Title: Assessing the effect of the Covid-19 Pandemic on sleep patterns in children using Polysomnography.

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Introduction: The pandemic, lock down, quarantines, virtual classrooms, and work from home policies during the pandemic have had a significant impact on the sleep patterns of children. International studies have revealed the Covid-19 pandemic has caused increased sleep latency, sleep disruption, increased use of sleep aides, and worsening of sleep disorders. To our knowledge, there are no published articles that have objectively reported the impact of a global pandemic on children via review of the polysomnogram (PSG). Our goal is to objectively quantify the impact of a global pandemic on sleep patterns within the pediatric population via polysomnographic review.

Methods: A retrospective case-control study was conducted to compare sleep studies of children 6-12 year of age for a 4 month period prior to the pandemic and for 4 months during changes associated with the viral pandemic. We excluded studies of patients diagnosed with mild to severe obstructive sleep apnea which would add obvious confounding factors. We reviewed PSG's and evaluated for changes in sleep efficiency, sleep latency, total sleep time, REM latency, total REM time, and arousals.

Results: PSG Data was collected on 99 pre-pandemic and 85 patients during the first few months of the pandemic which showed statistically significant reduction in Sleep Efficiency ($p < 0.001$), reduction in Total Sleep Time ($p < 0.001$), increase in Sleep Latency ($p < 0.024$), and reduction in % REM sleep and total REM time ($p < 0.001$).

Conclusion: The data showed a statistically significant decline in pediatric sleep efficiency and sleep quality associated with the pandemic; specifically increased sleep latency and decreased total REM sleep. This data validates the reports that have been published, with subjective data gathered through surveys and online questionnaires. Larger studies are needed to define the extent of the disruption. This could significantly impact the maintenance of sleep health in children during periods of stress such as the Covid-19 pandemic.