Three-Generation Households and Overweight among Immigrant Adolescents

Hae-Nim Lee (Boston College)

Background and Significance

Family plays an important role in the development of physical and psychological health of adolescents. Compared to 30 years ago, adolescents in American society are living in more diverse family arrangements. Notable is the fact that the number of children living with grandparents are on an increasing trend, whereas the number of those living with two parents had been decreasing. According to the U.S. Census Bureau, the number of U.S. children (under age 18) living in a household with at least one grandparent had increased from 6.2 million (9%) in 2001 to 7.8 million (11%) in 2009. Approximately 3.4 million children (8.6 %) coresided with at least one grandparent in two- or single-parent families, and one million children (2.6%) lived in skipped-generation families (i.e., grandparents and grandchildren, without parents) (Kreider &Fields, 2011).

This trend represents that multi-generational families have become more pervasive in American society, particularly as response to demographic changes (e.g., marital instability). In addition, the growing number of multi-generation families is caused by the big wave of recent immigration from Asian and Central and South American countries, which began around 1970. (Taylor et al., 2010). These recent immigrant families are more likely to co-reside with grandparents than native-born families (Taylor et al., 2010). In 2009, about 7% of non-Hispanic White children lived with at least one grandparent, compared to about 14% of Asian and Hispanic children in immigrant families (Kreider & Fields, 2011).

As such, multi-generational co-residence has been becoming an essential family type in American society (Swartz, 2009). I may expect multi-generational co-residence has influenced health and well-being among children residing in such families, particularly those in multi-generational immigrant families. In addition, given that obesity is one of the major health problems related to child development (e.g., over 34% of overweight children in the whole U.S. child population) and, in particular, children of Hispanic immigrants showed higher levels of obesity compared to native-born children (Ogden, Flegal, Carroll, & Johnson, 2002), paying particular attention to overweight and obesity among immigrant adolescents in three-generational families would be a right direction to promote their healthy development.

Although some studies have examined overweight and obesity among adolescents in two- or single-parent families, a little is known about it among adolescents' three-generational families, especially among immigrant adolescents. Therefore, using data from Wave 1 (the 1994-1995 survey) and Wave 2 (the 1996 survey) of the National Longitudinal Study of Adolescent Health, in this study, I examine the association between three-generation co-residence and overweight among immigrant adolescents. Given that recent Asian and Hispanic adolescents are too heterogeneous to be compared to native-born adolescents, I examine the association, separately for Asian and Hispanic groups.

Methods

Data and Sample

Data came from the 1994-1995 (Wave 1) and 1996 (Wave 2) surveys of the National Longitudinal Study of Adolescent Health (Add Health), which followed a nationally representative sample of 20,745 adolescents in grades 7 through 12 in the U.S. since 1994. Using a multistage, stratified, and school-based cluster sampling method, 80 high schools and 52 middle schools were selected with unequal probability of selection in 1994 and all students in the selected schools were interviewed. The final analytic sample included foreign-born Asian (n=386) and Hispanic (n=458) adolescents, who had valid information on family type at Wave 1 and on overweight status at Wave 2.

To measure overweight status as a dependent variable, I first calculated BMI scores using adolescent height and weight at Wave 2 and then transformed it into z-scores (a mean of 0 and a standard deviation of 1) using adolescent age and gender. Lastly, overweight status was dichotomized with a value of 1 if an adolescent had age- and gender-standardized BMI scores at or above the 85^{th} percentile and 0 otherwise. Family structure as an independent variable was measured using three categories (0 = two-parents, 1 = single-mother or father, and 2 = three-generation, that is, living with at least one grandparent in two- or single-parent families) at Wave 1. All analyses controlled for adolescent characteristics at Wave 1, gender, age, physical activities in the past week (yes vs. no), and the frequency of vegetable consumption yesterday (0 = none, 1 = once, or 2= twice or more). Also, family and parents characteristics at Wave 1 were included, household income (logged) and parental education (more than college vs. high school or less). To address missing information in covariates, I used chained equation (Royston, 2005a, 2005b) to generate 25 imputed data sets. And then I reported average coefficients across the 25 data sets and standard errors adjusted upward to account for the missing data (Rubin, 1987).

To examine the research questions, first, descriptive statistics was conducted to understand general characteristics of all variables used in the study. Second, to reduce omitted variable bias, I specified Model 1, which used logistic regressions to estimate the association between three-generation co-residence and overweight adjusting for sampling weights and including all covariates, and then specified Model 2, which was the same as Model 1 but further controlled for overweight status at Wave 1. All these analyses were conducted separately for Asian and Hispanic adolescents.

Results

This study found three-generation co-residence was associated with reduced probability of being overweight among foreign-born Asian adolescents, whereas this protective association was not found among foreign-born Hispanic Adolescents. Specifically, compared to foreign-born Asian adolescents in two-parent families, those in three-generation families showed a 96% reduction in the probability of being overweight (*odds ratio*=0.04 , p<.01). In addition, I also found that single-parent families were associated with increased probability of being overweight among foreign-born Hispanic adolescents. Compared to foreign-born Hispanic adolescents in

two-parent families, those in single-parent families showed a 40% increase in the probability of being overweight (*odds ratio*=1.40, $p<.01$).

Overall, as expected, I found that living with grandparents was beneficial to overweight among foreign-born Asian adolescents. However, this protective association was not found among foreign-born Hispanic Adolescents. While I can only speculate, it seems that family processes in three-generation co-residence may be different according to ethnicity, which may be connected to cultural differences influencing the role of grandparents in rearing grandchildren.