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Are Some Neighborhood Bad for Your Health?

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Abstract

A large percentage of poor, minority families in the U.S. reside in high-poverty, urban neighborhoods characterized by dilapidated housing, crime, and unemployment. A variety of policies have been implemented in the past decade to reduce the concentration of neighborhood poverty, decrease racial/ethnic segregation, and/or improve housing stock. Neighborhood mobility programs in which low-income families residing in older high-rise public housing in inner-city neighborhoods are selected to move to either public or private housing in low-poverty neighborhoods is one such policy mechanism. When selection to the new neighborhoods occurs randomly (via, for example, random assignment), comparisons between families who moved and demographically-similar families who remained in the origin neighborhoods can be conducted. Our chapter focuses on two such experiments—the Moving to Opportunity (MTO) for Fair Housing Demonstration in five U.S. Cities and the Yonkers Project in Yonkers, NY. Follow-ups of participating families were conducted in both experiments about 2 years and, again, 5 to 7 years after the program commenced. Outcomes examined include physical aspects of health (ratings of poor health, weight, and asthma) as well as emotional and behavioral aspects of health (depression, anxiety, aggression, drug and alcohol use). In many cases, data are available for parents (primarily the mother) and their 8- to 18-year-old offspring. Potential pathways of neighborhood effects including exposure to violence and neighborhood disorder, community social processes and resources, and housing quality are also reviewed. Limitations of neighborhood mobility programs such as movers' tenure in low-poverty neighborhoods, discrimination, and possible selection effects, as well as recommendations for future housing policy efforts conclude the chapter.

Are Some Neighborhoods Bad for Your Health?

Rebecca C. Fauth and Jeanne Brooks-Gunn

Over the last several decades, researchers from diverse disciplines have documented the negative impacts of poverty on the health and well-being of children and adults. Explorations of the links between neighborhood disadvantage and families' outcomes have added another layer to poverty research. Poor families have limited choice regarding where they live and often reside in impoverished neighborhoods, where public housing and low-rent apartments are prevalent. According to data from the 2000 Census, more than 15 million people in the U.S. live in extremely impoverished neighborhoods, characterized by poverty rates of at least 30 percent and high rates of female-headed households, low educational attainment, and unemployment. A disproportionate percentage of these people are Black or Latino (O'Hare and Mather 2003). Neighborhood concentration in the U.S. is the result of many historic factors including the relocation of non-poor families from central cities to the suburbs, lower demand for unskilled laborers in the workforce, exclusionary housing and zoning policies, and the construction of massive public housing projects in cities during the 1940s and 1950s (Massey 1990; Wilson 1987, 1996).

Providing housing for poor families has remained a contentious subject since large-scale publicly funded housing was first constructed more than half a century ago. By end of the 1990s, the public housing population was disproportionately non-White, particularly within the most disadvantaged neighborhoods (Goering 2005). The rise of urban ghettos in the 1980s and 1990s, set against the backdrop of the monolithic public housing projects, resulted in increased policy attention on innovative approaches to reducing the concentration of neighborhood poverty, decreasing racial/ethnic segregation, and improving the low-cost housing stock. Proposed

mechanisms included providing poor families with housing vouchers or rent subsidies applicable in low-poverty neighborhoods, constructing public housing in non-poor neighborhoods, and replacing low-income housing with mixed-income units (see Goetz 2003, for a review). The focus of this chapter is health-related effects from the first two approaches.

Interestingly, several of these new housing policies, universally called "neighborhood mobility programs," were executed as natural or true random assignment experiments as a means of assessing the effectiveness of the policy on families' health and well-being. In several cases, families residing in public housing in high-poverty neighborhoods were randomized (or quasi-randomized) into housing and neighborhood conditions, with the main "treatment" condition consisting of public or private housing in low-poverty neighborhoods. Participating adults and children responded to survey questionnaires post-move to obtain information on their health and well-being (among other outcomes). In order to assess the impacts of the program, a demographically-similar comparison group, composed of families who were not selected to relocate out of the high-poverty origin neighborhoods (and, in most cases, remained in public housing), also responded to the surveys. The Gautreaux Program in Chicago, which grew out of a 1976 desegregation mandate to provide new housing opportunities to low-income Black families residing in public housing, was the first large-scale housing mobility quasi-experiment (Rubinowitz and Rosenbaum 2000). Families were selected to relocate to private housing either within Chicago (in neighborhoods similar to those from which they originated) or in middle-class, suburban neighborhoods outside of the city limits. Studies of the Gautreaux families focused on their economic well-being and children's educational attainment. Impacts on suburban movers were generally favorable relative to city movers (Rubinowitz and Rosenbaum 2000; Rosenbaum 1995) and have been oft cited as evidence of the benefits of residential mobility programs for poor families. More recently, two other studies, the Moving to Opportunity for Fair Housing Demonstration (MTO) and the Yonkers Project, also used residential mobility out of housing

projects in high-poverty neighborhoods to mitigate the adverse impacts of concentrated poverty on the well-being of children and families.

With this background in mind, the present chapter has several goals. The first segment summarizes non-experimental evidence on links between neighborhood social and demographic characteristics and the health of parents and children. Health is broadly defined here to capture both physical aspects of health (ratings of poor health, obesity, and asthma) as well as emotional and mental aspects of health (depression, anxiety, aggression, drug and alcohol use). This overview is important as it establishes a connection between neighborhoods and health and provides information on for whom neighborhood effects are strongest and for what outcomes. Second, the context, design, and implementation of MTO and Yonkers are described in detail, followed by a review of the evidence from the two experiments focusing on both short- and long-term findings. Again, the aim here is to examine variation in program effects by the age of the respondent. Following this section, we concentrate on mitigating factors that likely influence the strength and the direction of neighborhood effects (although we do not concentrate on the influences of environmental toxins that might be more prevalent in certain neighborhoods and that increasingly are being found to influence health status). With longer-term data from both experimental studies currently available, in addition to a wealth of longitudinal non-experimental data, exploration of how variables such as exposure to violence and neighborhood disorder, community social processes and resources, and housing quality may account for direct links between neighborhood characteristics on families' health and well-being is feasible. The power of the various mechanisms to account for program effects likely depends on the age of the respondent as well as the particular outcome. The chapter concludes by considering the question of whether some neighborhoods are indeed bad for your health and whether neighborhood mobility programs are an effective answer in improving the health and well-being of poor families.

Neighborhoods and Health: The Non-Experimental Evidence

Determining "neighborhood effects" on health is no easy task. Experimental study designs which utilize random assignment of families into neighborhoods are rare. Thus for several decades, researchers interested in understanding associations between neighborhood characteristics and adults' and children's outcomes have relied on analysis of non-experimental data. This section begins with a review of how researchers have traditionally defined neighborhoods as well as the types of data sets used to estimate neighborhood effects. Next, we briefly review the major findings from the non-experimental body of work. Finally, methodological caveats of this body of work are reviewed.

Defining and Studying Neighborhoods

Neighborhood data is generally collated from an administrative database such as the Census Bureau. Census tracts, areas populated by approximately 3,000 to 8,000 residents and delineated by prominent physical features (for example, major thoroughfares and railroad stations), are often used to proxy individual neighborhoods. Individual-level data are then linked up to census-level data to provide estimates of each respondent's neighborhood characteristics. Neighborhood income and characteristics related to socioeconomic status (SES) such as percent of residents living in poverty, percent on public assistance, median family income, unemployment rate, educational attainment, and percent female-headed households are the most commonly used (and cited) neighborhood-level variables.

Researchers interested in examining neighborhood effects on adults' and children's outcomes have generally used three non-experimental research study designs, namely: (1) national or multi-site studies, (2) city or regional studies, and (3) neighborhood-based designs. The first type of study design typically includes a variety of neighborhood types, allowing for sizable variation on measures of neighborhood characteristics. City or regional studies target a specific city or metropolitan area. Samples are frequently acquired from school records or

community-wide surveys, and are not necessarily based on neighborhood residence per se. Third, neighborhood-based studies are designed to sample certain types of neighborhoods (for example, based on SES and/or racial/ethnic composition) and include a representative range of community types from the population of interest (for example, poor White neighborhoods, poor Black neighborhoods, and so on). Furthermore, a certain number of individuals per neighborhood are sampled to ensure appropriate sample sizes for multilevel analyses. When using non-experimental data to explore neighborhood effects, it is crucial that researchers statistically control for individual-level background characteristics such as educational attainment, race/ethnicity, family income and composition that may bias estimates of neighborhood variables.

Neighborhood Effects on Adults' Outcomes

Many researchers have explored neighborhood-level correlates of adults' health and well-being. The studies have revealed links between neighborhood-level inputs and general health, chronic illness such as heart disease, diabetes, and hypertension, as well as mortality. By and large, poor neighborhood conditions have been linked with poor physical health and mortality among adults of varying ages (see for example, Pickett and Pearl 2001; Diez Roux et al. 2001; Ross and Mirowsky 2001; Cagney, Browning, and Wen 2005; Galea, Ahern, and Karpati 2005; Cohen, Farley, and Mason 2003; Ellen, Mijanovich, and Dillman 2001). Studies that have examined neighborhood effects on adults' mental health are less consistent. For example in one study, neighborhood SES was associated with the incidence of schizophrenia with no concomitant neighborhood effects found for more common affective disorders such as anxiety or depression (Goldsmith, Holzer, and Manderscheid 1998). Other studies, however, have documented unfavorable links between neighborhood poverty and depression (Ross 2000) (Henderson et al. 2005), but these effects were attenuated with the inclusion of family-level demographic variables. Finally, several researchers found positive associations between various indicators of neighborhood disadvantage and adults' substance use including smoking, drinking, and drug use (see for example, Boardman et al. 2001; Goldsmith, Holzer, and Manderscheid

1998). Thus, the wealth of evidence suggests that neighborhood poverty is detrimental for adults' health and well-being, particularly the incidence of chronic disease and early mortality. In general, however, the sizes of neighborhood effects are small to modest, when individual-level characteristics are entered in models as covariates; furthermore, individual-level characteristics are more strongly associated with health outcomes than are neighborhood-level characteristics.

