Dietary behavior and its association with sleep-disordered breathing symptoms in children

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Objective: We aimed to (1) examine the association between dietary intake and sleep-disordered breathing (SDB) symptom severity in children, and (2) develop and validate a dietary-based prediction model for moderate-to-severe SDB (msSDB).

Methods: This cross-sectional study analyzed baseline data from 406 children (aged 5.0–12.9 years) with and without SDB symptoms. Caregivers completed a validated 25-item Short Food Frequency Questionnaire to assess dietary intake. SDB symptom severity was measured using the obstructive sleep apnea (OSA)-18 questionnaire, with a total score ≥60 defining msSDB. Multivariable regression models were used to identify dietary associations. A dietary prediction score was developed and its performance assessed using receiver operating characteristic (ROC) analysis, followed by external validation in a separate cohort (n = 24).

Results: Among 406 participants (mean [SD] age, 8.0 [2.1] years; 174 girls [42.9%]), 80 children (19.7%) had msSDB. Higher intake of orange juice, sweets, chocolate, rice, and processed meats was significantly associated with greater total OSA-18 scores and worse subscale scores across domains. Conversely, fish for dinner and savory snacks were inversely associated with symptom burden. A dietary prediction model demonstrated acceptable discrimination for msSDB (area under the ROC curve [AUC] = 0.78; 95% CI, 0.72–0.84). The model showed 79.6% accuracy, 56.3% sensitivity, and 85.3% specificity, with comparable performance in the validation cohort.

Conclusions: Specific dietary behaviors are associated with SDB symptom severity in children. A simple dietary-based score can help identify children at risk for clinically significant SDB, supporting the investigation of dietary interventions in pediatric SDB management.

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