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Capitalizing on Place: An Investigation of the Relationships among Social Capital,
Neighborhood Conditions, Maternal Depression, and Child Outcomes

A dissertation submitted in partial satisfaction of the requirements for the Degree of Doctor of
Philosophy in Psychology

by

Ayesha Delany-Brumsey

2012

ABSTRACT OF THE DISSERTATION

Capitalizing on Place: An Investigation of the Relationships among Social Capital,
Neighborhood Conditions, Maternal Depression, and Child Outcomes

by

Ayesha Delany-Brumsey

Doctor of Philosophy in Psychology

University of California, Los Angeles, 2012

Professor Vickie M. Mays, Chair

In this dissertation I employ an ecological framework to understand the co-occurring influence of the individual, family, and community on child and maternal well-being. Specifically, I investigate the relationship of neighborhood socioeconomic disadvantage and social capital as it applies to child behavior problems, child academic skills, and maternal depression, while also accounting for individual and family characteristics. In all three studies, I analyze data from the Los Angeles Family and Neighborhood Survey (L.A. FANS) using multilevel linear regression.

In the first study, I investigate the association of neighborhood and maternal characteristics with child and adolescent behavior problems. The results showed that children and adolescents of depressed mothers, and children living in high poverty neighborhoods, had

more internalizing and externalizing behavior problems. Finally, although neighborhood social capital was not directly associated with behavior, social capital did attenuate the relationship between maternal depression and higher levels of adolescent behavior problems.

In the second study, I demonstrate that children of depressed mothers performed worse on measures of reading ability and math computation skills. Also, children living in neighborhoods higher in social capital performed better on the measure of math computation compared to children living in lower social capital neighborhoods. However, social capital was not associated with either of the measures of reading achievement. In addition, neighborhood socioeconomic disadvantage was not significantly associated with any of the academic outcomes. I also did not find that social capital moderated the relationship between maternal depression and child academic skills.

In the third study, I focus on the importance of neighborhood characteristics as predictors of depression among Latina mothers. I also investigated how neighborhood structural characteristics - socioeconomic disadvantage, residential stability and the percent of Latinos in the community, are associated with social capital. As expected, residential stability was positively, while socioeconomic disadvantage was negatively, associated with social capital. Contrary to my hypothesis about the protective effects of living in a neighborhood with a higher percent of co-ethnics, an ethnic enclave, the percent of Latinos in the community was negatively associated with social capital. However, as predicted, neighborhood social capital was negatively associated with depression for Latinas.

The dissertation of Ayesha Delany-Brumsey is approved.

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2012

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DISSERTATION INTRODUCTION

Previous research has linked the economic, social, and physical characteristics of the environment to multiple indicators of residents' mental health (Clark et al. 2007; Evans, 2003; Matheson et al., 2006; Moren-Cross et al., 2006). Where there are no sidewalks, parks, and public spaces, residents become isolated from one another. Where there is crime and physical decay, residents live in fear. And where there are few or insufficient health agencies, residents' health needs go unmet.

Living in impoverished neighborhoods limits resident's access to protective physical and social resources (Acevedo-Garcia et al., 2008; Evans, 2004; Pachter et al., 2006). Neighborhood poverty also increases resident's daily stresses and likelihood of experiencing trauma (Evans, 2003; Lauritsen & White, 2001; Morenoff, Sampson, & Raudenbush, 2001; Ross, 2000).

My research looks at the ways in which protective neighborhood social processes, embodied in the concept of social capital, influence the mental health of mothers and children's behavioral and academic outcomes; and how social capital might ameliorate the detrimental combination of high stress and few resources. I began this research with a basic conceptual model, that I later elaborated on, of the relationships between neighborhood characteristics and individual outcomes. Please refer to Figure A.1 for a depiction of that basic model. Previous work has focused on these interrelationships; however, more research is needed to fully apprehend the complexity of risk and protective factors that influence maternal and child well-being.

As the eminent sociologist William Julius Wilson (1987) articulated in his seminal work *The Truly Disadvantaged*, concentrated neighborhood socioeconomic disadvantage encompasses not only high rates of poverty, but other indicators of disadvantage including unemployment,

female headed households, and high rates of public assistance utilization. This disadvantage, in conjunction with other structural characteristics of impoverished urban communities, such as racial/ethnic segregation and residential stability, serve to create a toxic environment that isolates residents from individuals in other social classes impeding residents' social mobility, and placing them at risk for a variety of negative outcomes (Kohen et al., 2008; Pickett & Pearl, 2001; Wilson, 1987; Yen et al., 2009).

In addition, further studies have asked how and why neighborhood poverty is related to the mental health of residents, above and beyond the effects of an individual's own lack of economic resources. Jencks and Mayer's (1990) neighborhood institutional resource model states that community poverty affects the quality of neighborhood institutions, including schools, that promote positive academic outcomes for children. Extending this reasoning to the effects of neighborhood institutions on the emotional and behavioral health of residents, impoverished communities also lack other essential resources including grocery stores, safe parks, and libraries that promote the physical and emotional well-being of residents (Leventhal & Brooks-Gunn, 2000).

Another model that speaks to the connection between place and mental health is social disorganization theory which posits that neighborhood structural characteristics serve to disrupt community social processes including the formal and informal sources of control (Sampson, Raudenbush, Earls, 1997; Silver & Miller, 2004). As the formal and informal sources of control become less effective, visible physical and social signs of disorder including vandalism, abandoned building, visible drug use, and gang activity increases. The presence of these physical and social incivilities creates a threatening environment challenging residents' sense of trust and cohesiveness and resulting in distrust, lack of social civility, and fears of criminal

victimization (Aneshensel, 2009; Wandersman & Nation, 1998). The chronic stress associated with living in this environment increases residents risk of negative mental health outcomes (Latkin & Curry, 2003; Ross, 2000).

Neighborhood social capital is an expression of community social organization where neighbors know one another, trust each other, and perceive that they hold common values (Putnam, 1993). Theory suggests that neighborhood social capital could be protective for the mental health of residents through a number of pathways including creating a sense of commonality that facilitates residents' ability to act collectively to improve local institutions including recreational facilities, healthcare centers, and schools (Cullen & Whiteford, 2001; Israel, 2001). Furthermore, social capital encourages the development of loose affiliations, reduces social isolation, and promotes a sense of belonging, all of which have a direct benefit for mental health (Cattell, 2001; Schafer-McDaniel, 2004). These loose informal networks also facilitate the transmission of health promoting information among residents such as how to access affordable mental health care services (Hawe & Shiell, 2001; Kao, 2010). The combination of informal social control and sense of community also help the development of prosocial norms that support healthy behaviors while discourage unhealthy or antisocial behavior (Leventhal & Brooks-Gunn, 2003; Sampson et al., 1997).

In addition to considering the impact of neighborhoods on children and mothers, I also investigate the role of the family in the context of neighborhood disadvantage. Individuals in impoverished families residing in disadvantaged communities are doubly at risk for negative mental and behavioral outcomes due to the detrimental effects of their own economic deprivation in the context of a community with few resources (Massey, 1996). The family stress model says that the stress of poverty negatively impacts parent's mental health and parenting, which in turn

negatively affects their children's development (Beeber, Perreira, & Schwartz, 2008; Conger et al., 2002; Kohen et al., 2008; Yoder & Hoyt, 2005). Particularly for children whose parents are impaired by the negative consequences of poverty, the availability of protective resources at the neighborhood level, such as strong schools and non-familial adult role models may be particularly important (Portes, 1998).

My dissertation draws on the body of research outlined above and asks how neighborhood social structure – socioeconomic disadvantage, residential stability, and racial/ethnic composition, in addition to neighborhood social capital, are associated with the emotional, behavioral, and academic outcomes of mothers and children. In my dissertation I am also concerned with how neighborhoods and families concurrently influence child outcomes. The ecological framework that I use acknowledges that individuals are situated in multiple overlapping contexts, and if we want to understand the correlates of well-being, we have to examine all of the effects of these contexts in tandem.

