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METABOLIC DYSFUNCTION–ASSOCIATED STEATOTIC LIVER DISEASE AMONG CHILDREN AND ADOLESCENTS IN A TERTIARY CENTRE IN SARAWAK

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INTRODUCTION
The global rise in paediatric obesity has led to an increasing burden of metabolic comorbidities, including metabolic dysfunction–associated steatotic liver disease (MASLD). Obstructive sleep apnea (OSA), characterized by chronic intermittent hypoxia, has been implicated in the pathogenesis of liver injury. This study aimed to evaluate the prevalence of MASLD and its association with OSA among children and adolescents in a tertiary centre.

METHODOLOGY
A retrospective cross-sectional study was conducted involving children aged 6–15 years who were admitted for polysomnography at Sarawak General Hospital between 2024 and 2025. Clinical, biochemical, and lifestyle data were obtained from medical records and parental questionnaires. Hepatic steatosis was assessed using hepatobiliary ultrasound in a subset of patients.

RESULTS
A total of 132 children (mean age 10.8 ± 2.7 years; 87.5% male) were included. The median BMI SDS was 2.50 (IQR: 2.29–2.93). The mean apnea–hypopnea index (AHI) was 12.0 ± 7.9, with 60% classified as severe OSA.

Among the 16 children who underwent liver ultrasound, MASLD was identified in 81.2%, including five cases of grade 1 and eight cases of grade 2 steatosis. Liver transaminitis was present in six patients. Metabolic comorbidities were common, with 43.8% requiring metformin for insulin resistance or impaired glucose tolerance, and four patients requiring antihypertensive therapy.

Unhealthy lifestyle behaviors were prevalent: 64.2% consumed sugary drinks ≥3 times weekly, 42.9% consumed fast food ≥3 times weekly, and only 24.3% reported daily fruit or vegetable intake. Physical inactivity (≤2 times/week) was observed in 71.4%, while 64.3% had screen time exceeding 2 hours daily.

CONCLUSION
Children and adolescents with moderate-to-severe OSA exhibit a high burden of metabolic dysfunction, including MASLD. The findings support a potential contributory role of OSA-related hypoxia in paediatric fatty liver disease and highlight the need for integrated screening and early intervention in this high-risk population.