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Original Article

It takes a village: Fixed-effects analysis of neighborhood collective efficacy and children's development

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ABSTRACT

Background: Previous studies suggest that neighborhood social capital is associated with children's mental health. The purpose of this study was to examine the association between neighborhood collective efficacy and children's psychosocial development.

Methods: We used data on children and their parents ($n = 918$) who were part of the Japanese study of Stratification, Health, Income, and Neighborhood (JSHINE) from 2010 to 2013 (wave 1 and wave 2). Households were recruited from the Tokyo metropolitan area through clustered random sampling. Changes in children's psychosocial development (assessed using a child behavioral checklist) between waves 1 and 2 were regressed on parents' perceptions of changes in neighborhood collective efficacy (social cohesion and informal social control).

Results: Change in perception of neighborhood social cohesion was inversely associated with change in child total problems ($\beta = -0.22$; 95% confidence interval [CI]: -0.37 to -0.001 ; effect size $d = -0.03$). Change in perceptions of neighborhood informal social control was inversely associated with change in children's externalizing problems ($\beta = -0.16$; 95% CI: -0.30 to -0.03 ; $d = -0.02$).

Conclusions: The results of these fixed-effects models suggest that strengthening neighborhood collective efficacy is related to improvements in child psychosocial development.

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Introduction

Previous studies indicate that neighborhood social capital influences child development and health.^{1–7} Three different mechanisms have been postulated: i) the institutional resources model, which posits that neighborhoods with higher stocks of social capital are endowed with higher functioning institutions (e.g., because of more intense parental involvement in local schools); ii) the relationship model, which posits that high social capital neighborhoods have more supportive relationships between residents, which support the nurturing of children; and iii) the norms and collective efficacy model, which posits that neighborhoods with high social capital are better able to enforce pro-social norms

and are more willing to intervene for the common good.⁸ The concept of collective efficacy — proposed by Sampson, Earls, and Raudenbush — is operationalized as the combination of two neighborhood characteristics: social cohesion (i.e., levels of trust between residents) and informal social control (i.e., the ability of adults in the neighborhood to supervise the development of children).

Following Sampson's seminal study in 1997 concerning the relation between neighborhood collective efficacy and crime victimization,^{9,10} subsequent studies have linked the concept to children's mental health.^{4,6,8,11,12} However, empirical studies to date have been primarily cross-sectional in design and unable to establish the causal nature of the relation between neighborhood collective efficacy and child health outcomes.¹³ Experimental and quasi-experimental methods are needed to identify the causal relations between collective efficacy and child psychosocial development. Accordingly, we sought to test the association between neighborhood collective efficacy and children's psychosocial development, taking advantage of a fixed-effects model, which can

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control for time invariant unobserved and observed confounding characteristics.

Methods

Participants

We used the baseline and second survey waves of the ongoing Japanese study of Stratification, Health, Income, and Neighborhood (J-SHINE) cohort study established in 2010. Details of the study have been previously described.¹⁴ Briefly, the baseline survey (wave 1) was carried out in 2010–2011 (adults participants in 2010 and their children in 2011), when a clustered random sample of individuals aged 25–50 years residing in four municipalities in urban or suburban settings of the Tokyo metropolitan area were invited to participate. The household survey inquired about the health of all children under the age of 18 years co-residing with the subjects. A follow-up survey (wave 2) was conducted in 2012–2013 (adults in 2012 and their children in 2013). In wave 1, 13,920 individuals were randomly selected from the *koseki* registration system, a compulsory domiciliary registration system throughout Japan. Of the individuals invited to participate, 4385 men and women responded (31.6% response rate, which is typical for surveys of community-dwelling adults). The number of households with children was 2244, and 1520 (67.7% of these households, including 2710 children under 18 years and over 4 years old, agreed to participate in the baseline children's survey. The follow-up survey was administered to the same individuals. Of the 1520 wave 1 households, 1121 households, including 1887 children, responded to the wave 2 survey (follow up rate = 73.8%).

