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Does moving from a high-poverty to lower-poverty neighborhood improve mental health? A realist review of 'Moving to Opportunity'

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ABSTRACT

Ray Pawson's realist review method was used to analyse 22 evaluations/reviews of the Moving to Opportunity (MTO) housing intervention. MTO was a randomized controlled trial that moved families from high-poverty to low-poverty neighborhoods in five US cities between 1994 and 2006. This realist review focussed on mental health outcomes of families who moved, as well as the mechanisms through which moving influenced mental health. It identified and assessed the effectiveness of the underlying theory driving MTO, and suggests revising the existing theory. This realist review suggests that, even when moves are voluntary, there are potentially negative mental health outcomes from these types of social interventions. Directing resources towards the improvement of existing communities is one way of improving health outcomes for all community residents.

Introduction

There is a growing body of literature suggesting a link between neighborhood of residence and health outcomes (Bernard et al., 2007; Fone and Dunstan, 2006; Ross et al., 2004). The complexities of the relationship have been highlighted (Stokols, 1992; Diez Roux et al., 2001; Dorris, 2005; Dunn, 2002; Ellen et al., 2001; Northridge et al., 2003; Pickett and Pearl, 2001; Poortinga et al., 2008), yet there is little insight into the specific characteristics or attributes of neighborhoods that are linked to health outcomes, or the processes through which neighborhoods affect health. Research is urgently needed in order to translate the 'black box' of neighborhood effects (Ellen and Turner, 2003, p. 313) into effective public policy and programs (Burton and Chapman, 2004; Walter et al., 2005).

A review and analysis of evaluations of the Moving to Opportunity (MTO) intervention in the US was conducted to better understand how and why neighborhoods affect health. MTO is a randomized controlled trial that involved moving families from high-poverty to lower-poverty neighborhoods in five US cities between 1994 and 2006. To synthesize the evidence related to MTO we utilized Ray Pawson's realist review method (2005 and 2006). This relatively new approach to research synthesis argues that researchers, program developers, and policy decision makers need to 'take heed' of the complexities of social interventions rather than attempt to ignore contextual information in an attempt to determine the 'magic bullet' or the key causal agents (Pawson, 2006, p. 43). Three basic questions underlie the realist review method when examining social interventions: what works, for whom and under what circumstances? (Pawson et al., 2005).

Unlike other systematic reviews which emphasize and focus squarely on 'what works', realist review has an explanatory focus, and is concerned with understanding why an intervention works, and how it might be translated to other contexts (Burton and Chapman, 2004; Connelly, 2001; Greenhalgh et al., 2007). Value is seen in both quantitative and qualitative studies 'so that both the processes and impacts of interventions may be investigated' (Pawson et al., 2005, p. S1:22). Realist review does not establish absolute certainty for policy and program decision making (Pawson et al., 2005), but it does provide rich, detailed information about the complex workings of social interventions including the process of implementing interventions (Greenhalgh et al., 2007). In their realist review of school feeding programmes, Greenhalgh et al. (2007, p. 858) noted the importance of identifying which aspects of a program influence 'success and

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failure in various situations'. A realist review was used to examine the mechanisms by which these interventions worked or not, revealing the complexity of outcomes. As these researchers note, a realist review is based on an analysis of the theories underlying program design, their links to expected outcomes, and the diverse contexts by which interventions are implemented (Greenhalgh et al., 2007).

Within the realist review framework, social interventions are conceptualized as having an underlying theory or theories about why the interventions work but the theories are rarely made explicit when implementing social interventions. A key purpose of the realist review is 'to articulate underlying program theories and then to interrogate the existing evidence to find out whether and where these theories are pertinent and productive' (Pawson, 2006, p. 74). Based on empirical evidence from primary studies about how the social intervention was implemented and its impacts, the theory or theories might be reaffirmed, revised or rejected. As stated by Pawson (2006, p. 102), 'Programs are theories about how to change behavior. Primary research provides evidence on the utility of those theories. Systematic review draws together that evidence in order to refine the theories'.

Overview of Moving to Opportunity

MTO took place in five US cities beginning in 1994. The central goal of MTO was to move families living in public housing in high-poverty neighborhoods to public or private housing in lower-poverty neighborhoods in order to provide 'better opportunities' (e.g., employment, education and housing) for families. MTO was a 'social experiment' developed subsequent to the Gautreaux program, a US federal court-ordered racial desegregation program in Chicago. Evaluations of Gautreaux reported that, 'the moves to less segregated suburban locations were associated with measurable improvements in the lives of participating adults and children' (Orr et al., 2003, p. v). The Gautreaux program was based on the 'social disorganization theory' which argues that, 'neighborhood disadvantage thwarts the establishment and maintenance of neighborhood formal and informal institutions including the extent of intra-neighborhood social connections and the willingness of neighbors to intervene on behalf of the community to aid in monitoring residents' behavior'(Fauth, et al., 2004, p. 2273). As Popkin, et al. (2004, p.7) point out, by the late 1980s many (although not all) public housing developments were, 'deplorable, and a complex layering of problems left these developments mired in the most destructive kind of poverty'. Problems included extreme racial and economic segregation and inadequate public services, particularly police, schools and sanitation (Popkin et al., 2004). Many families were living on public assistance and/or working in the informal economy. MTO, like the Gautreaux program, was intended to move families out of these neighborhood conditions.

A key assumption underlying the MTO program was that the presence of neighborhood resources such as opportunities for work, good quality schools, more recreation and extracurricular activities, new social connections, and positive role models, would lead to increased labor force participation, improved school performance, decreased behavioral problems, and greater social integration. Speaking about the need for the MTO intervention, Orr et al. (2003) argue that neighborhood poverty concentration has a variety of harmful effects whereas living in 'better' middle-class neighborhoods ensures positive influences particularly on children through such characteristics as better peer influences, school quality, and supervised school activities. Fauth et al. (2004, p. 2273) maintain that 'middle-class neighborhoods may offer low-income residents ready access to informal social networks, so-called 'weak ties' that serve as portals of information, opportunity, and resources, not found in disadvantaged neighborhoods'. These authors recognize that adults who move from high to lower-poverty neighborhoods might experience declines in social ties, but moving is seen to benefit residents in terms of employment opportunities, and thus overall quality of life. Goering (2003, p. 1117) summarized the key objective of MTO as 'the offer of a move from a poor to a non-poor neighborhood [to] significantly improve the neighborhood conditions of families, and affect their longer run prospects in areas such as education, health, risky behavior, and criminal activity'.

A project of the US Department of Housing and Urban Development (HUD), the MTO program invited families living in high-poverty US public housing projects to volunteer to relocate their families to lower-poverty neighborhoods. To be eligible to participate, families had to live in one of five cities—Baltimore, Boston, Chicago, Los Angeles or New York. Families were also required to have at least one child under 18, to be living in public housing or project-based private housing which qualified for housing vouchers, to be living in extremely poor neighborhoods with poverty rates of 40% or higher, to be tenants in good standing (rent up to date), to have all family members on the current lease, and to be without a criminal background or history. In each city partnerships were formed with local public housing authorities which administered the rental assistance, and one or more local, non-profit counseling organizations which provided counseling on how to find rental units and work with landlords when appropriate. The MTO project was to take place from April 1994 to April 2004 but because of difficulties in getting participants 'leased-up' in their new locations, the program was active until 2006.

