

Environmental factors and physical activity among youth in rural Japan: a 1-year prospective study

Takafumi Abe

T Abe^{1,2}, J Kitayuguchi², K Okuyama³, S Okada⁴, T Nabika^{5,1},
C Tanaka⁶

¹Center for Community-Based Healthcare Research and Education, Shimane University, Shimane, Japan

²Physical Education and Medicine Research Center UNNAN, Shimane, Japan

³Center for Primary Health Care Research, Lund University, Malmö, Sweden

⁴Physical Education and Medicine Research Foundation, Nagano, Japan

⁵Faculty of Medicine, Shimane University, Shimane, Japan

⁶College of Health and Welfare, J. F. Oberlin University, Tokyo, Japan

Contact: t-abe@med.shimane-u.ac.jp

Background:

Although moderate-to-vigorous physical activity (MVPA) has multiple health benefits, current global activity levels among children are quite low. Environmental influences on MVPA levels among children and adolescents in rural areas are unclear. The present study examined if environmental factors were associated with MVPA in children and adolescents in rural Japan.

Methods:

Two school-based serial surveys were conducted in 2017 and 2018 for 1,461 children and adolescents (10-14 years old) in Unnan City, Japan. If meeting the WHO recommended MVPA levels: at least 60 minutes/day was assessed via the Japanese translation of the WHO Health Behaviour in School-aged Children survey questionnaire. Environmental factors, namely habitable land area, population size, and population density were calculated for each individuals' residential town, and categorized into three levels (small, medium, and large). Logistic regression was used to determine odds ratios (OR) and 95% confidence intervals (CI) of engaging in the recommended level of MVPA after 1 year by each environmental factor, adjusting for sex, school grades, body mass index, screen time, preference for PA, and MVPA level at baseline.

Results:

Only 22.4% of children and adolescents were engaging in the recommended MVPA levels in 2018. Engaging in the recommended level of MVPA after 1 year was significantly associated with medium (OR = 1.63; 95%CI, 1.08-2.46) and large (OR = 1.69; 95%CI, 1.15-2.47) compared to small habitable areas, and with medium (OR = 1.01; 95%CI, 0.61-1.67) and large (OR = 1.75; 95%CI, 1.09-2.81) compared to small population size. Population density was not associated with MVPA.

Conclusions:

This prospective study found that habitable area and population size were positively associated with MVPA at 1-year follow-up in rural Japan. In rural areas, habitable land areas and population size itself may be a better predictor for MVPA among children than population density.

Key messages:

- Habitable area and population size was positively associated with physical activity among children and adolescents in rural Japan.
- Population density as an environmental factor was not associated with physical activity.