

# Night-to-Night Variability in the Apnea Hypopnea Index in Young Children

## Introduction

- Diagnosis of obstructive sleep apnea (OSA) is routinely based on single night sleep evaluation.
- In adults, significant night-to-night variability has been observed.
- Data on whether one night of monitoring is sufficiently accurate to diagnose OSA in children is limited.

## Conclusion

- The clinically relevant night-to-night variability in AHI-severity needs to be considered when evaluating children suspected of OSA.
- As adding the third-night identified additional children with OSA indicates that recording more than two-nights might add to accuracy of clinical decision on severity and the most appropriate therapy.

## Results

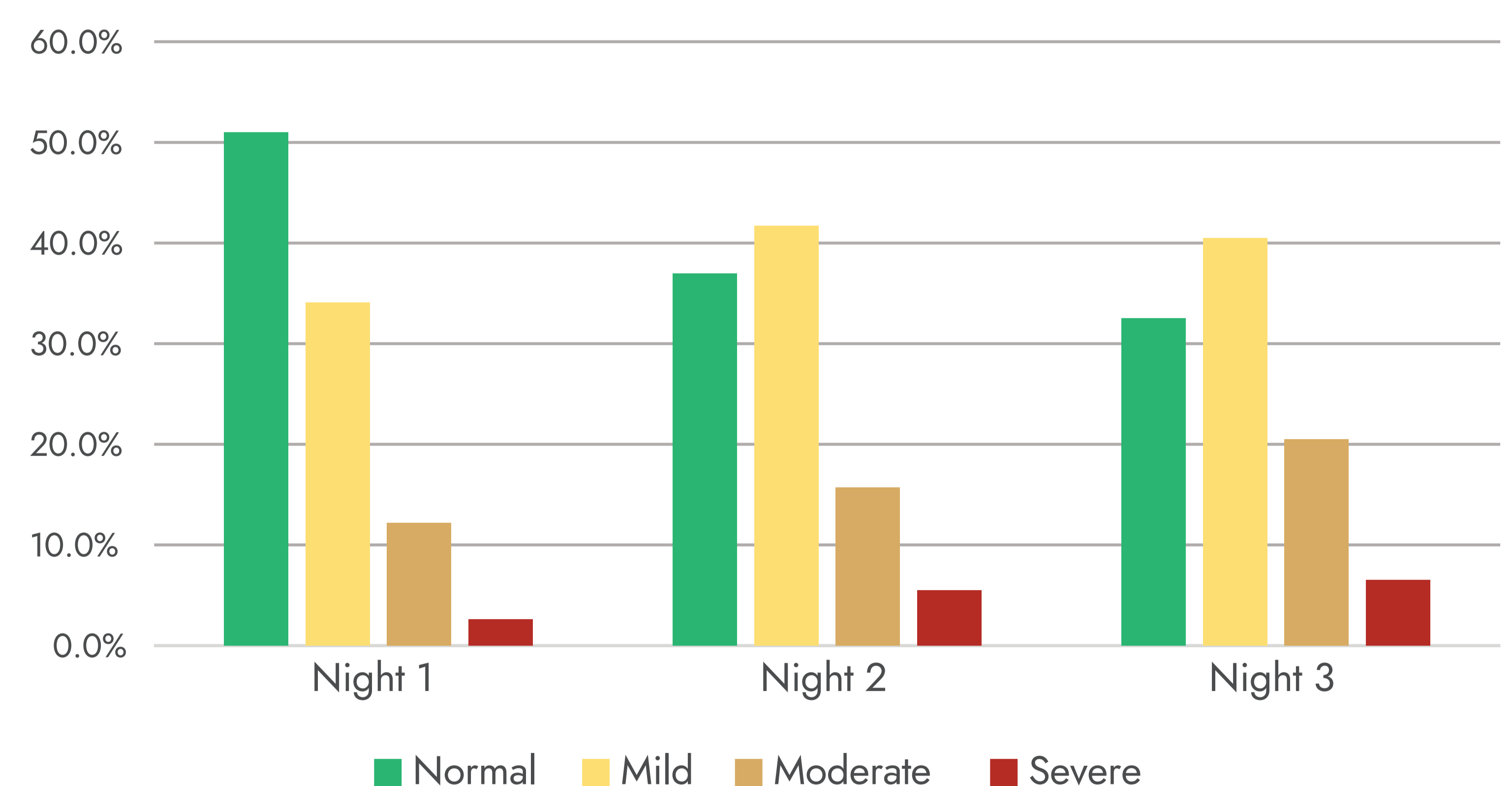
Groups did not differ at baseline

- Night-1 (n=343): Moderate-OSA 12.2%, Severe-OSA 2.6%
- Night-2 (n=343): Moderate-OSA 15.7%, Severe-OSA 5.5%
- Night-3 (n=200): Moderate-OSA 20.5%, Severe-OSA 6.5%



## Materials & Methods

- Prospective cross-sectional population-based study evaluating prevalence of OSA in healthy 4-8-years old children (NCT05479201).
- A minimum of two-nights with continuous recording of 4-hours was required for OSA diagnosis. Diagnosis was based on highest OSA-value.
- Sleep was recorded with FDA-cleared K182618/CE-marked-2862 home sleep test, SleepImage®
- Classification of OSA-severity based on AHI3%: Mild-OSA (2-5), Moderate-OSA (5-10), Severe-OSA ( $\geq 10$ )



# Sleep Quality: Potential Target to Manage Obesity and Cardiovascular Risk in Children

## Introduction

- Obesity is a risk factor for developing atherosclerosis and cardiovascular disease.<sup>1</sup>
- Short sleep duration has been associated with childhood adiposity.<sup>2</sup>