A total of 5300 families in the five cities volunteered for MTO, and were screened for eligibility. Of the 5300 families, 4610 families (87%) were deemed eligible and randomly assigned to one of three groups: a control group, a comparison group and an experimental group. According to Goering (2003, pp. 116–117), 'assignment of families among the three groups was carried out under uniform procedures across the five sites, with thorough monitoring and record keeping', in order to reduce selection bias. Although the aim was to reduce selection bias, different resources and opportunities available in different MTO cities meant that the implementation of each MTO project had to be tailored to accommodate each context, suggesting that complete uniformity was not possible (See Feins et al., 1997). The assignments and leasing arrangements for the three groups were as follows:

Control group. A total of 1440 families stayed in their current neighborhood. No new assistance was offered, but they remained eligible for public housing.

Comparison (Section 8) Group. 1350 families were randomly assigned to the comparison group and 816 of these families actually found lease arrangements in the private housing market and received vouchers. The differences between this group and the experimental group were that the comparison group was under NO geographic restriction, and they were not offered counseling specific to the move. It is important to note, however, that the comparison group and the control group continued to have access to other kinds of support, outside MTO, that might have been offered by the housing authority.

Experimental group. A total of 1820 families were randomly assigned to the experimental group, and 860 families found places to lease. Like the comparison group, the experimental group families were given housing vouchers, but unlike the comparison group they were *restricted for one year* to living in private rental accommodation in a census tract with a *poverty rate of less than* 10%. After one year they could move to any area under Section 8 housing voucher rules. This group was given mobility counseling

intended to help them negotiate with landlords in the private sector along with other services (Orr et al., 2003).

The families who applied for MTO differed from other residents of their public housing developments in several important ways. Firstly, heads of MTO households were an average age of 35 years as opposed to 41 years for public housing heads of households. Secondly, most MTO families were female headed, with 93% of MTO families led by females, versus 78% in public housing. Thirdly, MTO families were almost entirely African American (62.6%) or Hispanic (30.4%). Finally, MTO families were, on average, slightly poorer with median incomes of $8200 versus $8600 for other residents (Orr et al., 2003).

In a baseline survey completed by families as they entered the MTO program, the reasons given for wanting to move out of public housing, in rank order, were: (1) getting away from drugs and gangs; (2) acquiring a bigger or better apartment; and (3) sending children to better schools (Kling et al., 2001). Health was not originally an anticipated outcome of the MTO program but when early qualitative research suggested health outcomes of the intervention (Orr et al., 2003) health became an 'observation of interest' (Kling et al., 2001).

Research question

The overriding question for the review was: Does moving from high-poverty neighborhoods to lower-poverty neighborhoods improve health? More specifically: What were the key health outcomes? Who experienced these outcomes? What appeared to be the mechanisms and associated context leading to the outcomes? As the review proceeded, it became clear that one of the only relatively consistent and statistically significant *positive* health outcomes was an improvement in mental health for adult women, children and adolescent girls. In this paper a review of mental health outcomes of MTO is presented, along with some insights about the mechanisms and contexts through which the intervention appears to have impacted mental health.

Methods

Search process

Following Pawson's realist review method, the literature search was iterative and ongoing throughout the project. An initial search was conducted of various academic databases such as Academic Search Premier, Arts and Humanities Citation Index, Canadian Research Index, as well as through various search engines such as Prowler, Novanet, Google and Google Scholar. Search terms included: Moving to Opportunity; housing intervention; housing mobility; housing health effects; low-poverty neighborhood/community; high-poverty neighborhood/community; neighborhood/community health; poverty neighborhood/community; poverty community effects; poverty housing; poverty health; and housing health. A "snowball" approach was used in which one reference led to others. Other evaluations were revealed through correspondence with Dr. Jeffrey Kling, one of the principal MTO researchers.

Over 200 articles on the MTO program were found. A review of the abstracts revealed 11 evaluations specifically related to health outcomes. A further 11 articles were selected because they provided detailed information about the context of MTO which is an essential element of realist review. In total 22 evaluations/articles (See Table A1, Appendix A) formed the basis of the review. Additional literature was also accessed to help understand key concepts and issues raised through the review including housing theories, studies of poverty, housing and health, and social determinants of health.

The MTO evaluations reviewed were carried out in different cities by different researchers using a variety of research methods to explore diverse research questions (Acevedo-Garcia et al., 2004). Some evaluation reports were based on early findings, whereas others used data from a longer intervention period. In 2002, the HUD sponsored an Interim Impacts Evaluation (IIE) (Orr et al., 2003) a reportedly comprehensive examination of MTO which utilized both quantitative and qualitative research with MTO participants in *all five cities*. This evaluation, however, only includes families who had been exposed to the MTO program for at least four years, since some families mid-way through the study had only been exposed to the program for 2–3 years. While the diversity in the type and nature of evaluations highlights inconsistencies in methodological approaches, specific populations evaluated or specific outcomes measured (Goering, 2003),[1] it is important to note that consistency is not a requirement of realist review. Within the realist review method, each evaluation is examined in detail in order to add to the overall understanding of the workings of the intervention.

Data extraction

The core research team developed four data extraction templates in consultation with governmental and non-governmental policy makers and practitioners, who provided input into the research. The templates were designed to help manage the data collection process. The first template numbered the studies and organized them by method and scope (e.g., cities included in the evaluation and time period covered). A second template for 'Outcomes' was used to extract health outcomes including mental health outcomes. A 'Context' template documented contextual data on social, political, and cultural factors. A fourth template, the 'Mechanisms' template, organized data specifically related to the processes through which the intervention appeared to influence health outcomes.

The analysis involved synthesizing data on mental health outcomes, as well as data from the context and mechanisms templates. Contextual information was also gleaned from general studies about the implementation of MTO. As the analyses of the templates evolved there were continuous 'checks' of the abstracted data with the original article to ensure that the analysis was consistent with the original intent of the author(s). This

[1] MTO results were reported according to control, comparison and experimental groups. However, in some instances statistical analyses were further broken down into Intent to Treat (ITT) and Treatment on the Treated (TOT). ITT is a statistical term which measures the degree, on average, the intervention affected those who were eligible to receive it (whether they received it or not). In this case, ITT referred to those who were assigned to either the experimental or Section 8 group. TOT (Treatment on the Treated) is a statistical term used to refer only to those who received the treatment, out of all those eligible to receive it (in this case, the effect on those in the experimental group who took advantage of the housing voucher). Thus, it is sometimes difficult to ascertain whether findings from particular studies are referring to all experimental and comparison participants (ITT), or only those who actually moved into a new location and remained there (TOT). MTO results were reported according to control, comparison and experimental groups. However, in some instances statistical analyses were further broken down into ITT and TOT. ITT is a statistical term which measures the degree, on average, the intervention affected those who were eligible to receive it (whether they received it or not). In this case, ITT referred to those who were assigned to either the experimental or Section 8 group. TOT is a statistical term used to refer only to those who received the treatment, out of all those eligible to receive it (in this case, the effect on those in the experimental group who took advantage of the housing voucher). Thus, it is sometimes difficult to ascertain whether findings from particular studies are referring to all experimental and comparison participants (ITT), or only those who actually moved into a new location and remained there (TOT).

iterative process continued throughout the analysis and writing, as a constant check on the accuracy of our interpretation of the evaluations. In addition, constant comparison took place between the studies in order to understand differences and similarities across evaluations.

