

Longitudinal associations of childhood bedtime and sleep routines with adolescent body mass index

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Abstract

Study Objectives

Having a regular, age-appropriate bedtime and sufficient sleep from early childhood may be important for healthy weight in adolescence. This study aimed to (1) identify heterogeneous groups of children by bedtime and sleep routines and (2) test longitudinal associations of childhood bedtime and sleep routine groups with adolescent body mass index (BMI).

Methods

We analyzed longitudinal data from the Fragile Families and Child Wellbeing Study, a national birth cohort from 20 US cities ($N = 2196$). Childhood bedtime and sleep routines were assessed by mothers' reports of their children's presence and timing of bedtimes, adherence to bedtimes, and habitual sleep duration at ages 5 and 9. At age 15, these adolescents reported their height and weight, which were used to calculate BMI z -score.

Results

Latent Class Analysis revealed four groups of childhood bedtime and sleep routines: No Bedtime Routine Age 5 (Group 1), No Bedtime Routine Age 9 (Group 2), Borderline Bedtimes Ages 5 and 9 (Group 3), and Age-Appropriate Bedtime and Sleep Routines Ages 5 and 9 (Group 4, reference). Compared with adolescents in the reference group, those in the No Bedtime Routine Age 9 (Group 2) had $+0.38$ SD greater BMI (95% CI = $[0.13$ to $0.63]$), above the level for overweight (1.02 SD BMI/85th percentile). Associations persisted after adjusting for age 3 BMI and sociodemographic characteristics.

Conclusions

Results demonstrate heterogeneity in childhood bedtime routine groups and their associations with adolescent BMI. Future studies should focus on whether childhood sleep behavior interventions promote healthier sleep and weight in later life course stages.

[actigraphy](#), [obesity](#), [pediatrics](#), [adolescents](#), [public health](#)

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