

### Centre-Based Child Care Attendance in Early Childhood and Growth in Later Childhood: A Prospective Cohort Study

Michaela Kucab,<sup>1</sup> Charles Keown-Stoneman,<sup>2</sup> Catherine Birken,<sup>3</sup> Michal Perlman,<sup>1</sup> and Jonathon Maguire<sup>1</sup>

<sup>1</sup>University of Toronto; <sup>2</sup>St. Michael's Hospital; and <sup>3</sup>The Hospital for Sick Children

**Objectives:** Attending centre-based child care in early childhood may influence important health behaviours including nutrition, physical activity and routines related to child growth and weight status. The primary objective was to evaluate the relationship between centre-based child care attendance between 1 and 4 years of age and Body Mass Index z-score (zBMI) from 4 to 10 years of age relative to non-centre-based child care (i.e., home-based, grandparents, relatives, and nanny's). The secondary objective was to explore if family income and child age modified the relationship.

**Methods:** A prospective cohort study of children aged 1 to 10 years was conducted through the TARGet Kids! primary care research network. The exposure was centre-based child care attendance (hours/week). Outcomes were zBMI and odds of overweight and

obesity (zBMI > 1). Interaction terms for child age and family income were explored. Linear mixed effect models and logistic generalized estimating equations were used.

**Results:** 3,503 children who attended child care were included (mean age: 2.7 years at baseline). Children who attended centre-based care full-time (40 hours/week) had a 0.11 (95% CI: -0.19, -0.03;  $p = 0.01$ ) lower zBMI at 4 and 7 years of age and lower odds of overweight/obesity at 4 years of age (OR 0.78; 95% CI 0.62, 0.97;  $p = 0.03$ ) relative to children who attended non-centre-based care. Children from families with income < \$50,000CDN who attended centre-based care full time had a 0.32 (95% CI: -0.50, -0.14;  $p = 0.001$ ) lower zBMI and lower odds of overweight/obesity (OR 0.52; 95% CI: 0.28, 0.99;  $p = 0.05$ ) at 10 years of age relative to children who attended non-centre-based care.

**Conclusions:** Attending centre-based child care in early childhood was associated with a lower zBMI and lower odds of overweight/obesity in later childhood, and associations were stronger for children from lower income families. Centre-based child care may be an effective early intervention for the prevention of childhood obesity.

**Funding Sources:** Canadian Institutes of Health Research (CIHR).