Neighborhood Effects on Children's and Adolescents' Outcomes

Similar to studies focusing on adults, there is an ever-growing body of research that explores associations between neighborhood social and demographic characteristics and children's and youth's outcomes. It should be noted that most of these studies examine children's mental health, often via a behavior problems index, which classifies problem behavior into externalizing (for example, aggression, fighting, or acting out) and internalizing (for example, depression, anxiety, or withdrawal) components (see Leventhal and Brooks-Gunn 2000, for a review). The extant data on neighborhood determinants of children's physical health are limited. Findings were inconsistent among several small studies exploring links between neighborhood characteristics and the prevalence of asthma/breathing problems and obesity (see for example, Saha, Riner, and Liu 2005; Juhn et al. 2005; Burdette and Whitaker 2004). Yet, another study using data from a large neighborhood-based study in Chicago revealed that neighborhood low-SES was negatively associated with 11- and 12-year-olds perceived physical health among Latino children only; associations for White and Black children were not significant (Drukker et al. 2005).

The deleterious impact of neighborhood low-SES on children's behavior problems has been documented for children as young as 3 or 4 years of age (Chase-Lansdale et al. 1997; Brooks-Gunn et al. 1993), as well as slightly older, kindergarten- and elementary school-aged children (Chase-Lansdale and Gordon 1996; Chase-Lansdale et al. 1997; Boyle and Lipman 2002). Non-experimental data supporting the link between neighborhoods and health are less substantial for middle childhood (that is, 8- to 13-year-olds). Extant studies for this age group,

however, document similar patterns as those summarized for younger children—neighborhood disadvantage is unfavorably linked to children's problem behavior (Plybon and Kliewer 2002; Shumow, Vandell, and Posner 1999; Kupersmidt et al. 1995; Simons et al. 1996). Among older adolescents, 14- to 18-years of age, the strongest neighborhood associations cited in the literature are for youth's externalizing behaviors, particularly for boys (see for example, Loeber and Wikstrom 1993; Peeples and Loeber 1994). Interestingly, a recent study contrasted the predictive strength of neighborhood SES assessed during early childhood relative to early adolescence on older youth's externalizing behaviors, and found that earlier assessment of neighborhood disadvantage was stronger correlate of youth's outcomes than the later assessment (Wheaton and Clarke 2003). Finally, links between neighborhood structural characteristics and youth's substance use are mixed in direction (Allison et al. 1999; Hoffman 2002; Reardon, Brennan , and Buka 2002).

This brief summary highlighted links between neighborhood-level disadvantage and adults' and children's health and well-being. The studies focusing on adult samples reported more consistent associations between neighborhood low-SES and their physical well-being, relative to their mental or emotional health. Yet, the opposite pattern of findings was revealed for children and youth—links between neighborhoods and well-being were strongest for children's and youth's behavior and emotional health. It should be noted that very few studies have examined associations between neighborhood characteristics and children's physical health, indicating an area for further research. Based on the evidence provided here, there are unfavorable links between residence in impoverished neighborhoods and families' health.

Methodological Issues

While the research summarized in this section provided insight into the links between neighborhood characteristics and adults' and children's health-related outcomes, the conclusions that can be drawn are limited. Many would argue that these non-experimental studies may not have been capturing "neighborhood effects" at all, but rather the effects of unmeasured variables

that likely influence families' neighborhood of choice (Duncan, Connell, and Klebanov 1997; Tienda 1991). By default, individual-level background and demographic characteristics are entered into analytic models to "control" for individual or family biases. The problem, however, is that these types of variables are unlikely to be the only types of individual characteristics that influence where people live. Constructs such as motivation or self-efficacy that are more difficult to operationally define and measure likely differentiate low-income families who remain in the most impoverished of neighborhoods from those who leave. Consequently, many researchers believe that the body of non-experimental work is biased and cannot really separate neighborhood effects from other effects. However problematic, the non-experimental research is intriguing and paves the way for more rigorous exploration of neighborhood effects.

Neighborhoods and Health: The Experimental Evidence

Experimental evidence on "neighborhood effects" has accumulated in recent years, and together with the non-experimental evidence presented above, provides a more complete picture of contextual influences on adults' and children's well-being. Here, the summary draws from two U.S.-based residential mobility programs implemented in the 1990s. Programs in which families are randomly assigned to relocate to new neighborhoods are quite rare, and the ability to study families undergoing this neighborhood-based "treatment" is quite valuable. The first program reviewed is the Moving to Opportunity for Fair Housing Demonstration, which commenced in 1994 and targeted poor, Black and Latino families residing in public housing projects in extremely impoverished neighborhoods in Baltimore, Boston, Chicago, Los Angeles, and New York City. The second program took place in Yonkers, NY, the fourth largest city in New York State located just north of New York City, in which a 1985 court order mandated city-wide desegregation of public housing. While the two programs share many similarities, there are also many differences, both subtle and stark. For each of the two programs, a description of the study context, method of implementation, and study design is provided, followed by a summary of the main health-related findings for adults and children. Both short-term and long-term data are

available for both studies. Synthesis and conclusions pertaining to MTO and Yonkers are subsequently presented.

The Moving to Opportunity for Fair Housing Demonstration

Background and implementation. Following the reported success of the quasi-experimental Gautreaux Program in Chicago, the U.S. Department of Housing and Urban Development (HUD) sponsored a truly experimental variant, the Moving to Opportunity (MTO) program, in 1994 (Goering and Feins 2003; Goering 2003). Five large U.S. cities, each with its own extensive public housing system, were selected for study. Participants were recruited from housing projects located in extremely poor neighborhoods, those where 40 percent or more of the population was living at or below the poverty line. Within the housing projects, poor, primarily Black and Latino families residing in public housing (or receiving housing assistance under the Section 8 program) who had at least one child under 18 years of age were eligible. MTO used a tenant-based approach to deconcentrating poverty, such that families selected to relocate were given Section 8 housing vouchers applicable for rent in program-approved private housing of their choice.

In order to determine who received housing vouchers, a randomized controlled study design was used with a voluntary sample of approximately 1,000 families per city. Relative to families in public housing who did not volunteer for the MTO program, families who signed up for the program appear to be more disadvantaged (Goering et al. 1999, September). Participating families were randomly assigned to one of three conditions that varied by both the type of subsidized housing (public vs. private) and neighborhood composition (non-poor vs. poor). First, the *experimental group* received Section 8 housing vouchers and special assistance to move to low-poverty neighborhoods only, those with fewer than 10 percent poor residents. The special assistance was provided by local nonprofit organizations and varied across sites, but generally entailed assisting families with finding housing in low-poverty neighborhoods, as well as working with landlords unfamiliar with the Section 8 program or renting to families from public housing.

Second, the *Section 8 group* received housing vouchers under the regular, geographically unrestricted program and no special assistance, thereby allowing these families to move to neighborhoods of their choice. Finally, the *in-place control group* did not receive vouchers or special assistance but continued to receive project-based support; these families remained in public housing in high-poverty neighborhoods. For the two treatment groups, the voucher offer was valid for 60 days from the issue date, with deadline extensions provided at the discretion of the local housing authorities. Experimental families were required to stay in low-poverty neighborhoods for the tenure of their first year lease; their vouchers could be used in neighborhoods of their choice in subsequent years.

Baseline interviews with household heads were conducted from 1994 to 1999, prior to random assignment and relocation of movers, with follow-up studies conducted approximately 2.5 and 5 years later, with a 10-year final evaluation in the works. For the earlier studies, site-specific evaluators in Baltimore, Boston, and New York City were commissioned by HUD to carry out local studies.[1] The 5-year interim evaluation was across all five sites, and included 92 percent of the original MTO sample. In addition to household heads, interview data for two children per household between the ages of 5 and 19 years were also collected for the 2.5- and 5-year studies. For the purposes of this paper, differences between experimental and in-place control families are highlighted.[2][3]

Program take-up across all five sites was 47 percent, which nearly doubled the expectations of HUD, who placed take-up at 25 percent (including movers and non-movers). By 1997, when initial relocation was nearly complete, 35 percent of experimental families were

[1]Details on the site-specific methodology and sample information can be found in Goering and Feins' edited volume (Goering and Feins 2003).

[2]Due to low program take-up rates in MTO, analyses assessing differences between experimental mover and control stayer families were conducted in two ways. First, intention-to-treat (ITT) estimated program effects for families based on randomization status, regardless of take-up. Second, treatment-on-treated (TOT) analyses were conducted to obtain program effects estimates for compliers (see Orr et al. 2003, September).

[3]Program findings contrasting the Section 8 group with the control group can be found in the full text of the articles, chapters, and reports cited throughout the section.

residing in program-mandated low-poverty neighborhoods and a further 8 percent lived in neighborhoods where fewer than 20 percent of families were impoverished (Feins 2003). When isolating families in the experimental group to those who relocated according to the program guidelines, 75 percent lived low-poverty neighborhoods and 14 percent in near-poor neighborhoods. Thus, as would be expected, experimental families who chose not to move within the program remained in impoverished neighborhoods. Eleven percent of Section 8 families lived in low-poverty neighborhoods in 1997, and 3 percent of in-place control families did. Moving did not alter the racial/ethnic mix of experimental families' neighborhoods quite as severely. Fifty-six percent of experimental families (including movers and non-movers) resided in neighborhoods where at least 40 percent of the residents were Black. The respective percentage among experimental movers was 38 percent. Overall then, experimental movers relocated to low-poverty neighborhoods that were mixed in terms of the racial/ethnic make-up. By the time of the interim evaluation in 2002, these trends in neighborhood economic and racial-ethnic make-up were still apparent for experimental families, but were much less drastic. Among movers, 25 percent remained in low-poverty neighborhoods and 84 percent resided in neighborhoods primarily minority neighborhoods (Orr et al. 2003, September). This drop in the percentage of families remaining in low-poverty neighborhoods at the time of the 5-year interim evaluation is not surprising as 65 percent of experimental movers reported subsequent moves following their initial relocation.