- Does cardiopulmonary coupling (CPC) calculated sleep quality index (SQI) have a role when looking at sleep and obesity in addition to sleep duration?

## Materials & Methods

- Post hoc CPC-analysis of The Childhood Adenotonsillectomy Trial (CHAT, n=960) & Cleveland Children's Sleep and Health Study (CCSH, n=491).
- MyCardio LLC (SleepImage®), Denver, CO, USA.

## Conclusion

- SQI significantly lower in overweight compared to healthy weight children.
- Prevalence of overweight increases into adolescence.
- Significance in the relationship of weight with SQI is not maintained in adulthood.
- Adolescent boys have significantly lower SQI compared to girls.

## Results

### Sleep Quality Results for Age, Gender and Weight

- **All Children** (5-10-years; n=960)  
HW (n=829, 86.4%) SQI<sub>mean</sub>78.3 CI<sub>95%</sub> [77.4, 79.1] vs.  
OW (n=131, 13.6%) SQI<sub>mean</sub>70.5 CI<sub>95%</sub> [67.7, 73.2], **p<0.001**
- **Girls** (n=482, 50.2%)  
HW (n=395, 81.9%) SQI<sub>mean</sub>77.4 CI<sub>95%</sub> [76.2, 78.6]  
OW (n=87, 18.1%) SQI<sub>mean</sub>70.2 CI<sub>95%</sub> [66.6, 73.7], **p<0.001**
- **Boys** (n=478, 49.8%)  
HW (n=434, 90.8%) SQI<sub>mean</sub>79.1 CI<sub>95%</sub> [77.9, 80.2]  
OW (n=44, 9.2%) SQI<sub>mean</sub>71.1 CI<sub>95%</sub> [66.6, 75.6], **p<0.001**
- **All Adolescents** (16-19-years; n=491)  
HW (n=311, 63.3%) SQI<sub>mean</sub>69.3 CI<sub>95%</sub> [67.9, 70.7]  
OW (n=180, 36.7%) SQI<sub>mean</sub>66.8 CI<sub>95%</sub> [64.6, 69.0], **p=0.055**
- **Adolescent Girls** (n=239)  
HW (n=153, 64.0%) SQI<sub>mean</sub>72.8 CI<sub>95%</sub> [70.9, 74.5]  
OW (n=86, 36.0%) SQI<sub>mean</sub>70.5 CI<sub>95%</sub> [67.3, 73.7], **p=0.202**
- **Adolescent Boys** (n=252)  
HW (n=158, 62.7%) SQI<sub>mean</sub>66.0 CI<sub>95%</sub> [63.9, 68.0]  
OW (n=94, 37.3%) SQI<sub>mean</sub>63.5 CI<sub>95%</sub> [60.5, 66.5], **p=0.162**

