

**【Original Article】**

**Associations of Family and Neighborhood Environments with  
Outside Playing Time and Screen Time on Weekdays of  
Preschool Children in Japan**

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**Abstract**

**Objective:** Physical activity and sedentary behavior in preschool children have been linked to health consequences from early childhood through adulthood. Understanding the correlates of physical activity and sedentary behaviors is an important issue. The associations of family and neighborhood environments with outside play time and screen time on weekdays of preschool children in Japan were examined.

**Methods:** A cross-sectional study on 2598 pairs of children ages 3-6 years who attended childcare facilities, and their mothers, in a city in the Tohoku region was conducted. The children's physical activity (outside play and screen time per weekday), family environment (living with grandparents, number of siblings, maternal employment, height, and weight), neighborhood environment (safe space to play outside and friends to play with), and child characteristics (age and sex) were surveyed using a self-administered questionnaire. The independent associations between outside play time or screen time and family and neighborhood environment variables were examined using multiple logistic regression analysis adjusted for family and neighborhood environments, and child characteristics.

**Results:** The eligible participants were 1634 children (mean age: 4.2 years, boys: 52.9%). After controlling for covariates, spending 1 or more hours/day in outside play time, as an indicator of physical activity, was inversely associated with non-living with grandparents (OR (95% CI); 0.76 (0.60-0.97)) and lack of friends to play with (0.36 (0.28-0.45)). These environments were risk factors for lower physical activity. Furthermore, 2 or more hours/day screen time, as an indicator of sedentary behavior, was significantly associated with the presence of a full-time housewife (1.29 (1.02-1.63)), maternal obesity (2.24 (1.50-3.34)), and lack of friends to play with (1.34 (1.09-1.65)).

**Conclusion:** These results suggest that absence of a child's peers or someone to play with, both within and outside the family, the presence of a full-time housewife, and maternal obesity could be important factors of influence on children's physical activity. Population-based intervention to establish healthy lifestyles, including physical activity in preschool children, should therefore target both family and neighborhood environments.

**Key words:** preschool children, physical activity, sedentary behavior, outside play time, screen time

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