Health-related findings for adults. Unfortunately, data limitations do allow for assessment of specific health-related problems in the short-term. General assessments of adults' physical health, however, revealed that more than two-thirds of experimental adults in Boston reported good health approximately 2.5 years following relocation, whereas only half of in-place control families reported good health (Katz, Kling, and Liebman 2003). At the time of the 5-year interim evaluation, these program differences were no longer apparent (Orr et al. 2003, September). There were significant program differences on the incidence of obesity for adults

(body mass index $\geq$ 30) reported at the 5-year follow-up—36 percent of experimental adults were obese relative to 47 percent of control adults. This was likely due to healthier eating, and to some extent, increased exercise, among experimental adults. Asthma and blood pressure were similar across groups.

In terms of short-term program effects on adults' mental and emotional health, studies from both Boston and New York City revealed significant, favorable impacts for experimental adults. Adults who moved to low-poverty neighborhoods reported feeling more calm and peaceful and less distressed and depressed than in-place control adults (Katz, Kling, and Liebman 2001; Leventhal and Brooks-Gunn 2003). These favorable program effects were sustained over time across all sites in the 5-year interim evaluation, and were even larger in size (Orr et al. 2003, September). Finally, there were no detectable program effects on adults' substance use in the short- or long-term. By and large, program effects were favorable for adults who relocated to low-poverty neighborhoods, particularly in terms of their mental and emotional health.

Health-related findings for children and adolescents. Few physical health-related program effects were reported for MTO children and youth. Parents who participated in the short-term Boston evaluation reported on the health of their 6- to 15-year-old children. Relative to in-place controls, experimental children were significantly less likely to suffer from non-sports-related injuries and asthma attacks that required medical attention in the months prior to the interview (Katz, Kling, and Liebman 2001). A concomitant short-term program effect was not detected with the New York City sample (Leventhal and Brooks-Gunn 2003). This lack of health-related effects in New York City mirrored the long-term findings—across the five program sites, no differences between experimental and control children and youth (5- to 19-year-olds) were reported. The outcomes measured included general health, asthma, injuries, and obesity (Orr et al. 2003, September). Teenage girls in the experimental group were more likely to exercise weekly than their control counterparts, which could lead to declines in obesity rates in the future.

For the most part, the direction of program effects on children's mental and emotional health (measured by the prevalence of their problem behavior) was conditional on children's age and sex. Approximately 2.5 years following relocation, boys in the Boston and New York City experimental groups exhibited fewer behavior problems across a range of symptoms including anxiety/depression, dependency, and cruelty to others relative to in-place controls (Leventhal and Brooks-Gunn 2003; Katz, Kling, and Liebman 2001). These program effects were most robust for children and young adolescents under the age of 15 years. A short-term examination of families in the Baltimore site reported program effects for older youth. Approximately 3.5 years after randomization, arrest rates for violent crimes were considerably lower for experimental youth relative to in-place control youth. Yet at the outset, experimental teens exhibited slightly higher arrest rates for property-crime violations relative to controls (Ludwig, Duncan, and Hirschfield 2001). At the time of the interim evaluation approximately 5-years following relocation, the favorable program effects on experimental boys' behavior were no longer apparent; in fact, experimental boys aged 12 to 19 years reported more problem behavior than controls, and the unfavorable impact on experimental boys' property crime arrests was replicated in the long-term using data from all five cities. In the long-term, it was experimental girls who exhibited improved behavior, as indicated by their lower reported levels of distress, anxiety, and delinquency relative to controls (Orr et al. 2003, September). Finally, program effects on teenage girls' substance use emerged at the time of the interim evaluation. Relative to controls, 12- to 19-year olds were less likely to smoke cigarettes or marijuana than control girls; the latter finding was quite sizeable. Experimental girls were also less likely than control girls to witness the sale of drugs, which may account for this program effect. Overall then, boys seemed to benefit from moves to low-poverty neighborhoods in the short-term, but not the long-term. For girls, few initial program differences were apparent in the first few years following relocation, yet several significant, favorable impacts were reported at the time of the 5-year interim evaluation.

The Yonkers Project

Background and implementation. In 1985, a Supreme Court order mandated city-wide desegregation of public housing in Yonkers, NY, the fourth largest city in New York State located just north of New York City (United States vs. City of Yonkers 1985). While much of the city was White and middle-class, the Southwest quarter of the city, where the city's large public housing projects were located, disproportionately comprised poor Black and Latino families (Briggs, 1997; Briggs, Darden, & Aidala, 1999). In 1990s, following many years of negotiation and public unrest, 200 2-story townhouses were constructed in eight primarily White, middle-income areas of Yonkers. The townhouses varied in size and were each able to house between 14 and 48 families.

Residence in the new townhouses was determined by a lottery drawing. Families currently living in Southwest in public housing (50 percent) or on the waiting list for public housing (50 percent) were eligible to enter the lottery. Eligibility criteria were based on families' residential history, household composition, income, past lease violations, and housekeeping. Two hundred families were randomly selected and 189 (95 percent) relocated to the new public housing units between late 1992 and 1994. The idea to examine the impacts of the court order on the "movers" came to fruition post-relocation. To effectively assess program effects, an in-place control group of demographically similar residents who remained in Southwest Yonkers ("stayers") was needed. The Yonkers Housing Authority restricted access to the information on the 1,000 public housing residents who lost the housing relocation lottery. In turn, two less rigorous recruitment methods were employed. First, a network sampling approach was used, in which movers named up to five families currently living in Southwest Yonkers who had expressed interest in relocating to the new townhouses. Second, families who recently moved into the old public housing in Southwest Yonkers following vacancies by mover families were also recruited via door-to-door canvassing. These two methods yielded nearly 400 families who were then screened for eligibility to ensure they were similar to the mover families. Forty percent of

these families were eligible for the housing lottery, and all but three agreed to participate in the study as part of the stayer control (n = 145). Forty-six percent (n = 66) of the stayer families had, in fact, entered the lottery and lost, while the remaining 54 percent (n = 79) of the stayer sample never applied to the housing lottery even though they were eligible.

All families were interviewed in their home approximately 2 and 7 years following relocation; no baseline study was conducted. Structured in-home interviews were administered to all household heads by trained interviewers between 1994 and 1995, approximately 2 years following relocation. Based upon household composition information collected at the time of the household head interview, eligible 8- to 18-year-olds residing within the home were identified and were interviewed several months later. Approximately 5 years later, 78 percent of the families were re-interviewed in their homes.[4]

Movers' neighborhoods were considerably more advantaged than stayers' at both assessments. Movers initially relocated to neighborhoods where 5 percent of residents, on average, were impoverished and 7 percent of the residents were Black or Latino. In comparison, the aggregated poverty rate in Southwest Yonkers was 30 percent, and 67 percent of the residents were Black or Latino. Little change in neighborhood characteristics was seen at the time of the 7-year follow-up study, likely due to the fact that only 5 percent of mover families relocated back to Southwest Yonkers between the two interview points.

Health-related findings for adults. Two years following relocation, movers reported marginally fewer diagnosed health problems than stayers (Fauth, Leventhal, and Brooks-Gunn 2004). A similar program effect was detected 5 years later and was larger in size—stayers were 3 times more likely to report poor physical health than movers (Fauth, Leventhal, and Brooks-Gunn 2005). No program effects on adults' mental health including clinical and subclinical depression

[4]Prior to exploring program effects on movers' and stayers' outcomes, differences between the two stayer groups—"lottery losers" and "other stayers" were assessed. Across outcomes, the two control groups were quite similar. Thus, the non-randomized recruitment strategy used to obtain the stayer control group does not appear to bias results.

and anxiety were found at either follow-up. Finally, movers were 3 times less likely to report symptoms related to alcohol abuse than stayers at the time of the 2-year follow-up study (Fauth, Leventhal, and Brooks-Gunn 2004). Unfortunately, similar outcomes were not assessed in the later study. Adults who moved to low-poverty, primarily White neighborhoods following the court order in Yonkers exhibited superior physical health than their counterparts who remained in high-poverty neighborhoods. There was also some evidence that relative to stayers, movers adults were less likely to abuse alcohol.

Health-related findings for children and adolescents. The survey instrument used at 2-year follow-up did not included assessments of children's physical health. Comparisons of movers and stayers at the 7-year follow-up revealed no detectable variation in their physical health symptoms including general health and problems with asthma. Thus, movers' and stayers' were both relatively healthy in the long-term.

Program effects on children's problem behavior, used to proxy their mental health, were observed in the short- and long-term. The size and direction of these effects were generally dependent on children's age at each of the follow-ups. In the short-term, younger movers, 8- to 12-years of age, reported fewer behavior problems and less delinquency than stayers. The direction of this effect was reversed among 13- to 18-year-olds, in which movers reported more problem behavior than stayers. Program differences were largest for the youngest (8- to 9-year-olds) and oldest (16- to 18-year-olds) children in the sample (Fauth, Leventhal, and Brooks-Gunn 2005). At the time of the 7-year follow-up, movers exhibited more anxious/depressed symptoms than stayers (Fauth, Leventhal, and Brooks-Gunn 2005). Program effects on delinquency were no longer apparent at the time of the 7-year follow-up. Finally, in terms of substance use, movers reported less access to illegal substances at the time of the 2-year follow-up study (Fauth, Leventhal, and Brooks-Gunn 2005), yet approximately 5-years later, 15- to 18-year old movers reported more annual use of cigarettes, alcohol, and marijuana than stayers (Fauth, Leventhal, and Brooks-Gunn 2005). In general, youth did not benefit from the relocation effort in Yonkers

relative to their peers who remained in high-poverty neighborhoods. The favorable program effects for 8- to 12-year old movers observed in the short-term dissipated and reversed in direction by the time of the 7-year follow-up.