Results

Results are organized using key elements from the realist review method. Specifically, we address the central tenets of Pawson's inquiry: 'what works, for whom, and in what circumstances'?

Outcomes (what works? for whom?)

Overall, the evaluations analyzed concluded that many adults in the experimental and/or comparison group(s) (who were primarily women) experienced some form of mental health improvement relative to the control group (Acevedo-Garcia et al., 2004; Del Conte and Kling, 2001; Goering, 2003; Kling et al., 2006; Leventhal and Brooks-Gunn, 2003; Orr et al., 2003). Among younger youth (12 years of age or younger), there were also reports of improved mental health outcomes for experimental and comparison groups relative to controls (Leventhal and Brooks-Gunn, 2001). For older youth, there appears to be a significant relationship between moving to a lower-poverty area and positive mental health outcomes for females, and little to no effect, or even a negative impact for males, depending on the particular evaluation and mental health indicator utilized (Orr et al., 2003). In general, the findings for teenage girls are much stronger and much clearer than for teenage boys. Nevertheless, it is important to note that the particular mental health outcomes (e.g., depression, anxiety, etc.), the magnitude of the outcomes (i.e. level of significance), and the analytic strategies varied by study, making comparisons inexact.

Adult mental health

There was general agreement across the evaluations that adult mental health (e.g., depression symptoms, worrying, calmness, and sleep issues) was better in the experimental and comparison groups relative to controls. Many of the evaluations pointed to statistically significant positive effects for the experimental group adults compared to controls (Acevedo-Garcia et al., 2004; Del Conte and Kling, 2001; Goering, 2003; Kling et al., 2006; Leventhal and Brooks-Gunn, 2001; Orr et al., 2003; Popkin et al., 2006). In one instance, the degree to which adults reported positive mental health changes after moving to a lower-poverty area was considered 'striking' (Del Conte and Kling, 2001, p.4). Kling et al. (2006) analyzed results collected from the Interim Impacts Evaluation, and concluded that, 'the magnitude of mental health results…is comparable to that found in some of the most effective clinical and pharmacologic mental health interventions'(Kling, et al., 2006, p. 16). Goering (2003) concluded that fewer adult mothers in the experimental and comparison groups in both the Boston and New York MTO programs reported unhappy, sad or depressed feelings relative to the control group. In the New York MTO program, Leventhal and Brooks-Gunn (2001) found that experimental group mothers were 15% less likely to report depression symptoms or signs of anxiety than mothers in the control group. Mothers in the comparison group also felt less anxious, but not to the same degree as those in the experimental group. In at least two evaluations that showed improvements in the mental health of mothers in the experimental group, there were, however, no significant mental health improvements in the comparison group (Orr et al., 2003; Popkin et al., 2002).

Children and youth mental health

Leventhal and Brooks-Gunn (2003)[2] reported that in New York, children ages 6–12 showed large improvements in mental health, particularly boys in the experimental group. According to these researchers, experimental and comparison boys reported significantly improved mental health which was manifested as fewer problems related to anxiety, depression, dependency, fear, and the need to be near adults. However, the results for mental health outcomes among adolescents, ages 13–19, were quite different. Overall, the results for adolescents suggest improvements in mental health for female youth, but small changes, no changes, or worsening mental health of male youth (Orr et al., 2003; Kling et al., 2006; Popkin et al., 2002).

Orr et al.'s (2003) Interim Impacts Evaluation found a moderately large reduction in psychological distress for girls ages 5–19 in the experimental group, a substantial decrease in the incidence of depression for girls in the comparison group, and very large reductions in incidences of generalized anxiety disorder among girls in both treatment groups. In another analysis of the same data, Kling et al. (2006) using their distress index, similarly reported improvements for teenage girls. They found that teenage girls in both the experimental and comparison groups experienced less stress after moving compared with controls, and a 70% lower risk of generalized anxiety symptoms for 'experimental compliers'.[3] However, Orr et al. (2003) noted substantial differences in the mental health outcomes of male and female youth (younger and older youth). Girls ages 12–19 experienced 'substantively large improvements in mental health', but the situation for boys in the 12–19 age range generally indicated a decline in mental health, although it was not statistically significant (Orr, et al., p. 80).

Other evaluations indicated that mental health improved for teenage girls ages 14–19 in both comparison and experimental groups while the mental health of boys either remained the same or worsened (Clampet-Lundquist et al., 2006; Fortson and Sanbonmatsu, 2006; Popkin et al., 2002). Clampet-Lundquist et al. (2006, p. 3) reported that in cases where there were substantial improvements in mental health for experimental adults and female youth, there were no changes at all in the mental health outcomes of experimental boys. Kling et al. (2006, p. 18) reported that mental health outcomes among male youth were of almost the same magnitude as for girls, *but in the opposite direction*, indicating more adverse mental health outcomes of moving for males.

The MTO intervention appears to have influenced the mental health of participants differently depending on gender and age. Other socio-demographic characteristics such as race/ethnicity, language, and physical and/or mental disabilities might also have contributed to overall mental health outcomes but these influences were not specifically identified in the evaluations reviewed (Clark, 2005; Ellen and Turner, 2003).

Mechanisms & context (how? in what circumstances?)

Analyses of the MTO evaluations suggest two key mechanisms at play with respect to mental health outcomes: (1) physical

[2] This article was not included in our original data collection, but was discovered as we were conducting our analysis.

[3] The term 'compliers' refer to those in the experimental and comparison groups who used an MTO voucher. Conversely, 'non-compliers' were also in the experimental and comparison groups, but did not use an MTO voucher (Kling et al., 2006).

conditions, especially physical safety and (2) social ties and community engagement.

Physical conditions/safety

Research on the MTO intervention suggests that for adult participants, female youth, and children, better physical conditions and especially increased safety was a major benefit of the move to lower-poverty neighborhoods. Mental health improvements (sometimes significant) appear to be a result of reduced stress associated with improved physical conditions (Popkin et al., 2002; Del Conte and Kling, 2001; Goering 2003; Orr et al., 2003). Prior to the move, many MTO families lived in conditions of vermin infested, poorly maintained housing (Popkin et al., 2002). Many parents were in constant fear of their safety, of their children's safety, of gang violence, and of sexual violence for female children (Popkin et al., 2006; Rosenbaum, 2001). There is evidence that after moving there was a significant reduction in stress associated with the setting, particularly reduced violence. In a three-city qualitative study (Boston, Los Angeles, New York), Popkin et al. (2006, p. 5) found that women and girls who moved experienced a 'dramatic reduction in female fear'. As well, mothers in Chicago reported that 'the things they liked most about their new neighborhoods were the peace and quiet, the absence of shooting, and the freedom they gained by having confidence in their own safety and, particularly, the safety of their children' (Rosenbaum 2001, p. 19).

The impact of safer neighborhoods on mental health is not surprising given that in the baseline survey completed by all MTO participants, one of the main reasons given for wanting to participate in the intervention was to escape violence. Del Conte and Kling (2001, p. 4) argue that a key success of MTO was 'increased safety, reduced victimization and exposure to violence' across all MTO sites. Emphasizing the Boston data, Del Conte and King (2001) reported that 48% of all MTO participants in that city felt unsafe before moving. At follow-up, this percentage fell to 24% within the experimental group compared with 39% of controls. In addition, victimization decreased to 12% of households in experimental and comparison groups, compared to 26% in the control group. In New York, however, the same researchers found a 50% reduction in exposure to violence among all three groups, with no significant difference between the groups (Del Conte and Kling, 2001). The results across study locations are therefore inconsistent, but they do point to increased physical safety as an important factor in positive mental health outcomes for women, female youth and children who participated in MTO.

