

Impact and Exposure of COVID-19 on Early Childhood Sleep in a Socioeconomically Marginalized Community

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INTRODUCTION

The COVID-19 pandemic has disproportionately affected marginalized communities – further highlighting the longstanding health inequities that exist in these communities. Emerging literature suggest that sleep health inequities begin as early as 1 year of age.¹

Young children living with socioeconomic adversity are likely experiencing a more pronounced lack of economic and psychosocial resources. Further reduction of resources (e.g. increased food insecurity, financial stress, parental job loss, crowded living conditions, and lack of a daily routine secondary to public health measures) in already under resourced communities may have unintended consequences on young children.

Understanding ways to understand and mitigate downstream effects of the pandemic in early childhood is a critical public health concern.² Initial reports on the effect of the pandemic on children's sleep has been mixed and primarily reported among White children living in middle-income families.^{3,4}

OBJECTIVES

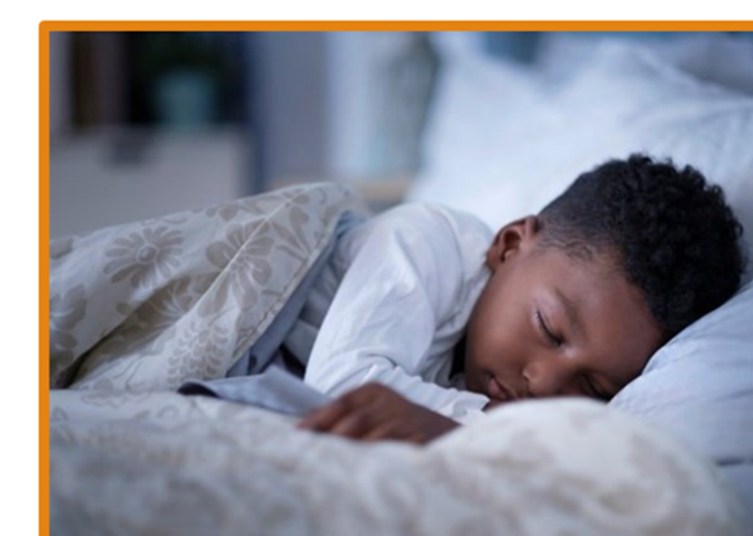
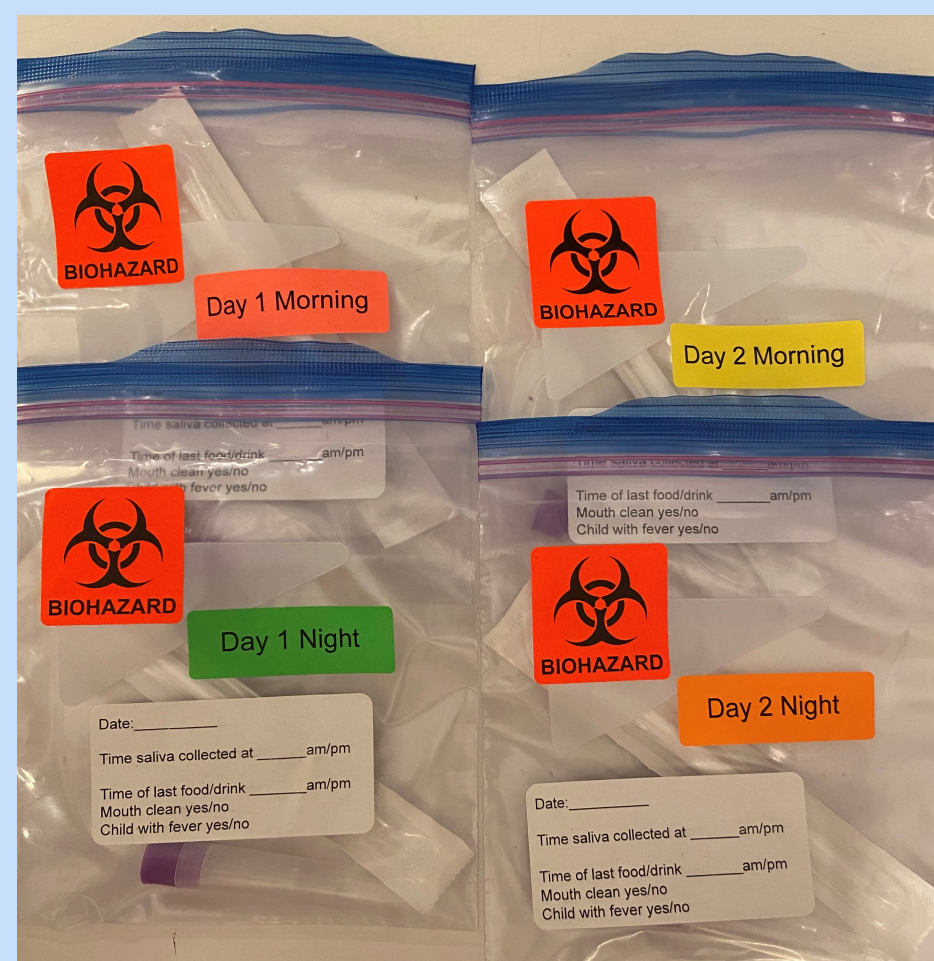
To examine the association between the COVID-19 pandemic and sleep among children living with socioeconomic adversity.