Summary

Based on findings from the two key residential mobility studies, it appears that the health-related effects of relocating low-income families from impoverished neighborhoods are not consistently favorable, as would be expected based on the non-experimental literature reviewed in the previous section. Rather, impacts varied by the age of the respondent and by the program, indicating that it was not neighborhood compositional effects alone affecting families' well-being. Potential explanations for program effects are mentioned here.

Across programs, relocating from poor to non-poor neighborhoods was generally beneficial for adults' physical health in both the short- and long-term. For the most part, concomitant benefits for children and youth were not observed. This may be due to the fact that prior to relocation, children in the sample were not experiencing very bad health. Even in Boston, where favorable health-related program effects were observed for children in the MTO experimental group, less than 10 percent of control children reported recent injuries or asthma attacks, which is consistent with national averages. Moreover in both programs, children were attending the same schools regardless of program status (for more information see, Fauth, Leventhal, and Brooks-Gunn 2005; Orr et al. 2003, September). Thus, even though children who relocated to low-poverty neighborhoods had exposure to improved neighborhood and housing conditions, they spent a good portion of each day in a similar environment to that of non-movers, potentially mitigating impacts on their physical health.

Findings for adults' and children's mental health and problem behavior differed more substantially by program, indicating that the differences in implementation were likely contributing factors. Among adults, the favorable program effects found for experimental adults in MTO were not matched among Yonkers' adults. Families' low-income and minority status was

conspicuously displayed in Yonkers as movers relocated to public housing in primarily White, middle-class neighborhoods. MTO families moved to private housing in low-poverty neighborhoods that were relatively ethnically diverse. Furthermore, movers in the Yonkers Project reported low frequency of informal contact with neighbors relative to stayers (Fauth, Leventhal, and Brooks-Gunn 2004). This lack of social contact in their neighborhoods may have mitigated potential benefits of relocation on their mental health.

Among children and youth, findings were generally favorable for early adolescents and boys in the short-term. The instability created by residential mobility—notably disruption of social networks—may pose more challenges for older youth relative to their younger siblings. Moreover, in Yonkers, there was evidence that older youth's social circles comprised the same peers post-relocation, indicating that, unlike younger children, older youth were able to travel back to their old high-poverty neighborhoods and were not generally socializing in their new neighborhoods. The general lack of short-term findings for MTO girls may be due to boys' and girls' differential exposure to neighborhood contexts. Boys are likely permitted greater access to their neighborhoods relative to girls, whose actions are likely more restricted. Thus, boys likely had higher baseline levels of problems than girls, allowing for greater influence of relocation.

In the long-term, youth who relocated to low-poverty neighborhoods were, by and large, exhibiting more problem behaviors than their peers who remained in impoverished neighborhoods. Girls who moved via the MTO program were the exception to this trend. In Yonkers, supplemental analyses revealed that the lower levels of monitoring provided by mover parents accounted for, in part, the unfavorable program effect on their substance use. It seems parents' more relaxed style with their children post-move may have allowed their adolescent children greater freedom to explore cigarettes, alcohol, and marijuana, leading to increased usage—a potential downside of residential mobility programs. Furthermore, the initial public outcry over the Yonkers' court order was quite severe, and even by the time of the 7-year follow-up study, movers were still 14 percent more likely to report racially motivated harassment than

stayers (Fauth, Leventhal, and Brooks-Gunn 2005). Why MTO experimental boys were also faring poorly is more difficult to understand. It is likely that subsequent relocation unfavorably impacted their behavior. It remains unanswered, however, why girls were able to rebound from these relocation effects and exhibit superior behavior relative to in-place control girls. One possible explanation is that experimental girls spent more of their after-school time engaged in structured activities relative to control girls; the same level of participation was not observed for boys (Orr et al. 2003, September).

Neighborhoods and Health: Potential Pathways

Neighborhood effects on adults' and children's health-related outcomes are likely a result of secondary factors that also vary by neighborhood characteristics. It is the interplay of these mediators that determines the strength and direction of neighborhood effects. For example, changes in the potential mediators as a result of neighborhood mobility programs such as MTO and Yonkers likely drive program effects on families' health-related outcomes. Clearly the list of potential mediators or pathways in infinite, and this section only highlights four that are particularly relevant for health. These include exposure to violence and neighborhood disorder, neighborhood social processes, access to resources including health care, supermarkets, and recreation programs, and finally, the quality of housing stock. A brief description of each of these potential pathways and related research follows.

Neighborhood Violence and Disorder

Violence and disorder are rampant in public housing projects located in impoverished neighborhoods. Families who participated in the MTO and Yonkers studies cited their desire to reside in safer neighborhoods as the driving force in their decisions to relocate (Goering et al. 1999, September; Briggs 1997). Living each day in fear has negative implications for both adults' and children's outcomes, particularly mental health. Several studies by Ross and colleagues (Hill, Ross, and Angel 2005; Ross, Reynolds, and Geis 2000; Ross and Mirowsky 2001) have demonstrated that perceptions of neighborhood disorder including crime, unsafe streets,

abandoned housing, and gangs accounted for links between neighborhood disadvantage and adults' physical and mental health. They hypothesize that the stress generated by neighborhood disorder and decay propel unfavorable health effects. A similar rationale likely applies to substance use as a means of relieving stress and fear. There is also evidence that neighborhood danger is negatively associated with the participation in exercise, largely because residents fear leaving their homes and using nearby open spaces or exercise facilities (Grzywacz and Marks 2001).

Unfavorable associations between neighborhood violence and mental health have also been reported for children and youth (for reviews see, Margolin and Gordis 2000; Osofsky 1999; Buka et al. 2001). Increased safety and order were observed among both MTO and Yonkers families who moved to low-poverty neighborhoods (Goering and Feins 2003; Fauth, Leventhal, and Brooks-Gunn 2004). Analyses with the Yonkers sample revealed that the high levels of disorder present in stayer neighborhoods partially accounted for the greater frequency of harsh discipline used by stayer parents (relative to movers) at the time of the 7-year follow-up (Fauth, Leventhal, and Brooks-Gunn 2005). Although this is not a mental health outcome *per se*, reduction in harsh discipline among mover parents might favorably affect their younger children in terms of injury reduction and improved mental health. Due to the freedom given to older children to return to their old neighborhoods post-move, the potential benefits of safer immediate neighborhood environments may not have been as effective for youth.

Neighborhood Social Processes

Neighborhood social processes comprise extant social networks as well as more complex constructs such as collective efficacy, defined as the willingness of neighbors to work together for the common good (Sampson, Raudenbush, and Earls 1997). Relocation efforts like MTO and Yonkers have the ability to both hinder and heed neighborhood social processes. On the one hand, preexisting social ties are almost certainly disrupted following residential moves, leading to a loss of social supports and potential discrimination among families who relocate. On the other

hand, low-poverty neighborhoods might offer access to informal social ties who serve as sources of information and opportunity for lower-income residents. Here, we would expect that neighborhood residents engage in collective regulation and sanctioning of inappropriate behavior (particularly among youth), while promoting favorable actions and conduct.

Research exploring neighborhood social processes as a mediator of neighborhood effects have revealed some mixed findings. Evidence from earlier studies of MTO and Yonkers revealed that families who relocated did experience initial difficulties socializing with their new neighbors (Fauth, Leventhal, and Brooks-Gunn 2004; Goering and Feins 2003). Interestingly, subsequent analyses using the Yonkers data revealed that the lack of frequent informal contact with neighbors during the first several years following relocation partially accounted for mover children's elevated anxiety/depression relative to stayers (Fauth, Leventhal, and Brooks-Gunn 2005). This finding fits with other non-experimental work demonstrating links between neighborhood social resources and residents' physical and mental health (Ross and Jang 2000; Wen, Browning, and Cagney 2003; Elliott et al. 1996). No longer-term impacts on social ties or evidence of mediation were found in MTO, however, indicating that the impacts of residential mobility programs on families' social ties are not conclusive.

In terms of beneficial neighborhood processes, research has demonstrated a buffering effect of neighborhood collective efficacy on residents' outcomes. Two studies using data from the Project on Human Development in Chicago Neighborhoods (PHDCN) reported associations between neighborhood collective efficacy and adults' premature mortality (Cohen, Farley, and Mason 2003) and asthma (Cagney and Browning 2004). The authors surmise that the collective nature of neighborhood social ties helped to promote health-related resources and prevent environmental hazards. Among children and youth, studies have found that the presence of collective efficacy and social control in neighborhoods was negatively associated with children's problematic behaviors, particularly their delinquency (Rankin and Quane 2002; Gorman-Smith, Tolan, and Henry 2000; Sampson 1997), likely as a result of preventing youth from associating

with delinquent peers (Elliott et al. 1996). Thus, depending on the balance between social ties and informal community regulation, this pathway could be beneficial or harmful to families who relocate from high- to low-poverty neighborhoods.