Social integration

An increased sense of safety appears to have been important not only in reducing stress and fear for many female participants and children, but also in reducing social isolation and facilitating community engagement (Pettit and McLanahan, 2001, p. 9). Qualitative research in Boston found that indicators of fear included low levels of social communication and feelings of mistrust (Kling et al., 2001), which suggests that once the fear diminishes social communication may increase. Nevertheless, the evidence on the extent and nature of social involvement and engagement in the new neighborhoods is far from consistent. Research in Boston, for example, found that girls ages 6–15 in the MTO experimental group were 'less likely to have a friend in a neighborhood compared with girls in the control group' (Pettit and McLanahan, 2001, p. 9). In contrast, Clampet-Lundquist et al. (2006) and Duncan et al. (2004) reported that adolescent girls (but not boys) in the experimental group were significantly more likely than controls to take part in sports teams, engage in structured after-school activities and have good school attendance records. These practices and experiences point to social involvement and engagement in the new neighborhood. Kling et al. (2006) argue that girls ages 15–20 may have had more contact with adult role models after the move, and this finding supports the argument that there was greater social engagement.

Some participants encountered structural barriers to social integration in new neighborhoods. Ellen and Turner (2003, p. 330) concluded that some MTO families '… found that language, race, and class barriers prevent[ed] them from forming relationships in their new neighborhoods, results that can contribute to isolation and loneliness'. Popkin et al.'s (2002) research suggests that for many of the MTO families there were difficulties in forming meaningful new social relationships in part because of a lack of social interaction between poor single-parent renters, and single-family home dwellers. According to these researchers, most MTO participants in the sample had positive views about their neighbors, describing them as "…friendly and pleasant, [although] relatively few had formed strong relationships with them. Some respondents said that they simply preferred not to socialize with their neighbors. Others, especially those in the experimental group who lived in neighborhoods with large numbers of working people, talked about having little opportunity to form new friendships… Respondents were particularly likely to mention the lack of interaction when they lived in neighborhoods with large numbers of single-family homes" (Popkin et al., 2002, p. 62).

In contrast to what appears to be at least some social integration and positive community engagement in the new neighborhood for many female youth and adults, the MTO evaluations suggest that many adolescent boys may have had less positive social integration and community engagement in the new neighborhoods, thus helping to explain the differences in mental health outcomes noted above. Indeed, the move may have seriously disrupted existing social ties to the old neighborhood for adolescent boys and/or resulted in conditions in new neighborhoods that did not facilitate establishing new relationships.

For male youth, the reasons for moving may have been related to their mother's desire to move rather than their own. Goetz (2004) suggests that voluntary moves tend to lead to better outcomes. If adolescent males moved reluctantly, it is quite likely that they would experience poorer mental health outcomes than if they had made the decision to move themselves. Geographic displacement affects psychological processes. According to Fullilove (1996), the loss of 'place' affects one's sense of belonging in terms of three psychological processes: familiarity, attachment, and identity. When one is displaced, emotional connections are disrupted. 'The ensuing disorientation, nostalgia, and alienation may undermine the sense of belonging, in particular, and mental health, in general' (Fullilove 1996, p. 1518). Moving may also have interfered with contacts with male role models including biological fathers, uncles, and good friends. Hendry and Reid's research (2000) indicates that losing a good friend either from relocation or death has a powerful impact on mental health, and it may be that the male adolescents in MTO felt such a loss. However, the evidence on the extent to which previous relationships were disrupted is not consistent as at least two MTO evaluations suggest that male youth may have continued to return to their previous neighborhoods (Popkin et al., 2002; Sanbonmatsu et al., 2006). Clampet-Lundquist et al. (2006) noted that both control boys (59%) and girls (56%) in Baltimore and Chicago were equally likely to describe friends who were involved in illegal activities or who had been killed, but in the experimental group, males (92%) were three times as likely as females (27%) to have friends involved in illegal activities or who had been killed suggesting that many teenage boys may have remained connected to their previous neighborhoods.

The research by Clampet-Lundquist et al. (2006) suggests that teenage boys ages 14–19 may have faced difficulties in becoming integrated into new neighborhoods. In their analysis, boys tend to use 'non-dominant cultural capital skills' (e.g., use of language) that may isolate them when they move to lower-poverty areas. In their study of MTO in Baltimore and Chicago, these researchers found that experimental group boys reported increased substance use problems. Greater substance use may have been linked to difficulties in adjusting to the move or boys may have used substances as a means of attempting to integrate into new neighborhoods. Acevedo-Garcia et al. (2004), summarizing evidence from all five MTO locations, noted that teenage girls in the experimental group were more likely to have used alcohol in the past year than girls in the control group, suggesting that the use of drugs and alcohol, for some teenage girls, may have been a means of coping with isolation in a new neighborhood or becoming part of a new peer culture.

A mixed methods study of MTO in Baltimore and Chicago revealed that many male youth in the experimental group felt as though they were discriminated against, and viewed as a threat by their new neighbors and police, particularly if a group of them were 'hanging out' together on street corners or other unsupervised places (Clampet-Lundquist et al., 2006). Perceptions and/or experiences of discrimination may have been another factor in the lack of positive social integration in new neighborhoods. Duncan et al. (2004) noted that the new neighborhoods were often less racially diverse than the old neighborhoods, and Pettit and McLanahan (2001, p. 9) reported that in Boston, 'those in the experimental group were more likely to live in neighborhoods with lower minority concentrations and higher proportions of English speakers than controls'. In Los Angeles, families in the experimental group were living in neighborhoods with higher percentages of college graduates than the comparison group (Ibid). Moving to these new neighborhoods may have resulted in teenage boys attracting the attention of police, and becoming the targets of greater police surveillance. Both Popkin et al. (2002) and Orr et al. (2003) noted that boys in the experimental group in all five MTO cities were more likely to be arrested for a violent crime than control participants, suggesting they were subjected to greater police surveillance in new neighborhoods.

Conclusions and discussion

Challenges of evaluating social interventions

Researchers who evaluate social interventions are confronted with numerous challenges. Key among these are issues related to the design and implementation of the program itself, which raises serious questions about the representativeness of evaluation results (Acevedo-Garcia et al., 2004; Leventhal and Brooks-Gunn, 2000). For example, families who did not want to move were not included in the MTO program, nor were those who did not qualify for MTO due to criminal records, or because of physical or mental disabilities. Further, even among those who did volunteer and were randomly assigned to one of the three conditions, hundreds of families were unable to find new housing in new neighborhoods. Clark (2005) maintains that if success of the program is measured by including those who were NOT able to use the housing voucher, 'the overall gains of the MTO program virtually disappear' (Clark 2005, p. 15310).