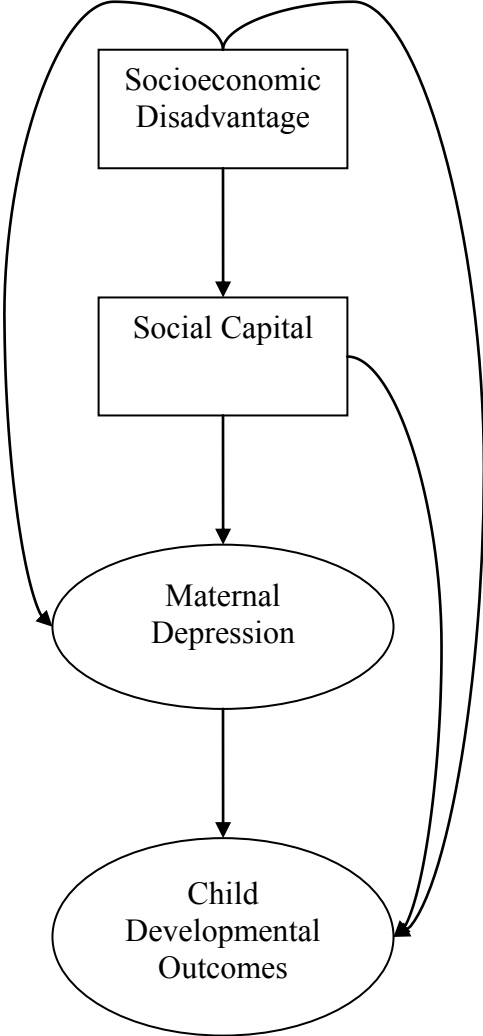
Even as individually targeted medicine and behavioral interventions improve, the presence of risk and protective factors for health outcomes at the community level suggests that one efficient way to address these problems is to consider a change in community factors (Cutrona et al., 2006). To rise to this challenge, researchers first need to identify the aspects of the community which are important health determinants. This dissertation not only contributes to this understanding, but expands on previous work by investigating the main effects of neighborhood characteristics and family characteristics (including maternal depression and indicators of family socioeconomic status) and how neighborhoods moderate the effects of family characteristics on children's behavioral and academic outcomes. I further build on

previous work about the effects of neighborhood characteristics on depression by asking how these effects apply Latina mothers and their communities.

Figure Caption

Figure A.1. This is my original proposed basic conceptual model of the relationships among neighborhood characteristics and their effects on individual mental health and developmental outcomes.

Figure A.1



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STUDY 1:

Neighborhood Social Capital Buffers the Effect of Maternal Depression on Adolescent Behavior

Problems

Overview

Purpose: To examine how the family context and the environment of the neighborhood, both economic and social, are contributing factors in the development of child behavior problems.

Hypotheses:

- 1) Maternal depression will be associated with more internalizing and externalizing behavior problems in children and adolescents.
- 2) Mother's parenting related stress will also be associated with more behavior problems.
- 3) Neighborhood socioeconomic disadvantage will be associated with more internalizing and externalizing behavior problems.
- 4) Neighborhood social capital will be associated with fewer internalizing and externalizing behavior problems in children and adolescents.
- 5) Neighborhood social capital will moderate the association of maternal depression with behavior problems for children and adolescents.

Abstract

Previous research demonstrates that the neighborhoods children and adolescents live in matter to their mental health. Neighborhood characteristics, including poverty, and social processes, including social capital, have been shown to be important determinants of child well-being. However, many of those studies focus solely on the direct effects of neighborhood characteristics. This approach is limited given the range of factors that influence child development and their interactions. The current study expands our understanding of these factors by investigating direct effects of neighborhoods as well as how neighborhoods indirectly influence child and adolescent behavior by moderating the impact of critical family characteristics (i.e. maternal depression).

I used data from the Los Angeles Family and Neighborhood Survey (L.A. FANS), a longitudinal survey of 3,085 households aimed at studying families and their neighborhoods, to investigate two-level hierarchical linear models of the relationship among neighborhood conditions, maternal depression, and child and adolescent behavior problems. The sample includes 741 children, age 5 to 11, and 564 adolescents, age 12 to 17, from 65 neighborhoods. Outcomes were internalizing (e.g. anxious/depressed) and externalizing (e.g. aggressive/hyperactive) behavior problems.

Results indicate that children and adolescents of mothers who endorsed more depressive symptoms had greater internalizing and externalizing behavior problems. Further, neighborhood poverty is associated with more behavior problems for children but not adolescents. Contrary to expectations, neighborhood social capital is not directly associated with behavior problems for either children or adolescents. However, the interaction of neighborhood social capital and

maternal depression is significantly related to behavior problems for adolescents. This interaction shows that living in neighborhoods with higher levels of social capital attenuates the positive relationship between maternal depression and adolescent internalizing and externalizing behavior problems and confirms the expectation that raising healthy well-adjusted children depends not only on the family, but also the context in which the family lives.

Introduction

The existence of a relationship between the neighborhoods in which children and adolescents live and their mental health has been well documented (Caspi, Taylor, & Polmin, 2000; Kohen, Leventhal, Dahinten, & McIntosh, 2008; Leventhal & Brooks-Gunn, 2000; Xue, Leventhal, Brooks-Gunn, & Earls, 2005). Similarly, we know that parental mental health is a key correlate of the mental well-being of their children (Cummings & Davies, 1994; Olfson et al., 2003). What is also emerging is how these co-occurring factors simultaneously and additively influence child outcomes. Examining this complexity is necessary to enrich our understanding of the etiology of child behavioral problems, and to help us target resources and interventions to greater effect. This paper advances our current knowledge by investigating the complexities of the relationships among child and adolescent behavior problems, maternal mental health, and neighborhood characteristics particularly poverty and social capital.

Social capital is a characteristic of groups that facilitates individuals working together for the common good (Putnam, 1993) and has been found to be important during child development (Aneshensel, 2009; Brody et al., 2001; Elliott et al., 1996; Kohen et al., 2008; Sampson, Morenoff, & Earls, 1999). I conceptualize social capital as having four facets: social cohesion, intergenerational closure, child-centered informal social control, and reciprocated exchange. Social cohesion refers to how much neighbors trust each other, are willing to help each other, share the same values, and get along. Intergenerational closure is defined as the degree of familiarity between neighborhood adults and children (Sampson et al., 1999; Sampson, Raudenbush, and Earls, 1997). Child-centered informal social control pertains to whether adults

in the neighborhood will intervene if they see a child behaving in an antisocial manner. Finally, reciprocated exchange refers to the extent to which neighborhood adults can rely on each other for advice and support.

Neighborhoods high in social capital are also often more endowed with resources because neighborhood residents trust each other and work together to fight cuts to services -- such as recreational facilities or healthcare clinics and work to maintain their neighborhoods against signs of neglect, destruction, or abandonment. These are all factors known to directly impact child emotional well-being (Carpiano, 2006; Cullen & Whiteford, 2001; Evans, 2003). Such cooperative action can also be expected to benefit neighborhood children indirectly by reducing social isolation, and supporting the mental health of their parents (Cattell, 2001; Schafer-McDaniel, 2004). When parents know other adults, they are able to transmit health promoting information, such as how to access health care, child care, and educational/recreational services, or even how to parent or cope with difficult child behaviors (Cullen & Whiteford, 2001; Kao, 2010). More broadly, when adults know one another they can establish and enforce behavior norms for neighborhood children (Sampson et al., 1999). Indeed, neighborhoods that are higher in informal social control are more likely to discourage maladaptive and antisocial behavior because neighbors are willing to intervene when they witness such behaviors (Sampson et al, 1997; Leventhal & Brooks-Gunn, 2003).

Neighborhood disadvantage is another commonly researched community-level predictor of children's mental health. Neighborhoods ranked high on several indicators of socioeconomic disadvantage serve as particularly risky environments for children and adolescents. Growing up under such adverse conditions can have a long-lasting negative impact on an individual's development and life course (Acevedo-Garcia et al., 2008).

Disadvantaged neighborhoods lack critical resources -- such as grocery stores, excellent public schools, and recreational facilities that promote quality of life and physical and social well-being of children (Acevedo-Garcia et al., 2008; Leventhal & Brooks-Gunn, 2000; Pachter et al., 2006, Small & Newman, 2001). Instead, they are more often characterized by high levels of social disorganization, poverty, unemployment, single parent householdship, and physical signs of poverty and disorder such as vandalism, abandoned buildings, visible drug use, and gang activity (Aneshensel, 2009). These elements function as chronic stressors and signal that the formal and informal sources of social control have broken down (Aneshensel, 2009; Wandersman & Nation, 1998). Further, residents of disadvantaged neighborhoods are more often the victims of crime and are more likely to be exposed to multiple traumatic or stressful events compared to residents of more advantaged neighborhoods (Aneshensel, Rutter, & Lachenbruch, 1991; Kessler & Cleary, 1980). Unsurprisingly, for children living in economically disadvantaged neighborhoods, the negative cumulative effect of their exposure to such multiple risk factors is well documented (Coie et al., 1993; McCord, Windom, & Crowell, 2001).