Neighborhood Resources

Availability, accessibility, and quality of neighborhood resources are likely to change following relocation from high- to low-poverty neighborhoods. Increasingly, researchers have begun to explore links between neighborhood SES and community resources. Yet, few have assessed the impact of resources on residents' outcomes. Relevant resources include health care facilities, supermarkets and exercise facilities, and recreation centers. Most relevant to health-related outcomes is neighborhood variation in the presence and quality of community-based health services. The majority of studies that have explored this topic have examined the type of medical care used by low-income families and have reported that, by and large, residents in disadvantaged neighborhoods are less likely to have a regular health care provider and are more likely to seek emergency room care during times of illness relative to residents of low-poverty neighborhoods (Halfon and Newacheck 1993; Chow, Jaffee, and Snowden 2003; Brooks-Gunn et al. 1998). Yet in many case, this is not due to a dearth of health care facilities in impoverished neighborhoods (Kirby and Kaneda 2005; Allard, Tolman, and Rosen 2003). Rather, disadvantaged neighborhoods may impede residents from obtaining appropriate care due to lack of information and transportation. Further data are needed to test these hypotheses. Early research from the Yonkers Project revealed that movers reported more access to community resources including medical care relative to stayers (Fauth, Leventhal, and Brooks-Gunn 2004), yet this early finding did not mediate later program effects on adults' or children's health (Fauth, Leventhal, and Brooks-Gunn 2005), indicating a disconnect between mere knowledge of facilities and actual usage of them.

With obesity rates on the rise, particularly among low-income adults and children, access to healthy food and exercise facilities has become increasingly important. Indeed, findings from

the MTO interim evaluation revealed that the favorable program effect on adults' obesity rates were concomitant with the frequency of healthy eating and, to a lesser extent, exercising. Studies have linked neighborhood characteristics with the number and proximity of supermarkets, exercise facilities (including open public space), and fast food restaurants. In high-poverty neighborhoods supermarkets and exercise facilities are in relatively low supply relative to fast food restaurants, and the availability of such resources, whether healthy or unhealthy, are directly linked with their usage (Zenk et al. 2005; Blanchard et al. 2005; Hume, Salmon, and Ball 2005). One study found that for every 5 percent decrease in median family income, there was a 10 percent increase in fast food restaurant density (number of fast food restaurants per square mile; Block, Scribner, and DeSalvo 2004). Related work on exercise indicated that perceptions of neighborhood safety were linearly associated with use of nearby exercise facilities and actual physical activity (Gomez et al. 2004; Romero 2005), indicating that the mere presence of healthy resources is unlikely to drive health effects if residents feel they must compromise their safety to access them.

Finally, participation in organized social and recreational activities including sports, art and theater programs and community centers may foster children's and youth's health and well-being. Although studies to date have not explored neighborhood-level variation in children's participation in such programs, several studies have reported favorable associations between the availability of community resources for children and youth including community centers, recreation programs, and mentoring programs and their positive behavior (Morrissey and Werner-Wilson 2005), indicating that the availability of such programs appears to benefit children. The advantages of such programs are contingent on the degree to which they occupy children and youth in constructive, well-monitored activities. Not surprisingly then, research has shown that for poor youth, the proportion of after-school time spent in unsupervised activities with peers was significantly associated with their externalizing behaviors and alcohol and drug use (Pettit et al. 1999; Coley, Morris, and Hernandez 2004). Further research is needed to map the locale and

accessibility (including cost) of after-school and recreational programs for disadvantaged children and youth. Evidence from MTO suggests that for girls, moving to low-poverty neighborhoods may improve their access to after-school activities (Orr et al. 2003, September). This favorable impact was not apparent for MTO boys or Yonkers' youth, however.

Housing Quality

While the primary focus of neighborhood mobility programs is on neighborhood improvement, housing conditions are also altered. Families who relocated via MTO and Yonkers reported significant improvements in housing conditions including decreased rodent and pest infestation, plumbing or heating problems, and peeling paint (Orr et al. 2003, September; Fauth, Leventhal, and Brooks-Gunn 2004). There is a large body of evidence suggesting that these and other aspects of housing quality, notably the presence of indoor air pollutants and toxins, crowding, and noise, affect families' physical and mental health. Not surprisingly, there is a clear negative link between family and neighborhood SES and housing quality (Evans and Kantrowitz 2002; Mayer 1997). Several review articles have compiled research documenting the impacts of housing quality on health (Evans 2004, 2001; Newman 2001), and a brief summary of the overall trends are provided here. Both residential crowding and noise have been linked with the development and progression of a variety of illnesses, particularly those influenced by stress such as hypertension, coronary disease, and asthma, as well as psychological distress among both adults and children. These associations are stronger and more consistent when crowding is the input relative to noise. Air quality is most commonly affiliated with illnesses that compromise breathing including bronchitis, emphysema, and asthma. Exposure to environmental toxins, notably lead paint, is unfavorably associated with neurological problems, impulse control, and aggression. Finally, overall housing quality is more consistently linked with physical than psychological health. It should be noted that studies exploring housing-health links are largely correlational, and thus it is not possible to truly assess causation. Yet, the consistency with which

links between poor housing quality and poor health were reported indicates that improvements in housing quality should be an important ingredient of housing policy.

Summary

Deciphering the health-related impacts of neighborhoods on families' health-related outcomes requires consideration of a variety of inputs. In the case of neighborhood mobility programs, an ideal case would be where a family relocates from a dilapidated apartment in a crime-ridden public housing project with few community resources and low collective efficacy to a brand new apartment in an ethnically diverse, economically mixed community with affordable and accessible resources, where community members are welcoming and helpful. In this instance, improvements in both children's and adults' physical and mental health would certainly be expected. This scenario is probably quite unlikely, however. Rather, it is more likely that moving via a residential mobility program poses a series of trade-offs. Improvements in housing quality might come with unwelcoming neighbors from different economic and racial/ethnic backgrounds. Safer streets might come with unaffordable community centers for youth. Moreover, the impacts of residential mobility programs may vary for each family member as a result of these supplemental pathways. Detecting the nuances of indirect program effects requires longitudinal data and detailed information not only on more concrete mediators such as the number and type of community resources, but also on the more abstract components of movers' experiences including their feelings and sense of identity. For example, in both programs adults generally benefited from moves to low-poverty neighborhoods, while their adolescent children (boys only in MTO) did not. Analyses of mediated models using extant data were not particularly informative. It may be that the drivers of youth's difficulty were not properly measured. It is possible that relative to adults or younger children, daily interface with relatively middle-class culture might have been particularly difficult for youth. Until their early teenage years, the developmental environment for these youth was framed by poverty concentration. To suddenly remove this defining experience for youth may leave them feeling confusion regarding their

identity, which could certainly lead to increases in problem behavior as a way of defining onself or releasing stress. A true understanding of neighborhood effects on health requires a number of ingredients. Data on potential pathways or mediators is one such component, but there is certainly room for better measurement of such mediators, coupled by qualitative data of different participants' experiences.

Neighborhoods and Health: Implications

The present chapter first sought to explore whether neighborhoods influenced health. As reviewed, the non-experimental data has shown fairly consistent associations between neighborhood poverty and poor health outcomes. The chapter went beyond these simple links and studied in detail the short- and long-term health-related findings from two experimental studies that randomly relocated poor, minority families living in public housing in impoverished neighborhoods to low-poverty neighborhoods. The idea here is that if neighborhood poverty is detrimental to families' health and well-being, then removing poor families from this unfavorable influence should result in improved outcomes. As addressed previously, the data from these studies have several advantages over non-experimental evidence, largely the reduction of selection bias. Beyond these methodological advances, experimental studies also offer a snapshot of what happens when poor, minority families leave their familiar surroundings for radically different ones. Yet, because these studies are grounded in each family's own reality, findings from the experimental data provide less in the way of concrete links between neighborhoods and health relative to the non-experimental work, and when they do, the direction of the impacts are not always favorable. This naturally leads to the questions of why residential mobility programs have failed to be the panacea of housing inequality and concentrated disadvantage in the U.S. Several explanations are offered below.

First is the issue of residential mobility. A large body of work from both large and smaller studies has documented the unfavorable associations between residential mobility and families' outcomes, particularly their mental health and problem behavior (Simpson and Fowler

1994; Wood et al. 1993; Adams 1992) (Bures 2003). One study even reported negative links between moving and medical care access, especially among poor, Black and Latino children (Fowler, Simpson, and Schoendorf 1993). Frequent mobility was an insurmountable problem in MTO. The use of housing vouchers allowed experimental MTO families to decide which low-poverty neighborhood to relocate to. Yet, placement of these vouchers for a year-long lease is much less permanent than a lifetime public house placement, particularly when the housing market is tight and low-cost private housing is at a premium. Indeed, a recent analysis using the Panel Study of Income Dynamics (PSID) revealed that racial inequalities in the probability of moving out an impoverished neighborhood are lower than the inequalities in returning to a poor neighborhood within 5 years of moving out (Quillian 2003). Thus, the fact that 65 percent of experimental MTO families relocated back to poor neighborhoods following a brief stint in low-poverty neighborhoods is hardly surprising.

Second, if new residents are not incorporated into their environments, the value of neighborhood mobility programs for improving the health and well-being of low-income, minority families is certainly put to the test. While the use of low-rise, scattered site public housing in Yonkers may have detracted frequent mobility, the new housing in Yonkers served as a clear indicator of the new residents' economic and racial/ethnic classification in the receiving neighborhoods. Mover families in Yonkers faced extreme discrimination by the residents of their new communities, which turned the city into a public battleground for nearly a decade (Belkin 1999; Newman 1996). Even 7 years following relocation, 7 percent of families reported being harassed or called names regularly. Thus, the mobility effort in Yonkers may have served to further isolate families under the guise of new and improved packaging. While hostility and discrimination are the extreme case, neither families in Yonkers nor MTO reported gains in families' so-called "weak ties," nearby residents who serve as information channels for opportunities or resources, following relocation. While families in both studies received a brief orientation, these sessions occurred prior to relocation and provided only basic background

information including voucher placement assistance in MTO and yard and garbage maintenance in Yonkers. More in-depth counseling and longer-term support services may have been useful to the families who relocated (Popkin et al. 2003).