This presentation is a report of our preliminary findings from a cohort of a larger follow up study on families who completed a longitudinal study conducted from 2015-2019. The larger follow-up study adds a third repeated measures data collection time-point during the pandemic to:

1. Examine and characterize the family sociodemographic, social-emotional, and physical health changes pre- and intra-COVID-19 pandemic;
2. Examine changes in stress-related immune markers and sleep pre- and intra-COVID-19 pandemic;
3. Assess the cross sectional and longitudinal relationships among sleep characteristics, immune-related stress markers, and toddler's socioemotional health pre- and intra-COVID-19 pandemic.
4. Examine the associations between parent-reported family impact of the COVID-19 pandemic and children's stress response and determine whether sleep health moderates this association.

METHODS

- IRB approval to re-consent the 110 primary caregivers who participated in the previous study. Anticipate 70 families. Complete by June 30, 2021
- REDCap electronic consent and survey data collection allowed for adherence to COVID-19 research protocols.
- Repeated measures from the first two time points (12-15 months and 24-27 months) collected from 2015-2019
 - Demographics: Age, sex, race, ethnicity, education, marital status, housing, income to needs, CPS involvement;
 - Protective Factors Survey (composite of social support, concrete support, and family resilience)
 - Sleep: Sleep actigraphy (Respironics AW2) for 9 days/nights; Sleep diary; Extended Brief Infant Sleep Questionnaire (BISQ); Sleep Evaluation Questionnaire (SEQ)
 - Biomarkers of Stress Response: Salivary biomarkers: am/pm cortisol; CRP and S-IgA; Il-6, Il-1B, TNF- α
- The COVID-19 Exposure and Family Impact Survey (CEFIS) was added to measure the parent-reported impact and exposure of COVID-19 on the families: two subscales – Exposure (COVID-E, range 0-25) and Impact (COVID-I, -16-16), Caregiver Distress from COVID (CGDFC) Child Distress from COVID (CDFC, 1-10). Higher scores indicate more exposure and higher levels of impact and distress..
- The Child Behavior Checklist replaced the previously collected Brief Infant Toddler Social Emotional (BITSEA) measure due to age of the participants
- COVID-19 safety protocols for data collection included socially distant home visits to drop off and pick up data collection materials while outdoors, 6-feet apart, and using masks and gloves. Alternatively, packages were mailed to participant homes if requested.



Follow Up Toddler Sleep Study - Parent/Caregiver Instructions



YOU MAY FOLLOW THE INSTRUCTIONS IN THIS PACKET AND/OR WATCH THE VIDEO ON THIS YOUTUBE CHANNEL

<https://youtu.be/vWXVQmla1TM>

SCAN ME

PRELIMINARY RESULTS

	Mean (SD) / N (%)
Caregivers	
Race-Ethnicity	
Non-Hispanic White	10 (29.4%)
Black	11 (32.4%)
Hispanic	10 (29.4%)
Multiracial	3 (8.8%)
Female	33 (97.1%)
Total Family Income	
\$0-\$10,000	17 (51.5%)
\$10,000-\$30,000	7 (21.2%)
\$30,000-\$50,000	2 (6.1%)
More than \$50,000	7 (21.2%)
Marital Status	
Married/Partnered	18 (52.9%)
Single/Divorced	16 (47.1%)
Education	
Less than high school	4 (11.8%)
High school / GED	9 (26.5%)
Trade/Vocational training/Some college	12 (35.3%)
College degree	9 (26.5%)
Family Housing	
Own/Rent	29 (85.3%)
Shared//Temporary/Homeless	5 (14.7%)
Child age	4.0 (1.0)

- Exposure score = 9.2 ± 3.4 (Range 2-16)
- Impact score = $.61 \pm 6.39$ (Range -16-10)
- Caregiver Distress from COVID (CGDFC) = 5.94 ± 2.55 (Range 1-10)
- Child Distress from COVID (CDFC, 1-10) = 4.69 ± 2.63 (1-10)

Sleep Variable	Pre-COVID Mean (SD)	Intra-COVID Mean (SD)	COVID-E (r)	COVID-I (r)	CGDFC (r)	CDFC (r)
Bedtime	8:56PM (0.82 hours)	9:12PM (1.02 hours)	+0.14	+0.21	-0.05	-0.09
	t(29) = +2.04, p=.05					
Total Nighttime Sleep Time (hrs)	9.36 (1.51)	8.74 (2.31)	-0.14	-0.03	-0.16	-0.16
	t(28) = -1.53, p=.14					

CONCLUSION

Compared to pre-COVID, there was a trend indicating later bedtimes and shorter sleep duration during the pandemic. These findings are based on parent-reported sleep data and planned analysis include examining these relationships with objective sleep data. We also plan to examine whether the sleep health inequities in the larger study continued during the pandemic.

REFERENCES

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4. Zreik G, Asraf K, Haimov I, Tikotzky L. Maternal perceptions of sleep problems among children and mothers during the coronavirus disease 2019 (COVID-19) pandemic in Israel. J Sleep Res. 2021;30(1):e13201-e.