Inadequate sleep habits ARE associated with obesity in high school children

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Objective. To examine sleep habits and associations between inadequate sleep habits and measures of obesity in high school adolescents.

Methods. A total of 127 adolescents (61% male) aged 15–17 years were recruited from patients of the Children's hospital referred to due to obesity and other conditions in 2017–2019 years. The sample was evaluated to determine if a relationship existed between inadequate sleep habits and measures of obesity (percentile weight-for-length — body mass index — BMI, kg/m2; neck circumference — NC, cm; waist circumference — WC, cm).

Participants provided demographic information and completed the Adolescent Sleep Habits Survey (ASHS). Adolescent weight/length, NC and WC were measured; obesity defined as BMI ≥ 95th percentile, NC ≥ 90th percentile and WC ≥ 90th percentile for age and sex. Measures of inadequate sleep habits: possible activities in bed and possible activities if difficulty falling asleep in the last two weeks. All associations were analyzed using a method of odds ratios (ORs) with 95% confidence intervals [CIs]. All differences were considered significant at $p < 0.05$.

Results. A greater proportion of males than females (52.6% versus 43.7%, $p < 0.05$) and of obese adolescents compared with lean peers (64.2% versus 39.1%, $p < 0.05$) reported inadequate sleep habits. Sleep habits named «ASHS activity in bed» such as "Eat every night" was associated with BMI ≥ 95th percentile (OR 1.30, 95% CI 1.25–1.35), NC ≥ 90th percentile (OR 1.65, 95% CI 1.59–1.71) and WC ≥ 90th percentile (OR 1.72, 95% CI 1.65–1.88). Possible activities if difficulty falling asleep such as "Wake up and to do something (e.g., eat; drink warm milk/coffee) every night" were also associated with measures of obesity: BMI ≥ 95th percentile (OR 1.35, 95% CI 1.29–1.41 and OR 1.21, 95% CI 1.17–1.25, respectively), NC ≥ 90th percentile (OR 2.10, 95% CI 1.8–2.65 and OR 1.75, 95% CI 1.59–1.91, respectively) and WC ≥ 90th percentile (OR 2.5, 95% CI 1.89–3.1 and OR 2.2, 95% CI 1.28–2.99, respectively). Inadequate sleep habit such as "Watch TV in bed every night" was found to be associated with measures of obesity after adjusting for several covariates. No statistical significance was found if the above measures of inadequate sleep habits were noted as "twice or once in the last two weeks" in relation to BMI, NC or WC.

Conclusion. In addition to existing literature, this study found that inadequate sleep habits every night as well as short sleep duration in late adolescence may relate to the development of obesity as measured by BMI, NC, and WC.