Finally, voluntary mobility programs as they currently exist face the problem of scale. Many low-income families are not willing or able to relocate. Thus, the number of families actually impacted by these types of programs is miniscule in relation to the problem of concentrated poverty in the U.S. The alternative is mandatory mobility programs such as HOPE VI, which commenced in 1992 and was designed to rehabilitate the worst housing projects in the U.S. Large-scale housing projects were demolished for redevelopment into primarily mixed-income developments, resulting in the displacement of many housing development residents. While HOPE VI did result in lower levels of poverty concentration at the original public housing sites, families who relocated out generally "reconcentrated" themselves in nearby neighborhoods (Popkin et al. 2004; Goetz 2003). Moreover, because demolition occurred at a faster rate than reconstruction, many poor families faced extreme difficulty finding replacement or interim housing. The work of mobility programs to date, whether voluntary or involuntary, is still very much incomplete. Voluntary programs, in particular, need to cast a wider net to target and help families who face the most barriers to successful relocation.

Housing policy has moved away from the construction of monolithic housing projects built in the poorest and most isolated areas of large cities, which is a significant victory. In its place are housing vouchers and mixed-income developments—the methods of choice these days. Yet, there is little evidence whether either gets at the root of poverty concentration and can lead to improved health and well-being among poor families. In theory, vouchers promote choice and allow poor families to live in private housing, thereby removing the stigma of public housing. But, with discriminating landlords, high housing costs, and little incentive to move out of their current neighborhoods, many families remain in poor neighborhoods. On the other hand, mixed-income developments attempt to deconcentrate not by relocating poor families out, but by moving

non-poor families in. This policy mechanism is enticing as there is the potential for rebirth of poor neighborhoods and a genuine link to be forged between poor and non-poor residents. Yet, mixed-income developments may also lead to gentrification, where many current residents are pushed out by rising housing costs. Additionally, as addressed with the neighborhood mobility programs, it is unclear whether or not poor families actually benefit from co-residence with non-poor families. Homeownership strategies are also an option, particularly among employed families. Relative to renting, homeownership promotes higher property values, better physical conditions of property, increased concern with threats (for example, crime and disorder) to property values, higher participation rates in neighborhood organizations, improved social conditions of neighborhoods, increased housing satisfaction, and neighborhood stability (Galster 2003; Schill and Wachter 2001; Rohe and Stewart 1996)—features of neighborhoods that are likely to promote family well-being. Of course, this option is only viable for families who are already relatively successful. Thus, we are left with a number of potentially powerful strategies to improve neighborhood conditions for poor families, each of which has the potential to improve families' health and well-being. Yet, none of these approaches has been proven to be the "gold standard" of housing policy. It is likely that the various strategies work differently for different families and will lead to both success and failures.

So, are neighborhoods bad for poor families' health? The non-experimental evidence indicates that this is the case—living in an impoverished neighborhood is associated with unfavorable physical and mental health for both adults and children. The experimental evidence is not contrary to these findings, but it is certainly inconclusive regarding the net benefits of relocating poor families from impoverished to low-poverty neighborhoods as the solution to the problem of poverty concentration. Delineating the factors that impinge on families' health and well-being requires examination of a complicated, multilevel array of inputs that likely vary from person to person. Neighborhoods do appear to be an operative factor, but the way neighborhoods affect adults' and children's well-being is equally complex. Housing policies aimed at

deconcentrating poverty are certainly a piece of the puzzle—and voluntary mobility programs do appear to help some families. But, as much as neighborhoods are one input of many into families' health and well-being, housing policy is but one of many necessary strategies needed to decrease our nation's poverty rate and improve the life chances of poor families.

References

Adams, Richard E. 1992. Is happiness a home in the suburbs? The influence of urban versus suburban neighborhoods on psychological health. *Journal of Community Psychology* 20 (4):353-372.

Allard, Scott W., Richard M. Tolman, and Daniel Rosen. 2003. Proximity to service providers and service utilization among welfare recipients: The interaction of place and race. *Journal of Policy Analysis and Management* 22 (4):599-613.

Allison, K. W., I. Crawford, P. E. Leone, E. Trickett, A. Perez-Febles, L. M. Burton, and R. L. Blanc. 1999. Adolescent substance use: Preliminary examinations of school and neighborhood context. *American Journal of Community Psychology* 27 (2):111-141.

Belkin, Lisa. 1999. *Show me a hero: A tale of murder, suicide, race, and redemption*. Boston: Little, Brown, and Company.

Blanchard, C. M., K. R. McGannon, J. C. Spence, R. E. Rhodes, E. Nehl, F. Baker, and J. Bostwick. 2005. Social ecological correlates of physical activity in normal weight, overweight, and obese individuals. *International Journal of Obesity* 29 (6):720-726.

Block, Jason P., Richard A. Scribner, and Karen B. DeSalvo. 2004. Fast food, race/ethnicity, and income: A geographic analysis. *American Journal of Preventive Medicine* 27 (3):211-217.

Boardman, Jason D., Brian Karl Finch, Christopher G. Ellison, David R. Williams, and James S. Jackson. 2001. Neighborhood disadvantage, stress, and drug use among adults. *Journal of Health and Social Behavior* 42 (June):151-165.

Boyle, Michael H., and Ellen L. Lipman. 2002. Do places matter? Socioeconomic disadvantage and behavioral problems of children in Canada. *Journal of Consulting and Clinical Psychology* 70 (2):378-389.

Briggs, Xavier de Souza, ed. 1997. *Yonkers revisited: The early impacts of scattered-site public housing on families and neighborhoods. A report to the Ford Foundation*. New York: Teachers College, Columbia University.

Brooks-Gunn, Jeanne, Greg J. Duncan, Pamela K. Klebanov, and Naomi Sealand. 1993. Do neighborhoods influence child and adolescent development? *American Journal of Sociology* 99:353-395.

Brooks-Gunn, Jeanne, Marie C. McCormick, Pamela Klebanov, and Cecilia McCarton. 1998. Health care use of 3 year-old low birthweight premature children: Effects of family and neighborhood poverty. *Journal of Pediatrics* 132:971-975.

Buka, Stephen L., Theresa L. Stichick, Isolde Birdthistle, and Felton J. Earls. 2001. Youth exposure to violence: Prevalence, risks, and consequences. *American Journal of Orthopsychiatry* 71 (3):298-310.

Burdette, Hillary L., and Robert C. Whitaker. 2004. Neighborhood playgrounds, fast food restaurants, and crime: Relationships to overweight in low-income preschool children. *Preventive Medicine: An International Journal Devoted to Practice and Theory* 38 (1):57-63.

Bures, Regina M. 2003. Childhood residential stability and health at midlife. *American Journal of Public Health* 93 (7):1144-1148.

Cagney, Kathleen A., and Christopher R. Browning. 2004. Exploring neighborhood-level variation in asthma and other respiratory diseases: The contribution of neighborhood social context. *Journal of Internal Medicine* 19 (3):229-236.

Cagney, Kathleen A., Christopher R. Browning, and Ming Wen. 2005. Racial disparities in self-rated health at older ages: What difference does the neighborhood make? *Journals of Gerontology: Series B: Psychological and Social Sciences* 60B (4):S181-S190.

Chase-Lansdale, P. Lindsay, and Rachel A. Gordon. 1996. Economic hardship and the development of five- and six-year-olds: Neighborhood and regional perspectives. *Child Development* 67:3338-3367.

Chase-Lansdale, P. Lindsay, Rachel A. Gordon, Jeanne Brooks-Gunn, and Pamela Klebanov. 1997. Neighborhood and family influences on the intellectual and behavioral competence of preschool and early school-age children. In *Neighborhood poverty: Vol. 1. Context and consequences for children*, edited by J. Brooks-Gunn, G. J. Duncan and J. L. Aber. New York: Russell Sage Foundation.

Chow, J. C. C., K. Jaffee, and L. Snowden. 2003. Racial/ethnic disparities in the use of mental health services in poverty areas. *American Journal of Public Health* 93 (5):792-797.

Cohen, D. A., T. A. Farley, and K. Mason. 2003. Why is poverty unhealthy? Social and physical mediators. *Social Science and Medicine* 57 (9):1631-1641.

Coley, Rebekah Levine, Jodi Eileen Morris, and Daphne Hernandez. 2004. Out-of-school care and problem behavior trajectories among low-income adolescents: Individual, family, and neighborhood characteristics as added risks. *Child Development* 75 (3):948-965.

Diez Roux, A. V., S. S. Merkin, D. Arnett, L. Chambless, M. Massing, F. J. Nieto, P. Sorlie, M. Szklo, H. A. Tyroler, and R. L. Watson. 2001. Neighborhood of residence and incidence of coronary heart disease. *The New England Journal of Medicine* 345:99-106.

Drukker, Marjan, Stephen L. Buka, Charles Kaplan, Kwame McKenzie, and Jim Van Os. 2005. Social capital and young adolescents' perceived health in different sociocultural settings. *Social Science and Medicine* 61 (1):185-198.

Duncan, Greg J., James P. Connell, and Pamela K. Klebanov. 1997. Conceptual and methodological issues in estimating causal effects of neighborhoods and family conditions on individual development. In *Neighborhood poverty: Vol 1. Context and consequences for children*, edited by J. Brooks-Gunn, G. J. Duncan and J. L. Aber. New York: Russell Sage Foundation.