This higher burden of exposure to stress and violence carries with it increased risk for the development of both internalizing (e.g. anxious and depressive) and externalizing (aggressive, hyperactive, and noncompliant) behavior problems (Aneshensel, 2009; Evans, 2004; Felti 1998; Turner, Finkelhor & Ormrod, 2006). While not all children with early internalizing or externalizing behavior problems go on to have significant difficulties later in life, as a group they are at greater risk for later academic difficulties, delinquency, and mental illness (Byrd, Loeber, & Pardin, 2012; Hamre & Pianta, 2001; Holtmann et al., 2011; Timmermans, van Lier, & Koot, 2009).

Similarly, parents living in impoverished neighborhoods, often burdened by their own lack of resources, tend to be socially isolated from one another and are at increased risk for mental health problems notably depression (Cutrona et al., 2006; Dodge et al., 1994; Klebanov, Brooks-Gunn, & Duncan, 1994; Pachter et al., 2006; Reading & Reynolds, 2001; Ross, 2000). Lack of neighborhood resources and social isolation deprives parents of the support of neighbors and community resources (Beeber et al., 2008) that are often useful in parenting efforts (Deng et al., 2006) and handling of stress.

The impact of neighborhood disadvantage on the mental health of the child's mother is of particular concern because depression can impair parenting. Depressed mothers are frequently less warm, more distracted, and more inconsistent in their use of discipline techniques than non-depressed mothers (Beck, 1999; Lim, Wood, & Miller, 2008; Paulson, Dauber, & Leiferman 2006). Children of depressed mothers can develop internalizing problems as they mimic the mother's depressed behaviors including the parent's facial expressions, slowed motor movements, and negative self-appraisals (Beck, 1999). Depression, and the associated functional impairment, can make it difficult for a mother to provide the support that will shelter her child from the negative effects of poverty (Kiernan & Huerta, 2008, Riley et al., 2009). Overall, children with depressed mothers are at risk for a variety of difficulties with their social, emotional, and cognitive development (Brennan et al., 2000; Hammen & Brennan, 2003; Shonkoff & Phillips, 2000).

The purpose of this work is to extend the strong developing literature on the effect of family and neighborhood characteristics on child behavioral problems. This goal is accomplished by investigating a rich model which encompasses child, family, and neighborhood characteristics, as well as ask how these characteristics interact to predict child outcomes. In

addition to examining the effects of neighborhood socioeconomic disadvantage, neighborhood social capital, and maternal depression, I also include a number of key individual and family level covariates in the analysis. At the child level, I included the child's gender and race. Both the type and level of child behavior problems have been shown to be related to the child's gender and race. Girls tend to have more internalizing behavior problems while boys have more externalizing behavior problems and some research suggests that racial/ethnic minority children have more behavior problems compared to White children (Briggs-Gowan et al., 2001; Gershon & Gershon, 2002; Gray, Indurkha, & McCormic et al., 2004; Leadbeater et al., 1999). I also controlled for whether the child had been to a psychologist in the past year because children with behavior problems are more likely to be referred for mental healthcare (Koot & Verhulst, 1992; Burns et al., 2004). At the family level, I accounted for indicators of family socioeconomic status including family income and maternal education because lower family socioeconomic status has been shown to be associated with more child behavior problems (Bradley & Corwyn, 2002). In addition, children from continuously married two parent families have fewer behavior problems compared to children from families with divorced, cohabitating, or single parent homes (Amato, 2005; Peterson & Zill, 1986). Therefore, I included maternal marital status as a covariate.

I hypothesized that maternal depression and caregiver stress is positively associated with both internalizing and externalizing behavior problems. I also predicted that greater neighborhood social capital is associated with fewer child and adolescent behavior problems, while greater neighborhood socioeconomic disadvantage is associated with more behavior problems. Finally, I hypothesized that social capital acts as a protective resource for children, and moderates the association of maternal depression on the children and adolescent's behavior

problems. I analyzed the effects for children and adolescents separately to account for the potential differential impact of neighborhood conditions across developmental stages.

Methods

Data/sample design and selection.

I used data from the first wave of the Los Angeles Family and Neighborhood Survey (L.A. FANS). The data was collected from April 2000 to January 2002 (for further information see Peterson et al., 2004). The survey was conducted in-person and sampled 3,085 households in 65 neighborhoods in Los Angeles County. It defined neighborhoods using the geographical boundary of a single census tract. The survey oversampled households with children under the age of 18 and households from impoverished (between the 60th and 89th percentiles of the poverty distribution based on the percent of residents with annual incomes below the poverty level) and very impoverished census tracts (top 10 percent of poverty distribution) (Peterson et al., 2004). In each sampled household, interviewers identified and interviewed several individuals. To this end, one adult household member served as the roster respondent and provided basic demographic information on all members of the household. Also, the survey selected one adult and one child at random and designated them the randomly selected adult (RSA) and the randomly selected child (RSC), respectively. For each household with a RSC, the survey identifies that child's primary caregiver. The primary caregiver is the child's mother except where the mother did not live in the household, or was not able to provide information on the child. In these cases, the primary caregiver was the adult household member who indicated that he or she was primarily responsible for caring for the child.

In addition to the data from the L.A. FANS, I also used data from the Los Angeles Neighborhood Services and Characteristics Database (L.A. NSC). The L.A. NSC was developed

for use in conjunction with the L.A. FANS data. While the data for the L.A. NSC is gathered from a variety of sources, the information used in this study was taken from the 2000 U.S. census (see Peterson et al., 2007)

Analytic samples.

I used two analytic samples for the current study. I drew the first from a sample of 2,619 RSAs who were administered the items I used to rate each neighborhood's level of social capital. Of this sample, I excluded 25 adults who were missing data for all the items included in the social capital variable. This resulted in a final sample of 2,594 individuals. The second sample was the individual level analytic sample of children. I selected only children whose primary caregiver was female¹ since there were so few males ($n = 50$, less than 3% of all the primary caregivers surveyed), and children who were between the age of 5 and 17. This resulted in an analytic sample of 1,305 children. These two samples are partially independent in that only 27% of the RSAs in the first sample also had children in the second sample. A similar procedure was used in Cohen et al. (2006) to generate a rating of neighborhood collective efficacy.

Measures.

Operationalization of outcome.

Child behavior problems. Mothers were administered the Behavioral Problems Index (BPI) (Peterson & Zill, 1986) to assess child behavioral problems in the previous month. This index is designed to evaluate the presence of behavior problems, depression, anxiety, and aggression. The measure consists of 28 questions answered using a 3-point Likert scale. Both internalizing (depressive and anxious behaviors) and externalizing (aggressive, hyperactive, and oppositional behaviors) subscale scores were provided in the dataset.

¹ For ease of reading, the term “mother” or “mothering figure” is used henceforth to indicate the primary female caregiver

Neighborhood predictors.

I use multiple measures to capture neighborhood characteristics. These include:

Residential stability. The L.A. NSC provided a residential stability factor score. This score is comprised of 4 measures: 1) the percent of multi-unit dwellings in the tract, 2) the percent of owner occupied housing, 3) the percent of people occupying the same dwelling in both 1995 and 2000 and 4) the percent of non-family households. Higher scores indicate a more residentially stable neighborhood.

Neighborhood socioeconomic disadvantage. The L.A. NSC also provided the neighborhood disadvantage factor score. This factor score had 6 indices: 1) the percent of the population in poverty, 2) the percent of families with an annual income less than \$24,000, 3) the percent of households headed by females with children, 4) the percent of households receiving public assistance, 5) the percent of the population that is non-White and non-Asian and Pacific Islander, and 6) the percent of the population under 18. Higher scores indicate a more disadvantaged neighborhood.

Social capital. I created a factor score for social capital using data from the RSAs sampled in the L.A. FANS. Each RSA responded to the 16 items that are indicators of the four different aspects of social capital: social cohesion, intergenerational closure, informal social control, and reciprocated exchange. I hypothesized that social capital would conform to a second order factor structure with the four aspects of social capital as the first order indicators of the second order social capital factor. Based on this hypothesis, I performed a confirmatory factor analysis to produce a factor score for each adult respondent, and then aggregated these factor scores to the census tract to produce a measure of mean neighborhood level social capital. The confirmatory factor analysis showed support for the proposed model: comparative fit index (CFI)

= 0.92, and root mean square error (RMSEA) = 0.04. The majority of the items were previously employed in Sampson et al., (1999).

Individual, maternal, and family predictors.

I included several variables related to child, maternal, and familial characteristics. These are:

Child, mother, and family demographic information. I included in the analysis information on the child's age, gender, and race/ethnicity. I also accounted for the caregiver's age, gender, race/ethnicity, educational attainment, and marital status, as well as household income. I present this demographic information in Table 1.1.