Social policy changes in the US during the period in which MTO was implemented would have influenced program implementation and outcomes, as they influenced the broader society. Changes to Section 8 (housing voucher) policy as well as changes in distribution of welfare payments (making cash assistance contingent on employment), may have made it more expensive and difficult to move (Leventhal and Brooks-Gunn, 2003). As well, poverty status of MTO participants was based on the US census tract data from 1990, and there may have been significant changes in relative poverty status over the course of the study that were not captured in MTO sampling procedures. The focus on census tracts where people are housed as the neighborhood unit has also been criticized for failing to capture resident views or experiences of neighborhood boundaries (Ellen and Turner, 2003). There is some evidence to suggest that MTO families may have moved to a new census tract but their children remained in schools in the old census tract (Ellen and Turner, 2003; Popkin et al., 2002; Sanbonmatsu et al., 2006). For many families, the 'move' may have entailed a change in physical environment, more than a change in social environment—as appears to have been the case for many male adolescents.

Limitations also exist with respect to the variability of evaluation approaches and outcomes in the MTO program, which make comparisons across studies tenuous. Referring to the studies conducted by seven HUD-commissioned teams of social scientists working in the five MTO locations, Goering (2003, p. 119) maintains that 'As each team made use of differing analytic and methodological strategies, the resulting lack of comparability across sites is a limitation of MTO research to date'. Concerns have also been raised regarding participation in the evaluations, since only those who volunteered to participate were included (Acevedo-Garcia et al., 2004) thus creating a volunteer bias. As well, age criteria for children and youth differed across MTO sites, making it difficult to make comparisons among different groups of children and youth (Goering, 2003). Bearing in mind these limitations in relation to the design, implementation and evaluation of MTO, there are still important insights that can be drawn from the program to provide policy makers and researchers with a better understanding of the processes through which this type of large-scale social intervention might affect mental health outcomes.

Re-conceptualizing Moving to Opportunity through theory building

Unlike systematic reviews which focus almost exclusively on the methodological design of evaluation research studies, a realist review is centered on theory building through identification of the mechanisms leading to program outcomes (Pawson et al., 2005). Systematic reviews purge studies that are flawed methodologically (based on a hierarchy of studies with randomized controlled trial at the highest level), whereas the realist review method recognizes value in diverse sources of evaluation – quantitative and qualitative and varying research designs – in order to develop a picture of how, and under what conditions, the intervention might work (or not) for different populations or groups. The main goal of the realist review is to understand and embrace the complexities of the intervention in order to gain insight into the original theory(ies) underlying the intervention. A clearer picture of how the intervention unfolded allows the reviewer to accept, revise, or even reject the original theory(ies) thereby facilitating the construction of future interventions based on a more informed theory(ies). Greenhalgh et al. (2007, p. 861) argue that it is 'time to shift the balance in what we define as quality from an exclusive focus on the empirical method (the extent to which authors have adhered to the accepted rules of controlled trials) to one that embraces theory (the extent to which a theoretical mechanism was explicitly defined and tested)'.

The process of the realist review began by outlining what appeared to be the essential organizing theory of the MTO intervention, identified as social disorganization theory. This

theory posits that within high-poverty neighborhoods there are few opportunities and resources for individuals and families, limiting their opportunities to achieve economically and/or socially. 'Freeing' people from high-poverty neighborhoods is viewed as critical to allow them to become self-sufficient and flourish (Rosenbaum and DeLuca, 2000). Based on this theory, the MTO intervention moved families to lower-poverty neighborhoods. The new neighborhoods were viewed as providing opportunities in the form of better quality services (e.g., education systems) (Ludwig et al., 2001), better access to resources (e.g., jobs), and stronger social bonds within formal and informal organizations. Implicit in the use of social disorganization theory is the notion that increasing job and social opportunities will improve residents' health. Linking social and physical environments with health outcomes is consistent with a 'social determinants of health' framework widely accepted within current health research circles (Kawachi and Berkman, 2003; Raphael, 2004; Wilkinson and Marmot, 2003).

Results of this review indicate that moving from high-poverty neighborhoods 'worked' for many adults, adolescent girls, and children in terms of mental health outcomes. Statistically significant improvements in mental health for adults (mainly women), female youth, and girls appear to have been related to moving to a better physical and social environment and especially reduced levels of violence in new neighborhoods. Indeed, moving appeared to create an immediate 'resolution' to the stress that many adult women, female youth, and children were experiencing because of the violence within their previous neighborhoods. Children and female youth who moved appear to have been less afraid to leave their homes and/or spend time outside, and were thus able to participate in a broader social life including after-school activities.

Moving to a new neighborhood was reportedly not as positive for many adolescent males as for females. The lack of significant positive changes in mental health for adolescent males in the MTO program may have been related to the fact that the fear of violence was less significant for this sub-population, and not enough of a 'push' factor to warrant leaving valued relationships to people or place. At least some male youth may have moved involuntarily, resulting in no improvement in mental health in some evaluations, and decreased mental health in others. These outcomes may be related to the lack of social integration into new neighborhoods. Many adolescent males appear to have kept ties with their old neighborhoods. At least two factors are potentially at play: a desire to maintain existing relationships and contacts with familiar places in old neighborhoods and a response to feelings and experiences of discrimination, including racial discrimination, in new neighborhoods.

Statistics Canada recently reported that 'a sense of community belonging is associated with both physical and mental health' (Shields 2008, p. 6). This report adds to a substantial and growing body of literature linking 'sense of belonging' to positive mental health (Fullilove, 1996). For some adolescent boys who moved, it appears they were lacking a 'sense of belonging' in their new neighborhoods (Pettit and McLanahan, 2001). The teenage years are particularly challenging because of the multiple physical and social developmental changes taking place at this stage of the life course (Kuttler et al., 1999; Windle et al., 2008). As a result, creating new ties may have been especially challenging for male youth. In particular, they may not have felt comfortable engaging with their new communities, just as the communities may not have attempted to make them feel welcome.

As Hendry and Reid (2000) and Crosnoe (2000) have noted, females are more likely to be engaged in social relationships and to talk with others about their feelings and emotions. Adolescent females in the MTO intervention may have sought out social supports that helped them to cope with moving more readily than adolescent males, who may be less comfortable with seeking support. Chavous et al. (2008) suggest that African American boys may use disengagement from educational settings as a mechanism for coping with 'racially devaluing experiences'. Racism may account, at least in part, for some of the gendered differences in mental health outcomes.

The results of this review point to a significant revision to the 'social disorganization theory'. What appears to be a major limitation is the assumption that 'poor' neighborhoods are characterized overwhelmingly by physical and social deficits. The social disorganization theory fails to consider the strong attachment to place, and social bonds, which may exist among residents—in spite of (or even because of) key neighborhood problems including violence. For at least some adolescent males who took part in MTO, their existing 'poor' neighborhoods appear to have contributed more to their mental and social health than new neighborhoods, and access to 'better' schools and other community resources in the new neighborhood appears not to have encouraged their engagement in the community itself. Writing in 1974 about poor Black inner city communities in the US city of 'Jackson Harbor' (pseudonym used), Carol Stack argued that far from being 'disorganized' or lacking autonomy, families and individuals in the community were engaged in 'cooperative domestic exchange' that consisted of highly organized, cohesive networks of family and friends (Stack, 1974).