Ellen, Ingrid Gould, Tod Mijanovich, and Keri-Nicole Dillman. 2001. Neighborhood effects on health: Exploring the links and assessing the evidence. *Journal of Urban Affairs* 23 (3-4):391-408.

Elliott, Delbert S., William Julius Wilson, David Huizinga, Robert J. Sampson, Amanda Elliott, and Bruce Rankin. 1996. The effects of neighborhood disadvantage on adolescent development. *Journal of Research in Crime and Delinquency* 33:389-426.

Evans, Gary W. 2001. Environmental stress and health. In *Handbook of health psychology*, edited by A. Baum, T. A. Revenson and J. E. Singer. Mahwah, NJ: Lawrence Erlbaum.

———. 2004. The environment of childhood poverty. *American Psychologist* 59:77-92.

Evans, Gary W., and Elyse Kantrowitz. 2002. Socioeconomic status and health: The potential role of environmental risk exposure. *Annual Review of Public Health* 23:303-331.

Fauth, Rebecca C., Tama Leventhal, and Jeanne Brooks-Gunn. 2004. Short-term effects of moving from public housing in poor to middle-class neighborhoods on low-income, minority adults' outcomes. *Social Science and Medicine* 59:2271-2284.

———. 2005. Early impacts of moving from poor to middle-class neighborhoods on low-income youth. *Journal of Applied Developmental Psychology* 26 (4):415-439.

———. 2005. The impacts of a neighborhood poverty deconcentration effort on low-income families' outcomes. Paper read at Institut Theophraste Renaudot Substandard Housing and Health Symposium, "Insalubrity, Substandard Housing, Slums: What Impact on Health? Acquired Knowledge and Reseach Needs", May, at Paris, France.

Feins, Judith D. 2003. A cross-site analysis of MTO's locational impacts. In *Choosing a better life? Evaluating the Moving to Opportunity social experiment*, edited by J. Goering and J. D. Feins. Washington, DC: The Urban Institute Press.

Fowler, Mary Glenn, Gloria A. Simpson, and Kenneth C. Schoendorf. 1993. Families on the move and children's health care. *Pediatrics* 91 (5):934-940.

Galea, Sandro, Jennifer Ahern, and Adam Karpati. 2005. A model of underlying socioeconomic vulnerability in human populations: Evidence from variability in population health and implications for public health. *Social Science and Medicine* 60 (11):2417-2430.

Galster, George. 2003. Investigating behavioral impacts of poor neighborhoods: Towards new data and anlytic strategies. *Housing Studies* 18 (6):893-914.

Goering, John. 2003. Place-based poverty, social experimentation, and child outcomes: A report of mixed effects. *Children, Youth, and Environments* 13 (2).

———. 2005. Expanding housing choice and integrating neighborhoods: The MTO experiment. In *The geography of opportunity: Race and housing choice in metropolitan America*, edited by X. De Souza Briggs. Washington, DC: Brookings Institution Press.

Goering, John, and Judith D. Feins, eds. 2003. *Choosing a better life? Evaluating the Moving to Opportunity Social Experiment*. Washington, DC: Urban Institute Press.

Goering, John, Joan Kraft, Judith Feins, Debra McInnis, Mary Joel Holin, and Huda Elhassan. 1999, September. Moving to Opportunity for Fair Housing Demonstration Program: Current status and initial findings. Washington, DC: U.S. Department of Housing and Urban Development.

Goetz, Edward G. 2003. *Clearing the way: Deconcentrating the poor in urban america*. Washington, DC: Urban Institute Press.

Goldsmith, Harold F., Charles E. Holzer, and Ronald W. Manderscheid. 1998. Neighborhood characteristics and mental illness. *Evaluation and Program Planning* 21:211-225.

Gomez, Jorge E., Beth Ann Johnson, Martha Selva, and James F. Sallis. 2004. Violent crime and outdoor physical activity among inner-city youth. *Preventive Medicine* 39:876-881.

Gorman-Smith, D., Patrick Tolan, and D. B. Henry. 2000. A developmental-ecological model of the relation of family functioning to patterns of delinquency. *Journal of Quantitative Criminology* 16 (2):169-198.

Grzywacz, Joseph G., and Nadine F. Marks. 2001. Social inequalities and exercise in adulthood: Toward an ecological perspective. *Journal of Health and Social Behavior* 42 (2):202-220.

Halfon, N., and P. W. Newacheck. 1993. Childhood asthma and poverty: Differential impacts and utilization of health services. *Pediatrics* 91 (1):56-61.

Henderson, Clair, Ana V. Roux Diez, David R. Jacobs, Catarina I. Kiefe, Delia West, and David R. Williams. 2005. Neighbourhood characteristics, individual level socioeconomic factors, and depressive symptoms in young adults: The CARDIA study. *Journal of Epidemiology and Community Health* 59 (4):322-328.

Hill, Terrence D., Catherine E. Ross, and Ronald J. Angel. 2005. Neighborhood disorder, psychophysiological distress, and health. *Journal of Health and Social Behavior* 46 (2):170-186.

Hoffman, J. P. 2002. The community context of family structure and adolescent drug use. *Journal of Marriage and the Family* 64:314-330.

Hume, C., J. Salmon, and K. Ball. 2005. Children's perceptions of their home and neighborhood environments, and their asssocation with objectively measured physical activity: A qualitative and quantitative study. *Health Education Research* 20 (1):1-13.

Juhn, Young J., Jennifer S. Sauver, Slavica Katusic, Delfino Vargas, and A. Weaver. 2005. The influence of neighborhood environment on the incidence of childhood asthma. *Social Science and Medicine* 60 (11):2453-2464.

Katz, Lawrence F., Jeffrey R. Kling, and Jeffrey B. Liebman. 2001. Moving to Opportunity in Boston: Early results of a randomized mobility experiment. *Quarterly Journal of Economics* 116:607-654.

———. 2003. Boston site findings: The early impacts of Moving to Opportunity. In *Choosing a better life? Evaluating the Moving to Opportunity social experiment*, edited by J. Goering and J. D. Feins. Washington, DC: The Urban Institute Press.

Kirby, James B., and Toshiko Kaneda. 2005. Neighborhood socioeconomic disadvantage and access to health care. *Journal of Health and Social Behavior* 46 (1):15-31.

Kupersmidt, Janis B., Pamela C. Griesler, Melissa E. DeRosier, Charlotte J. Patterson, and Paul W. Davis. 1995. Childhood aggression and peer relations in the context of family and neigborhood factors. *Child Development* 66 (2):360-375.

Leventhal, Tama, and Jeanne Brooks-Gunn. 2000. The neighborhoods they live in: Effects of neighborhood residence upon child and adolescent outcomes. *Psychological Bulletin* 126:309-337.

———. 2003. The early impacts of Moving to Opportunity on children and youth. In *Choosing a better life? Evaluating the Moving to Opportunity social experiment*, edited by J. Goering and J. D. Feins. Washington, DC: Urban Institute Press.

———. 2003. Moving to Opportunity: An experimental study of neighborhood effects on mental health. *American Journal of Public Health* 93 (9):1576-1582.

Loeber, Rolf, and Per-Olof H. Wikstrom. 1993. Individual pathways to crime in different types of neighborhoods. In *Integrating individual and ecological aspects of crime*, edited by D. P. Farrington, R. J. Sampson and P.-O. H. Wikstrom. Stockholm, Sweden: National Council for Crime Prevention.

Ludwig, Jens, Greg J. Duncan, and Paul Hirschfield. 2001. Urban poverty and juvenile crime: Evidence from a randomized housing-mobility experiment. *Quarterly Journal of Economics* 116:665-679.

Margolin, Gayla, and Elana B. Gordis. 2000. The effects of family and community violence on children. *Annual Review of Psychology* 51:445-479.

Massey, Douglas S. 1990. American apartheid: Segregation and the making of the underclass. *American Journal of Sociology* 96:329-358.

Mayer, Susan E. 1997. Trends in the economic well-being and life chances of America's children. In *Consequences of growing up poor*, edited by G. J. Duncan and J. Brooks-Gunn. New York: Russell Sage Foundation.

Morrissey, Kathleen M., and Ronald Jay Werner-Wilson. 2005. The relationship between out-of-school activities and positive youth development: An investigation of the influences of communities and family. *Adolescence* 40 (157):67-85.

Newman, Oscar. 1996. *Creating defensible space*. Washington, DC: U.S. Department of Housing and Urban Development, Office of Policy Development and Research.

Newman, Sandra J. 2001. Housing attributes and serious mental illness: Implications for research and practice. *Psychiatric Services* 52 (10):1309-1317.

O'Hare, William, and Mark Mather. 2003. *The growing number of kids in severly distressed neighborhoods: Evidence from the 2000 census*. Washington, DC: Anne E. Casey Foundation.

Orr, Larry, Judith D. Feins, Robin Jacob, Erik Beecroft, Lisa Sanbonmatsu, Lawrence F. Katz, Jeffrey B. Liebman, and Jeffrey R. Kling. 2003, September. *Moving to Opportunity for Fair Housing Demonstration interim impacts evaluation*. Washington, DC: U.S. Department of Housing and Urban Development, Office of Policy Research and Development. Available at: http://www.huduser.org/publications/fairhsg/mtofinal.html.

Osofsky, Joy D. 1999. The impact of violence on children. *The Future of Children* 9 (3):33-49.

Peeples, Faith, and Rolf Loeber. 1994. Do individual factors and neighborhood context explain ethnic differences in juvenile delinquency. *Journal of Quantitative Criminology* 10:141-157.

Pettit, Gregory S., John E. Bates, Kenneth A. Dodge, and Darrell W. Meece. 1999. The impact of after-school peer contact on early adolescent externalizing problems is moderated by parental monitoring, perceived neighborhood safety, and prior adjustment. *Child Development* 70:768-778.