Visited a psychologist. The mother reported on whether or not the child had visited a psychologist in the past 12 months.

Parenting stress. The mother also provided information on her parenting related stress by responding to 5 items scored on a 5-point Likert scale. An example item is: "I feel trapped by parental responsibility:" ((1) completely false → (5) completely true). I created a sum score such that higher scores indicate greater amounts of reported stress (Cronbach $\alpha = .7$)

Maternal depression. The L.A. NSC reported scores for depression for the previous 12 months based on the answers the mother provided in response to the Composite International Diagnostic Interview Short Form (CIDI-SF) (Kessler et al., 1998). The measure produces a probability-of-caseness score that ranges from 0.0 to 1.0. The closer the score is to 1 the greater the probability that a participant would meet diagnostic criteria for a major depressive episode if they had been administered the full CIDI interview.

Procedure

Data Analysis Strategy.

I used Mplus version 5.1 (Muthén & Muthén, 1998-2007) to estimate two-level hierarchical linear regression models of the effects of individual and neighborhood predictors on internalizing and externalizing behavior problems. The individual, or level one, predictors of interest are parenting stress and maternal depression. The primary neighborhood, or level two, predictors of interest are neighborhood socioeconomic disadvantage and social capital. I also included several covariates at both levels. Multilevel modeling captures the inherent structure of the dataset where children living in households are nested within neighborhoods. Multilevel modeling corrects the standard errors to adjust for the non-independence of children who live in the same neighborhood. This analytic approach also allows for the partitioning of variance at both the individual and neighborhood level. Subsequent estimates then determine how much variance is accounted for by the individual and neighborhood level predictors (Tabachnick & Fidell, 2007).

Overall, there was between 0% and 4.5% missing data for all of the variables included in the study. Missing data was imputed using maximum likelihood estimation. Further, I estimate models using robust standard errors.

For the analytic approach, I first estimated null models for both the internalizing and externalizing behavior problems outcomes. A null model is one that includes only the intercept of the outcome and no other predictors. I then used the results of this model to calculate the intraclass correlation coefficient (ICC). The ICC in this case is the ratio of neighborhood variance to the total variance and is an indicator of whether the assumption of the independence of errors has been violated. Higher scores indicate greater violation (Tabachnick & Fidell, 2007). Using the ICC, I also calculated the model design effect (DEFF) using the formula: $1 + (\text{average cluster size} - 1) * \text{ICC}$. Values greater than 2 indicate that the data should be modeled

using multiple levels (Muthén, 1999). For internalizing behavior problems, the ICC was 0.12, indicating that approximately 12% of the variance in internalizing behavior problems is due to neighborhood level factors. The DEFF for internalizing behavior problems was 3.23. For externalizing behavior problems, approximately 4% of the variance is due to neighborhood level factors and the DEFF is 1.8.

Results

The findings of this study confirm my first hypothesis that maternal depression and caregiver stress is positively associated with both internalizing and externalizing behavior problems. The study also partially confirmed my hypotheses about the direct associations between neighborhood characteristics and child and adolescent behavior problems. The results demonstrated that the level of neighborhood disadvantage is a significant predictor of children's behavioral problems. The analysis also partially support my final hypothesis and show that neighborhood social capital attenuates the impact of maternal depression on adolescent, but not child, behavior problems. Below I provide the specifics of the study results:

Maternal Depression, Parenting Stress, and Child and Adolescent Behaviors Problems

I conducted a first set of multilevel regression analyses to examine the main effects of the predictors and covariates on both internalizing and externalizing behaviors. I present the results of these analyses for children age 5 to 11 in Table 1.2. Female children were rated as having more externalizing symptoms compared to male children ($b = -.92, p < .05$). White children were also rated as having fewer internalizing symptoms as compared to Latino children ($b = -1.04, p < .01$). Having seen a psychologist in the previous year was associated with both more internalizing ($b = 1.5, p < .05$) and externalizing ($b = 4.1, p < .01$) symptoms. Further, children of mothers who reported more parenting related stress also had higher ratings for both

internalizing ($b = .1, p < .01$) and externalizing behavior problems ($b = .4, p < .01$). Finally, children of mothers who reported more depressive symptoms, had higher ratings of internalizing ($b = 2.1, p < .01$) and externalizing problems ($b = 3.2, p < .01$).

For adolescents, females were rated as having more internalizing behavior problems compared to males ($b = .6, p < .05$). In addition, white adolescents were rated as having fewer externalizing problems compared to Latino adolescents ($b = 1.3, p < .01$). Also, seeing a psychologist was positively associated with externalizing behavior problems ($b = 3.8, p < .01$). Similar to younger children, both the mother's parenting related stress and depression were significantly associated with behavior problems for adolescents. Parenting related stress predicted greater internalizing ($b = .2, p < .01$) and externalizing behavior problems ($b = .6, p < .01$). Maternal depressive symptoms was also associated with more internalizing ($b = 2.2, p < .01$) and externalizing behaviors ($b = 3.2, p < .01$). I present the results of this analysis in Table 1.3.

Social Capital, Disadvantaged Neighborhoods and Behavior problems

Living in more disadvantaged neighborhoods was also associated with more internalizing ($b = .5, p < .01$) and externalizing behavior problems ($b = .7, p < .05$) for children. However, neither social capital nor residential stability was a significant predictor of either type of child behavior problem. I present the complete results of these analyses are in Table 1.2.

Unlike for children, neighborhood economic disadvantage was not significantly associated with either internalizing or externalizing behavior problems in adolescents. I present the results of these analyses in Table 1.3.

Interaction of Maternal Caregiver Depression and Neighborhood Social Capital

I conducted a final set of analyses that included the cross-level interaction of maternal depression with neighborhood social capital as a predictor of behavior problems. For the younger children, the interaction of maternal depression and neighborhood social capital was not a significant predictor of either internalizing or externalizing behavior problems. However, for adolescents, the interaction was a significant predictor of both types of behavior problems. The interaction shows that, for adolescents living in neighborhoods with greater social capital, the association of parental depression with internalizing ($b = -4.4, p < .01$) and externalizing behavior problems ($b = -5.3, p < .05$) is attenuated. Also, when the interaction term is included in the model, greater neighborhood economic disadvantage is associated with more internalizing ($b = .46, p < .05$) but not externalizing ($b = -.05, p < .05$) behavior problems for adolescents. I present the results of this analysis in Table 1.3 and in Figure 1.1.

Discussion

I theorized and then investigated a comprehensive model of the role that neighborhood and family processes play in child and adolescent development using a stratified random sample of Los Angeles County households. The results support predictions that children and adolescents of mothers who reported more depressive symptoms and parenting related stress, had more internalizing and externalizing behavior problems compared to children of less depressed mothers. These findings are consistent with studies that demonstrate that children of depressed parents are at higher risk for the development of behavior problems (Beeber et al., 2008; Brennan et al., 2000). Unfortunately, these early behavior problems often translate into later academic underachievement, difficulty with interpersonal relationships, higher levels of aggression, and later psychopathology (Shonkoff & Phillips, 2000).

This study extends our understanding of these negative consequences by determining that the social capital of neighborhoods, along with maternal caregiver depression, influences development of these behavioral problems. My hypothesis that neighborhood economic and social characteristics are associated with behavior problems was partly supported. This study demonstrated that children (5-11), but not adolescents (12-17), living in economically disadvantaged neighborhoods had more internalizing and externalizing symptoms compared to children who lived in more advantaged neighborhoods. Contrary to expectations, the degree of neighborhood social capital was not directly associated with behavior problems for either children or adolescents.

As for the final hypothesis – that social capital would act as a protective factor against the negative effects of maternal depression – the results showed that social capital moderated the association of maternal depression and adolescent behavior problems. Neighborhood social capital acted as a protective factor such that the association between maternal depression and behavior problems was attenuated for adolescents who lived in high social capital neighborhoods. These findings represent one of the major contributions of this work and suggest that neighborhood resources can buffer some of the negative effects of having a depressed parent. Having a depressed mother puts adolescents at risk for the development of behavior problems, through impairments in parenting and the mother-child relationship (Pachter et al., 2006). Those adolescents are then at increased risk for the subsequent negative sequelae of those behavior problems (Byrd et al., 2012; Holtmann et al, 2011; Timmermans et al., 2009). For those adolescents whose parents are impaired, the presence of protective factors outside of the family become particularly salient (Portes, 1998). Living in a neighborhood with higher social capital, allows the adolescent to look outside the family for support and to access resources.