Many families who participated in MTO moved back to their old neighborhoods after a period of time (Popkin et al., 2002), a possible indicator of lack of social integration into new neighborhoods. For some families, the social and physical structures of new neighborhoods, e.g., family type and housing type, were not conducive to social interaction. Some evaluations revealed that relationships between single-parent families who were renting and working families who owned their homes were not readily established. 'Social disorganization theory' assumes that people will *want* to be part of 'better' neighborhoods but does not account for differences in the structure of households and family composition in new neighborhoods that may greatly impact sense of belonging. Nor does social disorganization theory account for racial and gender discrimination that may be experienced in 'better' neighborhoods, affecting the degree to which people feel welcome in a new neighborhood. Advances in the social disorganization theory will require that neighborhoods are conceptually situated within the larger political economy (Szeter and Woolcock, 2004).

The social disorganization theory also undervalues the potentially protective influences of social capital and/or social network ties for the health of residents in poor neighborhoods. In their case, study of a community in Brooklyn, New York, Friedman et al. (2007) found that social ties among community members (even if not based on high levels of trust) appear to help youth avoid high-risk behaviors including drugs, violence, and infectious diseases because of the enforcement of strong social norms (Friedman et al., 2007). Both formal and informal social networks are dimensions of social capital, understood as 'the shared knowledge, understandings, norms, rules and expectations' that constitute social interaction (Putnam, 2000, p. 176). For many authors, social capital is defined as a resource that people draw on for mutual benefit (Cattell, 2001; Szeter and Woolcock, 2004). The resource aspects of social capital may be especially pronounced in low-income neighborhoods where in-kind support, such as child care and transportation, are critical in the absence of access to formal channels for these services (Dawkins, 2006).

A revised theory based on a realist review of MTO would conceptualize neighborhoods – whether impoverished or not – as complex systems of relationships that exist within resources and

opportunities of varied quantity and quality, and that are directly and indirectly impacted by the broader political–economic system. Services, organizations, and other attributes (e.g., green spaces) are a vital part of a neighborhood, but are experienced through social relationships. Without people and human relationships, there is no neighborhood—there is simply a physical place. The quality and quantity of resources, and the nature and extent of relationships will vary across neighborhoods and over time. How the contextual (i.e., physical resources and services) and the composition (i.e., relationships between people) aspects of a neighborhood might combine and affect the health of individuals and families will also vary according to attributes of individuals and families (gender, age, race, etc.) reflecting a reciprocal relationship between people and place.

It is the nature of relationships, and the resources and attributes of neighborhoods, that help to create and sustain a sense of belonging. A strong, positive sense of belonging can exist – at least for some groups – even in a context where there may be 'negative' neighborhood physical or social conditions (e.g., poor quality schools, violence). For others, a 'sense of belonging' may be negatively impacted by these same characteristics. As the MTO intervention suggests, there are important differences in how neighborhoods are experienced based on gender, age, race, and other factors, and these differences are key elements in shaping mental health. This realist review suggests that displacements from 'place' may have serious psychological repercussions if the move is not voluntary, and if there are interpersonal and structural barriers to integration into new neighborhoods.

When violence is a dominant characteristic of a neighborhood, it is clearly unhealthy. Feeling unsafe and experiencing high levels of violence within neighborhoods were primary reasons expressed by heads of households (mainly women) in the MTO program. However, creating a safe physical environment does not necessarily require re-location. As noted by Kling et al. (2006, pp. 25), '…interventions which substantially *improve distressed neighborhoods* could have effects at least as large as those observed from moving to lower-poverty neighborhoods' [our emphasis]. Likewise, Leventhal and Brooks-Gunn (2005, p. 642) argue that '…policies that focus on improving communities rather than relocating families out of distressed communities have the potential to benefit many more families than a program such as MTO can serve…by providing local economic, social and educational opportunities, family and neighborhood poverty and their associated conditions could be addressed simultaneously'. Responding to and changing the violent character of neighborhoods would therefore help to improve the mental health of residents. Planners of social interventions can use the lessons learned from the implementation of MTO to help ensure that the needs of all community members are considered in future social interventions.

Our realist review was based on a housing intervention in the United States, but the results can potentially be applied to urban centers in other nations that implement housing interventions that involve moving families. When a family moves, the experience is likely to be different for each member of the household, and differences in mental health outcomes of moving may occur (Scanlon and Devine, 2001). All communities, rich or poor, and irrespective of geographic location, should be viewed as complex systems, and as composed of people with social relationships that influence the functioning and health of community members. Rather than moving people out of their home communities, addressing the social and economic character of the community may be more effective, and may avoid the potentially negative impacts of the move.

Greenhalgh et al. (2007) suggest that programs and interventions are more likely to be effective when they take into account the needs and desires of the target participants. This means that addressing the challenges within high risk, poor neighborhoods requires working with the communities, and designing programs in partnerships with, and input from, individuals and families who live in the neighborhoods. The importance of 'working with communities' can be forgotten when program development is far removed from the everyday lives of the people. Listening to what all communities need to create healthy places to live is critical, and should be a priority, irrespective of the geographical location of the community.

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Appendix A

See Table A1.

Table A1

Study #	Title	Author	Date	Type (e.g., book chapter/ journal article, quantitative/ qualitative, etc.)	Scope (e.g., cities, time period, etc.)
1	Experimental analysis of neighborhood effects	Kling, J.R., Liebman, J.B., Katz, L.F.	2006	Journal article. Quantitative.	Reports on all five MTO cities. Uses data from the 2002 IIE study.
2	Do neighborhoods matter and why?	Ellen, I.G. & Turner, M.A.	2003	Book chapter. Contextual.	Reports on all five MTO cities.
3	Families in transition: a qualitative analysis of the MTO experience—final report	Popkin, S. Harris, L. & Cunningham, M.	2002	Final Report for US Department of Housing and Urban Development. Qualitative.	Reports on all five MTO cities.
4 (a)	A synthesis of MTO research on self-sufficiency, safety and health, and behavior and delinquency	Del Conte, A. & Kling, J.	2001	Newsletter article. Quantitative.	Various sites with emphasis on Boston.

Table A1 (*continued*)