Pickett, K. E., and M. Pearl. 2001. Multilevel analyses of neighbourhood socioeconomic context and health outcomes: A critical review. *Journal of Epidemiology and Community Health* 55:111-122.

Plybon, Laura E., and Wendy Kliewer. 2002. Neighborhood types and externalizing behavior in urban school-age children: Test of direct, mediated, and moderated effects. *Journal of Child and Family Studies* 10 (4):419-437.

Popkin, Susan J., Mary K. Cunningham, Jeremy Gustafson, and Margery A. Turner. 2004. *A decade of Hope VI: Research findings and policy challenges.* Washington, DC: The Urban Institute and The Brookings Institution.

Popkin, Susan J., George C. Galster, Kenneth Temkin, Carla Herbig, Diane K. Levy, and Elise K. Richer. 2003. Obstacles to desegregating public housing: Lessons learned from implementing eight consent decrees. *Journal of Policy Analysis and Management* 22 (2):179-199.

Quillian, Lincoln. 2003. How long are exposures to poor neighborhoods? The long-term dynamics of entry and exit from poor neighborhoods. *Population Research and Policy Review* 22 (3):221-249.

Rankin, Bruce H., and James M. Quane. 2002. Social contexts and urban adolescent outcomes: The interrelated effects of neighborhoods, families, and peers on African-American youth. *Social Problems* 49 (1):79-100.

Reardon, Sean F., Robert T. Brennan , and Stephen L. Buka. 2002. Estimating multi-level discrete-time hazard models using cross-sectional data: Neighborhood effects on the onset of adolescent cigarette use. *Multivariate Behavioral Research* 37 (3):297-330.

Rohe, William M., and Leslie S. Stewart. 1996. Homeownership and neighborhood stability. *Housing Policy Debate* 7 (1):37-81.

Romero, Andrea J. 2005. Low-income neighborhood barriers and resources for adolescents' physical activity. *Journal of Adolescent Health* 36:253-259.

Rosenbaum, James E. 1995. Changing the geography of opportunity by expanding residential choice: Lessons from the Gautreaux Program. *Housing Policy Debate* 6 (1):231-269.

Ross, Catherine E. 2000. Neighborhood disadvantage and adult depression. *Journal of Health and Social Behavior* 41:177-187.

Ross, Catherine E., and Sung Joon Jang. 2000. Neighborhood disorder, fear, and mistrust: The buffering role of social ties with neighbors. *American Journal of Community Psychology* 28 (4):401-420.

Ross, Catherine E., and John Mirowsky. 2001. Neighborhood disadvantage, disorder, and health. *Journal of Health and Social Behavior* 42:258-276.

Ross, Catherine E., John R. Reynolds, and Karlyn J. Geis. 2000. The contingent meaning of neighborhood stability for residents' psychological well-being. *American Sociological Review* 65 (4):581-597.

Rubinowitz, Leonard S., and James E. Rosenbaum. 2000. *Crossing the class and color lines: From public housing to White suburbia*. Chicago: University of Chicago Press.

Saha, C., M.E. Riner, and G. Liu. 2005. Individual and neighborhood-level factors in predicting asthma. *Archives of Pediatrics and Adolescent Medicine* 159 (8):759-763.

Sampson, Robert J. 1997. Collective regulation of adolescent misbehavior: Validation results from eighty Chicago neighborhoods. *Journal of Adolescent Research* 12:227-244.

Sampson, Robert J., Stephen W. Raudenbush, and Felton Earls. 1997. Neighborhoods and violent crime: A multilevel study of collective efficacy. *Science* 277:918-924.

Schill, Michael H., and Susan M. Wachter. 2001. Principles to guide housing policy at the beginning of the millennium. *Cityscape: A Journal of Policy Development and Research* 5 (2):5-19.

Shumow, Lee, Deborah Lowe Vandell, and Jill Posner. 1999. Risk and resilience in the urban neighborhood: Predictors of academic performance among low-income elementary school children. *Merrill-Palmer Quarterly* 45 (2):309-331.

Simons, Ronald L., Christine Johnson, Jay J. Beaman, Rand D. Conger, and Les B. Whitbeck. 1996. Parents and peer group as mediators of the effect of community structure on adolescent behavior. *American Journal of Community Psychology* 24:145-171.

Simpson, Gloria A., and Mary Glenn Fowler. 1994. Geographic mobility and children's emotional/behavioral adjustment and school functioning. *American Academy of Pediatrics* 93:303-309.

Tienda, Marta. 1991. Poor people and poor places: Deciphering neighborhood effects on poverty outcomes. In *Macro-micro linkages in sociology*, edited by J. Huber. Newbury Park, CA: Sage Publications.

United States vs. City of Yonkers, et al. 1985. United States vs. City of Yonkers, et al.: Southern District of New York.

Wen, Ming, Christopher R. Browning, and Kathleen A. Cagney. 2003. Poverty, affluence, and income inequality: Neighborhood economic structure and its implications for health. *Social Science and Medicine* 57:843-860.

Wheaton, Blair, and Philippa Clarke. 2003. Space meets time: Integrating temporal and contextual influences on mental health in early adulthood. *American Sociological Review* 68 (5):680-706.

Wilson, William Julius. 1987. *The truly disadvantaged: The innercity, the underclass, and public policy*. Chicago: University of Chicago Press.

———. 1996. *When work disappears: The world of the new urban poor*. New York: Alfred J. Knopf.

Wood, David, Neal Halfon, Debra Scarlata, Paul Newacheck, and Sharon Nessim. 1993. Impact of family relocation on children's growth, development, school function, and behavior. *Journal of the American Medical Association* 270 (11):1334-1338.

Zenk, S. N., A. J. Schultz, B. A. Israel, S. A. James, S. M. Bao, and M. L. Wilson. 2005. Neighborhood racial composition, neighborhood poverty, and the spatial accessibility of supermarkets in metropolitan Detroit. *American Journal of Public Health* 95 (4):660-667.

Table 1

Summary of Short- and Long-Term Health-Related Findings from the Moving to Opportunity Demonstration (MTO) and the Yonkers Project

Study	Method	Years Post-Move	Sample	Findings by Age Group	Reference(s)
MTO-Baltimore	Collection of state arrest records from the Maryland Dept. of Juvenile Justice	Up to 3 years	336 mostly Black 11- to 16-year-olds at randomization	*Adolescents:* • Experimental lower prevalence of arrests for violent crimes than Controls • Experimental higher prevalence of property crime arrests than Controls	Ludwig, Duncan, & Hirschfield (2001); Ludwig, Duncan, & Ladd (2003)
MTO-Boston	Interviews with household heads	2.2 years	525 mostly Black & Latino household heads; parent-report for 408 6- to 15-year-olds at interview	*Adults:* • Experimental better overall health than	Katz, Kling, & Liebman (2001; 2003)

Study	Method	Years Post-Move	Sample	Findings by Age Group	Reference(s)
				Controls • Experimental more calm/peaceful than Controls *Children:* • Experimental fewer nonsports injuries in past 6 months than Controls • Experimental boys fewer behavior problems than Control boys	
MTO-New York City	Interviews with household heads and children	2.5 years	550 Black & Latino household heads; parent- and child-report for 512 8-to 18-year olds at interview	*Adults:* • Experimental fewer depressive and anxious	Leventhal & Brooks-Gunn (2003a; 2003b)

Study	Method	Years Post-Move	Sample	Findings by Age Group	Reference(s)
				symptoms than Controls *Children:* • Experimental boys (8-18-year-olds) fewer anxious/depressed and dependency symptoms than Control boys	
MTO 5-Site	Interviews with household heads and children and arrest records from local police agencies and courts	5 years	3500 mostly Black & Latino household heads; parent-report for 2500 5-to-11-year olds at interview; child-report for 2800 12-to-19-year-olds at interview; arrest records for 2600 15-to-19-year-olds at interview	*Adults:* • Experimental lower prevalence of obesity than Controls • Experimental less distress and depressive symptoms and more	Orr et al. (2003)

Study	Method	Years Post-Move	Sample	Findings by Age Group	Reference(s)
				calm/peaceful than Controls *Children*: • Experimental girls (12-19-year-olds) less distress and anxiety than Control girls • Experimental boys (12-19-year-olds) more behavior problems than Control boys • Experimental girls (15-19-year-olds) less risky behavior than Control	

Study	Method	Years Post-Move	Sample	Findings by Age Group	Reference(s)
				girls • Experimental girls (15-19-year-olds) lower prevalence of smoking and marijuana use than Control girls • Experimental boys (15-19-year-olds) higher prevalence of arrests for property crimes than Control boys	
Yonkers Project	Interviews with household heads and children	2 years	315 Black & Latino household heads; child-report for 261 8-to18-year-olds at interview	*Adults:* • Movers fewer diagnosed health problems than	Fauth, Leventhal, & Brooks-Gunn (2004; 2005)

Study	Method	Years Post-Move	Sample	Findings by Age Group	Reference(s)
				Stayers • Movers lower prevalence of alcohol abuse than Stayers *Children:* • Movers (8-12-year-olds) fewer behavior problems and delinquency than Stayers • Movers (13-18-year-olds) more behavior problems and delinquency than Stayers	
Yonkers	Interviews with	7 years	247 Black & Latino household heads;	*Adults:*	Fauth, Leventhal, &

Study	Method	Years Post-Move	Sample	Findings by Age Group	Reference(s)
Project	household heads and children		child-report for 221 8-to18-year-olds at interview	• Movers less likely to report poor health than Stayers *Children:* • Movers more anxious/depressed symptoms than Stayers • Movers (8-11-year-olds) fewer hyperactive symptoms than Stayers • Movers (12-18-year-olds) more hyperactive symptoms and substance use than Stayers	Brooks-Gunn (2005)