Important resources include non-familial adult role models or pro-social peer groups that adolescents can form relationships with and that promote positive mental health outcomes (Stanton-Salazar, 2011; Pribesh & Downey, 1999; Wandersman & Nation, 1998).

Previous research about neighborhood effects on child development has almost exclusively focused on the direct impact of neighborhoods. However, there exists a complex relationship between neighborhoods, families, the individual child, and that child's developmental outcomes. Focusing only on the direct effects ignores the potential opportunities to intervene at multiple levels and mitigate the negative consequences of family or neighborhood socioeconomic disadvantage by targeting the potentially malleable factor of neighborhood social capital. A fruitful area for future research is the development and evaluation of interventions intended to enhance neighborhood social processes.

There are several limitations to this study that are worth noting. First, the cross-sectional design precludes me from making causal inferences about the relationship between neighborhood or family characteristics and behavior problems. Second, I cannot rule out the possibility that omitted variables account for the relationship between neighborhood conditions and behavior problems. To mitigate this concern, I controlled for a variety of individual and family characteristics, however, unmeasured variables such as school quality, or the availability of mental health services, could account for the association between neighborhoods and behavior problems. Another limitation is that mothers reported on both their own symptoms of depression and their child's behavior problems. Some research suggests that depressed mothers may over report behavior problems in their children, which would lead to an overestimation of the association between maternal depression and child behavior problems (Najman et al., 2001).

However, even with these limitations, the present study makes a significant contribution to the existing literature by examining how the influence of neighborhood characteristics is moderated by family characteristics. Another strength of this study is that I used a partially independent sample of neighborhood adults to rate community social capital. This approach reduces potential reporting bias that might occur if mothers were the sole raters of both social capital and behavior problems.

Furthermore, previous neighborhood research has primarily involved adolescents as opposed to younger children. The argument for focusing on adolescents is that they are more likely to be influenced by the neighborhood than younger children because adolescents spend increasing amounts of unsupervised time in the neighborhood. This allows for adolescents to be influenced by peers, adults, and neighborhood institutions independent of the adolescent's family (Wickram & Bryant, 2003). However, focusing only on adolescents minimizes the very real influence that neighborhoods can have on younger children. Indeed, younger children are often less able than adolescents to venture outside of their neighborhoods. Therefore, children are likely to be impacted by neighborhood contexts either directly, or indirectly, as transmitted by their family members. Moreover, the length of children's exposure to detrimental factors is significant as research has shown the negative consequences of cumulative exposure (Appleyard et al, 2005; Coie et al 1993; McCord et al., 2001). The current work investigated adolescent and child outcomes separately. Taking into account a developmental perspective is an important first step in better understanding how the effects of neighborhood conditions vary across developmental stages.

Policy Implications

The results of this study suggest that effective interventions to address the mental health needs of children and adolescents must not only target the individual child and his or her family, but also the broader environmental context. Certainly, the more widespread the availability of services such as counseling, and parent training and resources including jobs, transportation, quality schools and child care, the greater the likelihood of reducing the incidence of depression among parents and behavior problems among their children. Though the effectiveness of behavioral health interventions targeted at individuals and families has improved in recent years, the presence of risk and protective factors for health outcomes at the community level underscores the importance of adopting community- level interventions.

Disadvantaged neighborhoods and their residents will benefit as we increase community economic health, improve the quality of neighborhood schools, establish sufficient grocery stores, increase the number of community and school-based mental health centers, and reduce crime. Given the scope of the problems observed in disadvantaged communities, neighborhood-level interventions may be an efficient means of addressing these ills. Further, in a nation in which 22% of our children live below the poverty level (U.S. Census Bureau, 2011), interventions which reduce economic inequality and capitalize on the social resources available to children through their communities and extended networks, are essential public health tools. Indeed, recent efforts by foundations and government agencies alike aim to address the multitude of factors that influence the quality of life in neighborhoods. Among these are the California Endowment and the Obama Administration's Neighborhood Revitalization Initiative, which includes the signature Promise and Choice Neighborhoods initiatives. These programs seek to fulfill the need for place-based interventions by identifying and funding interventions that employ an ecological approach to addressing the individual, family, and environmental

determinants of child and adolescent development. They strive to support neighborhoods that are strengthening families and community ties, improving local schools, and developing community resources – including physical and mental healthcare facilities -- all of which are necessary for children, youth, and families to achieve well-being and future success.

Table 1.1		
Distribution of Child and Adolescent Sociodemographic Characteristics, Los Angeles Family and Neighborhood Survey, Wave 1, 2000-2001		
	Children	Adolescents
	(N = 741)	(N = 564)
Age	Mean = 7.93 (S.D. = 1.87)	Mean = 14.43 (S.D. = 1.67)
Race/ethnicity		
Latino	51.74%	48.48%
White	21.66%	25.96%
Asian/Pacific Islander	11.69%	12.24%
Black/African American	12.38%	12.11%
Native American	2.54%	1.25%
Family income	Mean = \$56,208.64 (S.D. = \$103,784.10)	Mean = \$58,982.66 (S.D. = \$80,589.23)
Maternal age	35.88 (S.D. = 7.28)	41.85 (S.D. = 7.39)
Maternal education		
< high school	36.91%	31.95%
High school graduate/GED	19.62%	21.21%
Some/completed vocational school	28.45%	24.72%
≥ Some College	15.02%	22.12%
Maternal marital status		
Married	64.41%	66.21%
Cohabiting	12.94%	8.05%
Separated/divorced/widowed	11.48%	17.90%
Never Married	11.17%	7.84%

Notes: Percentages may not sum to 100 because of rounding.

Table 1.2				
Two-Level Hierarchical Linear Models predicting Internalizing and Externalizing Behavior Problems for Children age 5 to 11, Los Angeles Family and Neighborhood Survey, Wave 1, 2000-2001, N = 741				
Parameters	Internalizing	Externalizing	Internalizing	Externalizing
(Child's characteristics)	b (S.E.)	b (S.E.)	b (S.E.)	b (S.E.)
Sex (ref male)				
Female	-.06 (.2)	-.92 (.42)*	-.1 (.19)	-.94 (.38)*
Race/ethnicity (ref Latino)				
White	-1.04 (.38)**	.05 (.85)	-1.02 (.38)**	.19 (.85)
Asian/Pacific Islander	-.88 (.42)*	-.81 (.67)	-.79 (.42)±	-.48 (.67)
Black/African American	-.56 (.47)	1.93 (1.0)±	-.5 (.46)	2.15 (.98)*
Native American	.86 (2.01)	.22 (1.64)	.85 (1.94)	.34 (1.61)
Seen psychologist (ref no)				
Yes	1.5 (.74)*	4.05 (1.4)**	1.53 (.78)*	4.27 (1.45)**
(Child's parental characteristics)				
Family income	-.18 (.13)	.21 (.2)	-.16 (.13)	.12 (.21)
Maternal age	.02 (.03)	.02 (.04)	.03 (.02)	.0 (.04)
Maternal education (ref < high school)				
High school graduate/GED	-.63 (.42)	.08 (.69)	-.63 (.42)	.07 (.67)
Some/completed vocational school	-.44 (.4)	-.17 (.71)	-.47 (.36)	-.19 (.63)
≥ Some College	-.08 (.43)	.39 (.81)	-.13 (.42)	.36 (.75)
Marital Status (ref never married)				
Married	.02 (.47)	.05 (.69)	-.03 (.46)	.07 (.71)
Cohabiting	1.07 (.58)±	.6 (.85)	1.15 (.6)±	.89 (.87)
Separated/divorced/widowed	.15 (.54)	.07 (.86)	.11 (.53)	.1 (.82)
Parenting related stress	.14 (.04)**	.43 (.08)**	.15 (.05)**	.41 (.82)**
Maternal depression	2.06 (.57)**	3.22 (1.01)**	1.85 (.5)**	3.57 (1.09)**
(Neighborhood characteristics)				
Residential stability	.01 (.14)	.35 (.27)	.0 (.15)	.34 (.25)
Concentrated disadvantage	.51 (.16)**	.65 (.31)*	.58 (.14)**	.69 (.29)*
Social capital	.13 (.78)	.04 (1.39)	.3 (.75)	.3 (1.36)
Cross-level interaction				
Social capital x caregiver depression	--	--	-1.26 (2.23)	.21 (3.88)
Notes: ±p < .1, *p < .05, **p < .01				