Study #	Title	Author	Date	Type (e.g., book chapter/ journal article, quantitative/ qualitative, etc.)	Scope (e.g., cities, time period, etc.)
5	Social dimensions of Moving to Opportunity	Pettit, B. & McLanahan, S.	2001	Newsletter article. Quantitative.	Boston, Los Angeles, New York. Discusses initial findings of MTO.
6	Moving to better neighborhoods improves health and family life among New York families	Leventhal, T. & Brooks-Gunn, J.	2001	Newsletter article. Quantitative.	New York. Discusses findings three years after re-location.
7	The effect of MTO on Baltimore children's educational outcomes	Ludwig, J., Duncan, G. & Ladd, H.	2001	Newsletter article. Quantitative.	Baltimore. Discusses findings from 1993–1998.
8	The social context of new neighborhoods among MTO Chicago families	Rosenbaum, E.	2001	Newsletter article. Quantitative.	Chicago.
9	Moving to Opportunity: an experimental study of neighborhood effects on mental health	Leventhal, T. & Brooks-Gunn, J.	2003	Journal article. Quantitative.	New York. Discusses findings three years after re-location.
10	Intervening in the residential mobility process: neighborhood outcomes for low-income populations	Clark, W.	2005	Journal Article. Quantitative.	Baltimore. Discusses findings of data collected in 2002.
11	The impacts of new neighborhoods on poor families: evaluating the policy implications of the Moving to Opportunity demonstration.	Goering, J.	2003	Contextual. Methodological discussion.	Overview of MTO purpose, methods and findings.
12	Does housing mobility improve health?	Acevedo-Garcia, D., Osypuk, T.L., Werbel, R.E., Meara, E.R., Cutler, D.M. & Berkman, L.F.	2004	Journal article. Methodological discussion.	Methodological review of MTO publications.
13	Moving to Opportunity for fair housing demonstration program: Interim Impacts Evaluation	Orr, L., Feins, J.D., Jacob, R. & Beecroft, E. with Sanbonmatsu, L., Katz, L.F., Liebman, J.B. & Kliing, J.R.	2003	Interim Impacts Evaluation (IIE) for the US Department of Housing and Urban Development. Review of Research.	Reports on all five MTO cities. A mid-point evaluation of the MTO project.
14	The neighborhoods they live in: the effects of neighborhood residence on child and adolescent outcomes	Levaanthal, T. & Brooks-Gunn, J.	2000	Journal article. Quantitative.	References overall MTO project. Includes additional neighorhood studies.
15	Child health and neighborhood conditions: results from a randomized housing voucher experiment	Fortson, J.G. & Sanbonmatsu, L.	2006 (unpublished)	Funded by US Department of Housing and Urban Development. Qualitative.	Reports on all five MTO cities.
16	Bullets don't got no name: consequences of fear in the ghetto	Kling, J.R., Liebman, J.B. & Katz, L.F.	2001	Working Paper #225, Joint Centre for Poverty Research and US Department of Health and Human Services. Qualitative.	Boston.
17	Neighborhoods and academic achievement: results from the Moving to Opportunity experiment	Sanbonmatsu, L., Kling, J.R. Duncan, G.J. & Brooks-Gunn, J.	2006	Journal article. Quantitative.	Reports on all five MTO cities.
18	Girls in the 'hood: evidence on the impact of safety	Popkin, S.J., Leventhal, T. & Weismann, G.	2006	Journal article. Qualitative.	Boston, Los Angeles, New York.
19	Moving at-risk teenagers out of high-risk neighborhoods: why girls fare better than boys	Clampet-Lundquist, S., Edin, K., Kling, J.R. & Duncan, G.J.	2006	Working Paper #509 Industrial Relations Section, Princeton University Mixed methods.	Baltimore and Chicago.
20	Neighborhood and gender effects on family processes: results from the Moving to Opportunity program	Leventhal, T. & Brooks-Gunn, J.	2005	Journal article. Quantitative.	New York.
21	Counseling in the Moving to Opportunity demonstration program	Fein, J.D., McInnis, D. & Popkin, S.	1997	Report prepared for US Department of Housing and Urban Development. Mixed methods.	Reports on all five MTO cities.
22	Residential mobility interventions as treatments for the sequelae of neighborhood violence	Duncan, G.J., Clark-Kauffman, E. & Snell, E.	2004 (unpublished)	On-line report Quantitative	Reports on all five MTO cities.
23	New York City site findings: the early impacts of Moving to Opportunity on children and youth	Leventhal, T. & Brooks-Gunn, J.	2003	Book chapter. Quantitative.	New York.

References

Acevedo-Garcia, D., Osypuk, T.L., Werbel, R.E., Meara, E.R., Cutler, D.M., Berkman, L.F., 2004. Does housing mobility policy improve health? Housing Policy Debate 15 (1), 49–98.

Bernard, P., Charafeddine, R., Frohlich, K., Daniel, M., Kestens, Y., Potvin, L., 2007. Health inequalities and place: a theoretical conception of neighborhood. Social Science & Medicine 65, 1839–1852.

Burton, M., Chapman, M.J., 2004. Problems of evidence based practice in community based services. Journal of Learning Disabilities 8 (1), 56–70.

Cattell, V., 2001. Poor people, poor places, and poor health: the mediating role of social networks and social capital. Social Science & Medicine 52, 1501–1516.

Chavous, T.M., Rivas-Drake, D., Smalls, C., Griffin, T., Cogburn, C., 2008. Gender matters, too: the influences of school racial discrimination and racial identity on academic engagement outcomes among African American adolescents. Developmental Psychology 44 (3), 637–654.

Clampet-Lundquist, S., Edin, K., Kling, J.R., Duncan, G.J., 2006. Moving at-risk teenagers out of high-risk neighborhoods: why girls fare better than boys. Working Paper #509, Industrial Relations Section, Princeton University.

Clark, W.A., 2005. Intervening in the residential mobility process: neighborhood outcomes for low-income populations. PNAS 102 (43), 15307–15312.

Connelly, J., 2001. Critical realism and health promotion: effective practice needs an effective theory. Health Education Research 16 (2), 115–119.

Crosnoe, R., 2000. Friendships in childhood and adolescence: the life course and new directions. Social Psychology Quarterly 63 (4), 377–391.

Dawkins, C.J., 2006. Are social networks the ties that bind families to neighbourhoods? Housing Studies 21 (6), 867–881.

Del Conte, A., Kling, J., 2001. A synthesis of MTO research on self-sufficiency, safety and health, and behavior and delinquency. Poverty Research News 5 (1), 3–6.

Diez Roux, Merkin, S.S., Arnett, D., Chambless, L., Massing, M., Nieto, J., Sorlie, P., Szklo, M., Tyroler, H., Watson, R.L., 2001. Neighborhood of residence and incidence of coronary heart disease. New England Journal of Medicine 345 (2), 99–107.

Dorris, M., 2005. Healthy settings: challenges to generating evidence of effectiveness. Health Promotion International 21, 55–65.

Duncan, G.J., Clark-Kaufmann, E., Snell, E., 2004. Residential mobility interventions as treatments for the sequelae of neighborhood violence, [On-line]. Available at: 〈http://www.nber.org/~kling/mto/violence/pdf〉 (Accessed 12 October 2007).

Dunn, J.R., 2002. A population health approach to housing: a framework for research. Report prepared for the National Housing Research Committee and the Canadian Mortgage and Housing Corporation, pp. 1–79.

Ellen, I.G., Mijanovich, et al., 2001. Neighborhood effects on health: exploring the links and assessing the evidence. Journal of Urban Affairs 23 (3–4), 391–408.

Ellen, I.G., Turner, M.A., 2003. Do neighborhoods matter and why? In: Goering, J., Feins, J.D. (Eds.), Choosing a Better Life? Evaluating the Moving to Opportunity Social Experiment. The Urban Institute Press, Washington DC, pp. 313–339.

Fauth, S., Leventhal, T., Brooks-Gunn, J., 2004. Short-term effects of moving from public housing in poor to middle-class neighborhoods on low-income minority adults' outcomes. Social Science & Medicine 59, 2271–2284.

Feins, J.D., McInnis, D., Popkin, S., 1997. Counseling in the Moving to Opportunity demonstration program. Report prepared for US Department of Housing and Urban Development, HC-5953, Task Order 3. Washington, DC.

Fone, D., Dunstan, F., 2006. Mental health, places and people: a multilevel analysis of economic inactivity and social deprivation. Health and Place 12, 332–344.

Fortson, J.G., Sanbonmatsu, L., 2006. Child health and neighborhood conditions: results from a randomized housing voucher experiment. Available at: 〈http://home.uchicago.edu/~jfortson/mtopaper.pdf〉 (Accessed on October 18, 2007).

