significantly better results that previous data has demonstrated. The literature suggests that legacy oral appliance efficacies range from 50%-62% and other AADSM poster/abstracts have reported similar precision milled, control cure PMMA appliances in the 74% - 76% range. These results suggest a need for further investigation of exceptional efficacy for this device design and material.

Support: No support was provided for this abstract