After excluding children for whom we did not have complete outcome information at both waves, we were left with a final analytic sample of 918 children (452 households) (Fig. 1).

The J-SHINE was conducted using computer-assisted personal interviewing, unless the participants requested a face-to-face

interview. The study protocol and informed consent were approved by the ethics committee of the Graduate School of Medicine of the University of Tokyo.

Measurements

Exposure: change in collective efficacy between wave 1 and wave 2

Social capital was assessed using questions asked to parents relating to perceptions about their neighborhood. Based on principal component analysis, we categorized 10 items on the survey into two sub-scales: social cohesion and informal social control.

The social cohesion subscale was made up of five items asking respondents how strongly they agreed that “people around here are willing to help neighbors,” “this is a close-knit neighborhood,” “people in this neighborhood can be trusted,” “people in this neighborhood generally don't get along with each other,” and “people in this neighborhood do not share the same values” (the last two statements were reverse coded) (Cronbach alpha = 0.79). Informal social control was made up of five items asking respondents about how confident they were that adults in the neighborhood could be counted on to intervene if: (1) children were skipping school and hanging out on a street corner, (2) children were spray-painting graffiti on a local building, (3) children were showing disrespect to an adult, (4) a fight broke out in front of their house, or (5) a community hall close to their home was threatened with budget cuts (Cronbach alpha = 0.87). All responses were coded on a five point Likert-type scale (“Would you say it is very likely, likely, neither likely nor unlikely, unlikely, or very unlikely?”) and summed. Higher scores indicate higher collective efficacy.

Outcome: change in the child behavior check list 4–18 between wave 1 and wave 2

Our outcome variable, children's psychosocial developmental problems, was assessed with the Child Behavior Check List 4–18 (CBCL4–18), which targets children aged 4–18 years.^{15,16} This scale

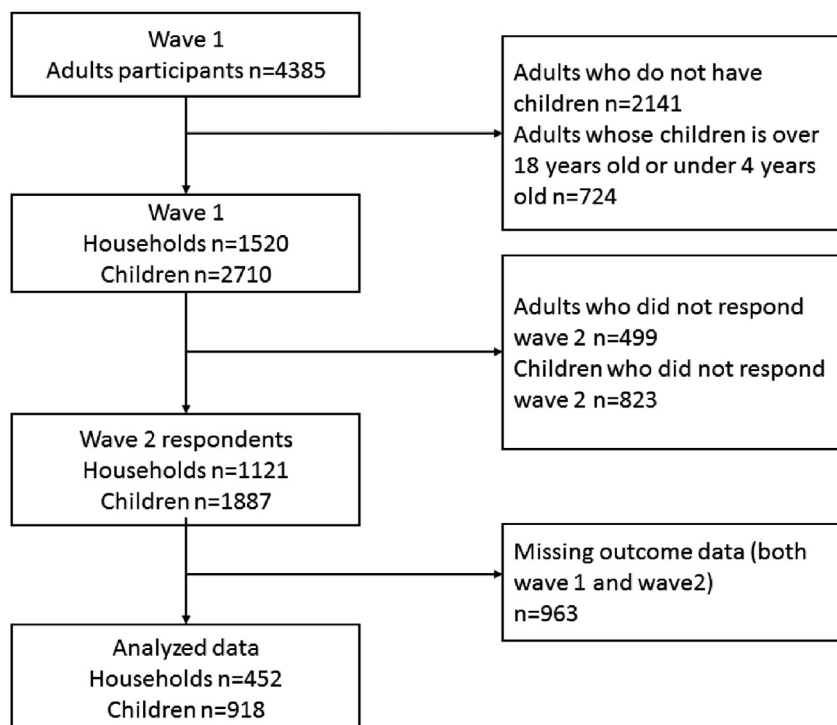


Fig. 1. Participants' flow chart.

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