Friedman, S.R., Mateu-Gelabert, P., Curtis, R., Maslow, C., Bolyard, M., Sandoval, M., Flom, P.L., 2007. Social capital or networks, negotiations, and norms? A neighborhood case study. American Journal of Preventive Medicine 32 (6S), S160–S170.

Fullilove, M.T., 1996. Psychiatric implications of displacement: contributions from the psychology of place. American Journal of Psychiatry 153 (12), 1516–1523.

Goetz, E.G., 2004. The reality of deconcentration. Shelterforce Online 138 Available at http://www.nhi.org/online/issues/138/deconcentration.html (Accessed on October 20, 2007).

Goering, J., 2003. The impacts of new neighborhoods on poor families: evaluating the policy implications of the Moving to Opportunity demonstration. Economic Policy Review 9 (2), 113–141.

Greenhalgh, T., Kristjansson, E., Robinson, V., 2007. Realist review to understand the efficacy of school feeding programmes. British Medical Journal 335, 858–861.

Hendry, L.B., Reid, M., 2000. Social relationships and health: the meaning of social connectedness and how it relates to health concerns for rural Scottish adolescents. Journal of Adolescence 23, 705–719.

Kawachi, I., Berkman, L.F., 2003. Neighborhoods and health. Oxford University Press, Oxford.

Kling, J.R., Liebman, J.B., Katz, L.F., 2006. Experimental analysis of neighborhood effects. *Econometrica,* (page numbers unavailable).

Kling, J.R., Liebman, J.B., Katz, L.F., 2001. Bullets don't got no name: consequences of fear in the ghetto. Joint Center for Poverty Research Working Paper 225.

Kuttler, A.F., La Greca, A.M., Prinstein, M.J., 1999. Friendship qualities and social-emotional functioning of adolescents with close, cross-sex friendships. Journal of Research on Adolescence 9 (3), 339–366.

Leventhal, T., Brooks-Gunn, J., 2005. Neighborhood and gender effects on family processes: results from the Moving to Opportunity program. Family Relations 54, 633–643.

Leventhal, T., Brooks-Gunn, J., 2003. Moving to Opportunity: an experimental study of neighborhood effects on mental health. American Journal of Public Health 93 (9), 1576–1582.

Leventhal, T., Brooks-Gunn, J., 2000. The neighborhoods they live in: the effects of neighborhood residence on child and adolescent outcomes. Psychological Bulletin 126 (2), 309–337.

Leventhal, T., Brooks-Gunn, J., 2001. Moving to better neighborhoods improves health and family life among New York families. Poverty Research News 5 (1), 11–12.

Northridge, M.E., Sclar, E., Biswas, P., 2003. Sorting out the connections between the built environment and health: a conceptual framework for navigating pathways and planning healthy cities. Journal of Urban Health 80 (4), 556–568.

Ludwig, J., Duncan, G., Ladd, H., 2001. The effect of MTO on Baltimore children's educational outcomes. Poverty Research News 5 (1), 13–15.

Orr, L., Feins, J.D., Jacob, R., Beecroft, E., Sanbonmatsu, L., Katz, L.F., Liebman, J.B., King, J.R., 2003. Moving to Opportunity interim impacts evaluation. Prepared for: US Department of Housing and Urban Development, Office of Policy Development and Research.

Pawson, R., 2006. Evidence-based Policy: a Realist Perspective. Sage Publications, Thousand Oaks, CA.

Pawson, R., Greenhalgh, T., Harvey, G., Walshe, K., 2005. Realist review—a new method of systematic review designed for complex policy interventions. Journal of Health Services Research and Policy 10 (Suppl. 1), s1:21–s1:34.

Pettit, B., McLanahan, S., 2001. Social dimensions of Moving to Opportunity. Poverty Research News 5 (1), 7–10.

Pickett, K.E., Pearl, M., 2001. Multilevel analyses of neighborhood socioeconomic context and health outcomes: a critical review. Journal of Epidemiology and Community Health 55 (2), 111–122.

Poortinga, W., Dunstan, F.D., Fone, D.L., 2008. Neighbourhood deprivation and self-rated health: the role of perceptions of the neighbourhood and of housing problems. Health and Place 14, 562–575.

Popkin, S.J., Harris, L.E., Cunningham, M.K., with Bradley, J., Graham, A. Comey, J., 2002. Families in transition: a qualitative analysis of the MTO experience. Final Report. US Department of Housing and Urban Development, Office of Policy Development and Research.

Popkin, S., Katz, B., Cunningham, M., Brown, K., Gustafson, J., Turner, M., 2004. A decade of Hope VI: research findings and policy challenges. Urban Institute. Available at: 〈http://www.urban.org/publications/411002.html〉 (Accessed on August 8, 2008).

Popkin, S.J., Leventhal, T., Weisman, G., 2006. Girls in the 'hood: evidence on the impact of safety. Poverty and Race 15 (5), 3–7.

Putnam, R., 2000. Bowling Alone: The Collapse and Revival of American Community. Simon & Shuster, New York.

Raphael, D., 2004. Social Determinants of Health: Canadian Perspectives. Canadian Scholars' Press Inc., Toronto, ON.

Rosenbaum, E., 2001. The social context of new neighborhoods among MTO Chicago families. Poverty Research News 5 (1), 16–19.

Rosenbaum, J.E., DeLuca, S., 2000. Is housing mobility the key to welfare reform? Lessons from Chicago's Gautreaux program. The Brookings Institution. Available at: 〈http://www.brookings.edu/es/urgan/rosenbaum.pdf〉 (Accessed November 3, 2007).

Ross, N., Tremblay, S., Graham, K., 2004. Neighborhood influences on health in Montreal, Canada. Social Science & Medicine 59, 1485–1494.

Sanbonmatsu, L., Kling, J.R., Duncan, G.J., Brooks-Gunn, J., 2006. Neighborhoods and academic achievement: results from the Moving to Opportunity experiment. Journal of Human Resources 41 (4), 649–691.

Scanlon, E., Devine, K., 2001. Residential mobility and youth well-being: research, policy and practice issues. Journal of Sociology and Social Welfare 28 (1), 119–137.

Shields, M., 2008. Community belonging and self-perceived health. Component of Statistics Canada Catalogue no. 82-003-X Health Reports, 19(2), pp. 1–6.

Stack, C.B., 1974. All our Kin: Strategies for Survival in a Black Community. Basic Books, New York.

Stokols, D., 1992. Establishing and maintaining healthy environments: toward a social ecology of health promotion. American Psychologist 47 (1), 6–22.

Szeter, S., Woolcock, M., 2004. Health by association? Social capital, social theory and the political economy of public health. International Journal of Epidemiology 33, 650–667.

Walter, I., Nutley, S., Davies, H., 2005. What works to promote evidence-based practice? A cross-sector review. Evidence and Policy 1 (3), 335–363.

Wilkinson, R., Marmot, M., 2003. The Solid Facts: the Social Determinants of Health. World Health Organization, Copenhagen, DE.

Windle, M., Speark, L.P., Fuligni, A.J., Angold, A., Brown, J.D., Pine, D., Smith, G.T., Giedd, J., Dahl, R.E., 2008. Transitions into underage and problem drinking: developmental processes and mechanisms between 10 and 15 years of age. Pediatrics 121 (Suppl.), s273–s289.