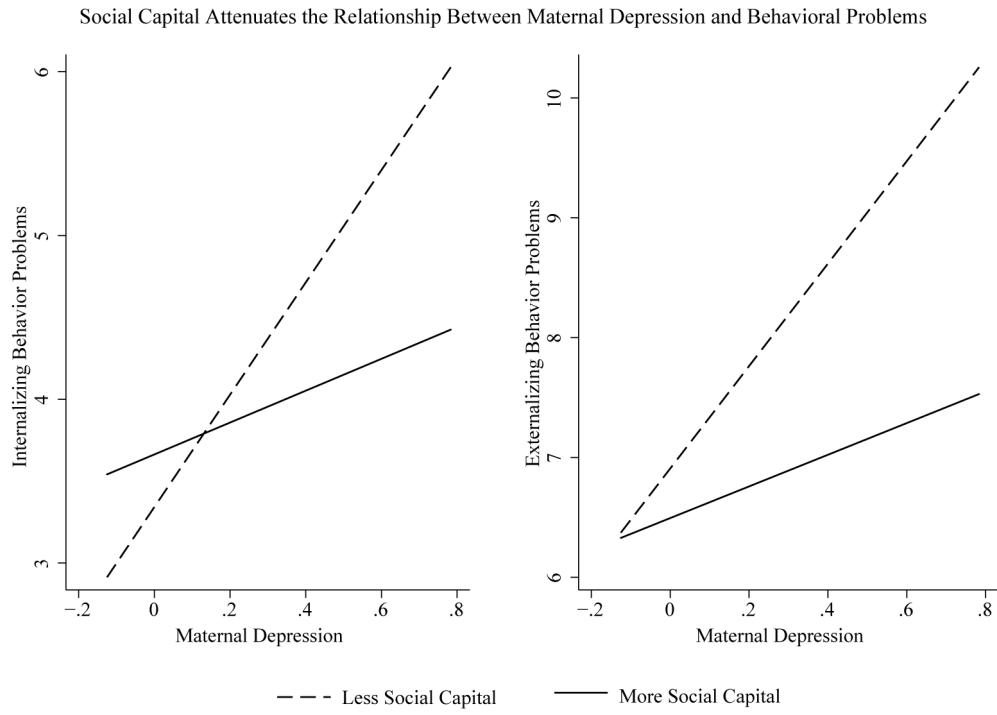
Table 1.3				
Two-Level Hierarchical Linear Models Predicting Internalizing and Externalizing Behavior Problems for Adolescents age 12 to 17, Los Angeles Family and Neighborhood Survey, Wave 1, 2000-2001, N = 564				
Parameters	Internalizing	Externalizing	Internalizing	Externalizing
(Child's characteristics)	b (S.E.)	b (S.E.)	b (S.E.)	b (S.E.)
Sex (ref male)				
Female	.64 (.32)*	.17 (.5)	.6 (.31)*	.16 (.5)
Race/ethnicity (ref Latino)				
White	-1.33 (.46)**	-.14 (.79)	-1.17 (.46)*	-.06 (.76)
Asian/Pacific Islander	-.73 (.65)	-1.74 (.98) ±	-.71 (.65)	-1.74 (1.0) ±
Black/African American	-1.05 (.56) ±	.54 (.94)	-.85 (.57)	.63 (0.9)
Native American	-1.42 (.61)*	-2.72 (1.11)*	-1.14 (.68) ±	-2.66 (1.11)*
Seen psychologist (ref no)				
Yes	1.47 (.78) ±	3.78 (1.28)**	1.43 (.77) ±	3.73 (1.28)**
(Child's parental characteristics)				
Family income				
	-.42 (.13)**	-.06 (.36)	-.39 (.14)**	-.06 (.36)
Maternal age				
	-.03 (.02) ±	-.05 (0.05)	-.03 (.02)	-.05 (.05)
Maternal education (ref < high school)				
High school graduate/GED	-.81 (.42) ±	-1.42 (.71)*	-1.01 (.42)*	-1.54 (.65)*
Some/completed vocational school	-.4 (.49)	-1.8 (.91)*	-.61 (.49)	-1.98 (.88)*
≥ Some College	.05 (.59)	-.11 (1.1)	-.13 (.58)	-.3 (1.07)
Marital Status (ref never married)				
Married	-.11 (.5)	-.44 (.9)	-.04 (.5)	-.039 (.86)
Cohabiting	.75 (.77)	3.2 (1.6)*	.68 (.73)	3.18 (1.58)*
Separated/divorced/widowed	-.02 (.58)	.56 (1.16)	.02 (.58)	.6 (1.12)
Parenting related stress				
	.2 (.05)**	.57 (.08)**	.2 (.05)**	.56 (.08)**
Maternal depression				
	2.18 (.52)**	3.18 (.92)**	2.41 (.52)**	3.05 (.96)**
(Neighborhood characteristics)				
Residential stability				
	.04 (.19)	.35 (.36)	.1 (.19)	.29 (.35)
Concentrated disadvantage				
	.41 (.21) ±	-.06 (0.46)	.46 (.2)*	-.05 (.46)
Social capital				
	.4 (.92)	-1.06 (2.17)	.57 (.91)	-.73 (2.17)
Cross-level interaction				
Social capital x caregiver depression				
	--	--	-4.36 (1.3)**	-5.25 (2.56)*

Notes: ±p < .1, *p < .05, **p < .01

Figure Captions

Figure 1.1. Graph of the interaction of maternal depression and neighborhood level social capital predicting adolescent internalizing and externalizing behavior problems. For adolescents living in neighborhoods with more social capital, the association between parental depression and both internalizing and externalizing behavior problems is attenuated.

Figure 1.1



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STUDY 2:

Neighborhood Social Capital and Successful Cognitive Skills for Children

Overview

Purpose: To investigate how indicators of the family context (socioeconomic status and maternal depression) and aspects of the neighborhood environment (socioeconomic disadvantage and social capital) are associated with child math and reading skills.

Hypotheses:

- 1) Family income and maternal educational attainment will be positively associated with child academic skills.
- 2) Children of depressed parents will perform worse on measures of math and reading skills.
- 3) Neighborhood socioeconomic disadvantage and residential instability will be associated with worse academic skill performance.
- 4) Neighborhood social capital will be associated with better academic skill performance.
- 5) Social capital will also moderate the association of maternal depression with child academic skills.

Abstract

Previous research has demonstrated that family and neighborhood poverty negatively impact children's cognitive development and academic skills. However, relatively less is known about the impact of neighborhood social capital and family psychological factors, such as maternal depression, on academic skills. Even less well understood is how neighborhood and family characteristics interact to influence child academic outcomes.

In this study, I examined two-level hierarchical regression models of the main effects of neighborhood characteristics (socioeconomic disadvantage, residential stability, social capital) and family characteristics (family income, maternal educational attainment, and maternal depression) on child academic skills. I also investigated how neighborhood social capital moderates the negative association of maternal depression with child academic skills.

I used data from wave one the Los Angeles Family and Neighborhood Survey. The data were collected from 2000 to 2001 and included information from 3,085 households in Los Angeles County. The participants in the study were 1237 children age 6 to 17. Outcome variables are reading ability and math computation skills as measured by the applied problems, letter-word identification, and passage comprehension subtest of the Woodcock-Johnson Revised Tests of Achievement.

The results showed that children from families with higher income, and with mothers who earned at least a college degree, had better academic skills. Also, children with mothers who endorsed more depressive symptoms had worse reading comprehension and math computation skills. At the neighborhood level, social capital was positively associated with math

computation. However, neither neighborhood socioeconomic disadvantage nor residential stability was associated with any of the academic skills. Finally, I did not find that neighborhood social capital moderates the relationship between maternal depression and child academic skills. Although I did not find the hypothesized interaction, these results still highlight the importance of using an ecological approach to understanding the association of neighborhood and family context on child academic skills.

Introduction

Although theories abound about the effect of context on child cognitive development and academic skills, the preponderance of this work focuses on family and neighborhood socioeconomic status. More recently, researchers have begun to explore the contribution of other potentially important characteristics such as neighborhood social capital and family psychological factors including maternal depression. However, additional work is needed to fully understand the significance of these effects. The majority of research in this area has either examined direct effects, or investigated how family characteristics mediate the impact of neighborhood characteristics (Gonzales et al, 1996). Relatively less research has considered the moderating influence of neighborhoods on family characteristics. Therefore, the purpose of this work is to investigate the direct and moderated effects of family and neighborhood characteristics on children's academic skills. Specifically, I analyze a model which addresses the contribution of family socioeconomic status (family income and maternal educational attainment), neighborhood structural characteristics (neighborhood socioeconomic disadvantage and residential stability), neighborhood social capital, and maternal depression on child academic skills – reading ability and math computation skills.

Disadvantage at the family and neighborhood level places children at risk for difficulties in cognitive development and subsequently worse academic outcomes including verbal skills, non-verbal reasoning, GPA, and academic achievement (Bradley & Corwin, 2002; Najam et al., 2004; Nobel et al., 2005; Sampson, Sharkey, & Raudenbush, 2008; Sastry & Pebley, 2010; Sirin, 2005). A variety of theories have been posited to explain the mechanisms that link disadvantage and child outcomes, which, based on my review of the literature, I have grouped into three broad

categories: resource theories, stress theories, and socialization theories. I then draw on these theories to hypothesize and test an integrated model of family and neighborhood effects on child academic skills.

Resource Theories

Living in resource rich environments is crucial for the development of intellectual abilities and positive academic performance (Farha, 2010; Farha et al., 2008; Hackman, Farha, & Meaney, 2010). Socioeconomically disadvantaged families are less likely to be able to provide a cognitively stimulating and engaging home learning environment through activities and resources such as trips, visits to the museum, and home libraries, all of which shape children's cognitive development (Aikens & Barbin, 2008; Duncan & Brooks-Gunn, 2000; Guo & Harris, 2000; Orr, 2003). Also, being from a poor family or living in an impoverished neighborhood can deprive children of access to important foundational experiences that increase cognitive abilities such as quality public schools, child care facilities, and recreational programs (Duncan & Brooks-Gunn, 2000; Evans 2004; Kingston et al., 2009). The caliber and strength of neighborhood institutions may also be compromised in more transient neighborhoods where neighbors are less likely to affiliate with one another, organize into community groups, or participate in mutual aid groups that could work to improve the quality of local institutions (Lowenkamp, Cullen, & Pratt, 2003; Perkins, Brown, & Taylor, 1996; Sampson, Morenoff, & Earls, 1999).

Stress Theories

Children from socioeconomically disadvantaged families and neighborhoods are at higher risk for exposure to physically and psychologically stressful events and situations (Aneshensel, 2009; Evans & Kim, 2007; Ewart & Suchday, 2002; Turner & Avison, 2003).

Exposure to high levels of stress is detrimental to the cognitive development and academic performance of children (Garner et al., 2012; Morales & Guerra, 2006; Shonkoff, Boyce, & McEwen, 2009).

The family stress model theorizes that the link between family socioeconomic disadvantage and child outcomes is transmitted through the detrimental effect of economic hardship on parental mental health and parenting behaviors (Conger et al., 2002; Kohen et al., 2008; Yoder & Hoyt; 2005). Parents facing economic hardship are more likely to develop depression (Coyle, Roggman, & Newland, 2002; Ross, 2000) and, in turn, children of depressed parents are at risk for a range of negative social, emotional, and behavioral outcomes (Brennan et al., 2000; Hammen & Brennan, 2003; Siefert et al., 2000) potentially including worse academic skills. Currently, the evidence on the relationship between maternal depression and cognitive development or academic outcomes is mixed with some studies showing a negative association (Brennan et al., 2000; Cogill et al., 1986; Grace, Evindar, & Stewart, 2003) while others show no or negligible associations (Kurstjens & Wolke, 2001; Leschied et al., 2005).

At the neighborhood level, children in socioeconomically disadvantaged communities are more likely to be exposed to environmental toxins or pollutants, such as lead, which severely and negatively impact cognitive ability and academic achievement (Chandramouli et al., 2009; Lanphear et al., 2000). Similarly, high levels of neighborhood ambient noise have been linked to disruptions in information processing and reading deficits (Evans, 2006; Evans & Kantrowitz, 2002). Disadvantaged neighborhoods are also more likely to be characterized by signs of physical and social decay such as graffiti, trash, abandoned buildings, visible drug use, and other criminal activity (Aneshensel, 2009; Sampson et al., 1997). Disorder serves as a chronic stressor, creating a sense of fear and indicating that the formal and informal sources of control

have deteriorated (Sampson, Morenoff, & Gannon-Rowley, 2002; Wandersman & Nation, 1998). Furthermore, being poor, or living in a poor community, increases children's likelihood of witnessing violence or being victimized (Buka et al., 2001; Crouch et al., 2000) which, in turn, negatively impacts their academic skills (Delaney-Blac et al., 2002; Hurt et al., 2001).

Socialization Theories

Above I have outlined the negative effects of neighborhood and family poverty on children. But how do families and neighborhoods, positively promote children's academic skills acquisition? The emphasis on, and values about, schooling that families convey to children have a powerful effect on children's academic performance. Indeed, children's academic achievement is shaped by their parent's own educational attainment, involvement in the child's school, and expectations for the child's academic achievement (Davis-Kean, 2005; Spera, 2005). Wilson (1991) argues that a similar socialization process occurs at the neighborhood level where children who live in socioeconomically advantaged neighborhoods are more likely to come into contact with educated and successfully employed adults who can serve as role models. Indeed, some studies have found that the presence of affluent neighbors is positively associated with school readiness and other academic outcomes (Leventhal & Brooks-Gunn, 2000). At the opposite end of the spectrum, in neighborhoods with higher rates of unemployment, the relationship between schooling and success in adulthood may become disconnected in children's minds (Ainsworth, 2002; Wilson, 1987).

Neighborhood social disorganization theory says that socioeconomic disadvantage and residential stability compromises residents' ability to exercise informal collective control and promote prosocial norms within the community (Sampson, Raudenbush, & Earls, 2007). However, neighborhoods high in social capital -- the norms of trust, reciprocity, and shared

values that allow community members to come together to act for the common good (Putnam, 1993) may promote positive child academic outcomes. Communities high in social capital are able to organize to improve local institutions such as schools, child care centers, or recreational facilities (Carpiano, 2006; Cullen & Whiteford, 2001). Strong social capital can also help to create an environment where children thrive academically by promoting the development of prosocial norms that encourage academic achievement and discourage deleterious behavior through informal social control (Ainsworth, 2002; Sampson et al., 1999). Compared to neighborhood socioeconomic disadvantage, relatively less work has been devoted to investigating the effects of neighborhood social processes on child academic outcomes.

Sampson and colleagues (1999) describe four dimensions of neighborhood social processes that comprise my measure of social capital: Intergenerational closure is the amount of familiarity between neighborhood adults and children. Child-centered informal social control is residents' level of willingness to intervene when they see a child misbehaving. Reciprocated exchange is an indicator of whether neighbors exchange information and assist one another. Finally, social cohesion is the extent to which neighbors trust one another and believe that they share the same values.

Integrated Model

Community characteristics undoubtedly impact children's academic skills. However, examining only main effects oversimplifies a relatively complex relationship. Moderational models propose that the influence of more proximal variables, such as maternal depression, on child academic skills depends on the level of neighborhood variables such as social capital (Gonzales, 1996; Wickrama & Bryant, 2003). However, these models are rarely directly examined in the literature.

I propose that neighborhood social capital may be most important for children who are experiencing adversity at home, such as when their mother is depressed. As outlined above, economic hardship directly and negatively impacts children's academic skills (McLoyd, 1998). In addition, mothers experiencing these same economic hardships are under high levels of stress that increases their risk for developing depression (Coyle et al., 2002; Ross, 2000) and compromises their ability to provide the warm, supportive, and consistent parenting that would shield her children from the detrimental effects of poverty (Beck, 1999; Beeber, Perreira, & Schwartz, 2008; Lim, Wood, & Miller, 2008; Paulson, Dauber, & Leiferman 2006).

For children who have access to less support at home, such as children whose mothers are impaired by depression, the presence of protective factors in the community becomes even more salient as a resource for positive outcomes (Portes, 1998). Children in high social capital neighborhoods may be able to form supportive relationships with non-familial adult role models (Stanton-Salazar, 2011; Wandersman & Nation, 1998). In addition, the availability of prosocial peer groups and peers' with involved parents can expose children to norms that support academic excellence (Pribesh & Downey, 1999; Stewart, 2008). Strong neighborhood institutions such as schools, churches, and community centers also provide extra-familial support and monitoring for children (Cullen & Whiteford, 2001; Xue et al; 2005). For mothers struggling with depression, the support of other parents in the neighborhood may be essential to helping her parent more effectively (Bynes & Miller, 2012). For example, information exchanged among parents can assist mothers by directing her towards high quality child care services or informing her about educational opportunities for her child (Kao, 2010; Sampson et al., 1999).

With this integrated perspective in mind, I investigated a model of the direct and interaction effects of family and neighborhood characteristics on the math and reading skills of

children age 6 to 17 using data from the Los Angeles Family and Neighborhood Survey (L.A. FANS). The measure of academic skills included in this survey is the Woodcock-Johnson Tests of Achievement Revised (Woodcock & Johnson, 1989). In this model I included multiple individual, family, and neighborhood-level predictors. In addition to the predictors of interest that I outlined above, I also included several individual and family-level covariates. At the child level, I included the child's race/ethnicity, because research has shown that White and Asian children tend to perform better academically than Black and Latino children (Hemphill & Vanneman, 2011; Koeber, 2010; Vanneman, Baldwin, & Rahman, 2009). I also included the mother's marital status, because previous research suggests that children in continuously married two-parent families are less likely to have academic problems compared to children with cohabitating parents or in single-parent homes (Amato, 2005; Jeynes, 2000).

I hypothesized that indicators of family socioeconomic status – family income and maternal education, would be positively, while maternal depression would be negatively, associated with children's academic skills. I also expect that neighborhood socioeconomic disadvantage and residential instability will be associated with worse academic skills while children who live in communities with greater social capital would perform better. I directly test the supposition that neighborhood social capital is most important for children who are experiencing adversity at home, by investigating the interaction of social capital and maternal depression as it predicts child academic skills.

Methods

Data/Sample Design and Selection.

I used data from the first wave of the Los Angeles Family and Neighborhood Survey (L.A. FANS); these data were collected from April 2000 to January 2002. The survey was

designed specifically so that researchers could answer questions about the effects of family and neighborhood contexts on children's development. The L.A. FANS sampled households from 65 different neighborhoods, defined as a single census tract, in Los Angeles County.

Furthermore, the survey over sampled households from the top 40th percentile of the poverty distribution (based on the percent of residents with annual incomes below the poverty level).

In each house, several individuals were identified for interviews: In households with children, one child, age 17 or younger, was randomly selected and additional information was collected about this "randomly selected child." In addition, that child's mother was also interviewed more extensively about both herself and the randomly selected child. For the purpose of the survey, she was designated the "primary caregiver." If the child's mother did not live in the household, or was not able to provide information on the child, another adult member of the household was identified who indicated that he or she was primarily responsible for the care giving of the child. For additional information on the data and sample design, please see Peterson et al. (2004).

Analytic Sample.

The sample consisted of 1,237 of the randomly selected children age 6 to 17. I excluded Children age three to five from the sample because they were not administered the passage comprehension subtest, one of the measures of academic skills. In addition, I only selected children whose primary caregiver was female because only a small minority, less than 3%, of primary caregivers were male.

Measures.

Outcome measures.

Academic skills. Math and reading skills were measured using the Woodcock-Johnson Tests of Achievement Revised (WJ-R) (Woodcock & Johnson, 1989). As part of the L.A. FANS survey, children age 6 to 17 were administered three subtests from the WJ-R: applied problems, letter-word identification, and passage comprehension. On the applied problems subtest, children's mathematical computation skills are measured through a series of practical word problems. The letter-word identification subtest measures reading decoding -- the ability to apply knowledge of letter-sound relationships to correctly pronounce written letters and words. Finally, the passage comprehension subtest is a measure of reading comprehension. The test was administered in either English or Spanish depending on the child's preference (Peterson et al., 2004). For the dependent variables, I used the standardized scores of each subtest. Standardized scores are raw scores which have been scaled to have a mean of 100 and a standard deviation of 15.

Child predictors.

Child demographic information. I included the child's age, gender, and race/ethnicity, in the model. I present this information in Table 2.1.

Test administration language. I controlled for whether the WJ-R was administered in either Spanish or English.

Maternal and Family Predictors.

Maternal demographic information. I included information on the mother's age, educational attainment, and marital status in the model. Please refer to Table 2.1 for this demographic information.

Family income. I also accounted for total household annual income; this information is presented in Table 2.1.

Maternal depression. The L.A. FANS assessed maternal depression over the previous 12 months using the Composite International Diagnostic Short form (CIDI-SF) (Kessler et al., 1998). This instrument produces a score from 0 to 1 based on the number of symptoms endorsed and the level of severity of these symptoms. Scores closer to 1 indicate a higher probability that the participant would meet diagnostic criteria for having had a major depressive episode if they have been administered the full CIDI interview.

Neighborhood Predictors.

Residential stability. The L.A. FANS included information about each neighborhood's level of residential stability in a companion dataset: the Los Angeles County Neighborhood Services and Characteristics Database (L.A. NSC) (Peterson et al., 2007). Indicators of a neighborhood's level of residential stability were gathered from the 2000 U.S. Census and included in the L.A. NSC as a factor score where higher scores indicate that the neighborhood is more stable. The residential stability factor score included in the L.A. NSC had four indicators: 1) the percent of multi-unit dwellings in the tract, 2) the percent of owner occupied housing 3) the percent of people occupying the same dwelling in both 1995 and 2000 and 4) the percent of non-family households.

Socioeconomic disadvantage. The L.A. NSC also included a factor score for neighborhood socioeconomic disadvantage where higher scores corresponded to greater disadvantage. This factor score included six indicators: 1) the percent of the census tract population in poverty, 2) the percent of families with an annual income less than \$24,000, 3) the percent of households headed by females with children, 4) the percent of households receiving public assistance, 5) the percent of population that is non-White and non-Asian/Pacific Islander, and 6) the percent of the population under 18.

Social capital. I created a social capital factor score using data from the L.A. FANS. In the L.A. FANS one adult was selected at random from each household included in the survey. This individual then responded to 16 items which I used as indicators of social capital. Example items include: “This is a close knit neighborhood.” “Adults watch out that kids are safe.” “How often do you and other people in the neighborhood ask each other advice about personal things such as child rearing or job openings?” All items were answered using Likert scales. I used the responses from the 2,549 adults who responded to these 16 items to create the social capital factor score.

I conceptualized the 16 items as indicators of four aspects of social capital: social cohesion, intergenerational closure, informal social control, and reciprocated exchange. I hypothesized, and then used confirmatory factor analysis to test a second order factor model for social capital. In this model, social capital is the second order factor. The four aspects of social capital are the first order factors and are indicators of the overall social capital factor. Finally the 16 items are indicators of the four aspects of social capital. The results of the confirmatory factor analysis showed that the proposed model fit the data: comparative fit index (CFI) = 0.92, and root mean square error (RMSEA) = 0.04. I then averaged all of the individual social capital factor scores within each census tract to obtain an aggregate measure of neighborhood level social capital.

Procedure

Data Analysis Strategy

I analyzed the data using two-level random intercept and random slope hierarchical linear regression models in Mplus version 5.1 (Muthén & Muthén, 1998- 2007). I estimated separate models for each of the three academic skills outcomes: applied problems, letter-word

identification, and passage comprehension. In all three models I included the main effects of the same set of child, family, and neighborhood predictors. In a second set of models I included the interactions of social capital with maternal depression. Across all of the variables in the model there was between 0% to 9% missing data. Therefore, I used maximum likelihood estimation to impute the missing data. I also estimated the models using robust standard errors.

Results

In this analysis I investigated how child, family, and neighborhood characteristics are associated with each of three academic achievement skills: applied problems (ap), passage comprehension (pc), and letter-word identification (lwi), for a group of 1,237 children age 6 to 17.

The results of this analysis confirmed my hypothesis that children of families with more income, and children of mothers who had at least a college education, performed better on all of the academic outcomes. Also as predicted, children of depressed mothers had worse academic skills. At the neighborhood level, children living in communities with more social capital performed better on the applied problems subtest, but there was no association between neighborhood social capital and the other two academic skills outcomes. Furthermore, and contrary to hypotheses, neither neighborhood socioeconomic status nor residential stability was associated with academic skills. Also, the interaction of social capital and maternal depression was not significantly associated with child academic skills. I outline the specific findings below, and present the results of the full analyses in Tables 2.2 and 2.3.

For the first step in the analysis, I estimated the null model for each of the academic skills outcomes so that I could calculate both the ICC and the design effect (DEFF). The ICC is a measure of the ratio of the between neighborhood variance in academic skills to the total

variance in academic skills and is an indicator of whether the assumption of the independence of errors has been violated. Higher scores indicate greater violation (Tabachnick & Fidell, 2007). Using the ICC, I also calculated the model design effect (DEFF) using the formula: $1 + (\text{average cluster size} - 1) * \text{ICC}$. DEFF values greater than 2 indicate that the data should be modeled using multiple levels (Muthén, 1999). I calculated the following values for the three academic outcomes: (ap; ICC = .22, DEFF = 3.62) (lwi; ICC = .1; DEFF = 2.62) (pc; ICC = .21; DEFF = 4.39)

The Effects of Child Characteristics on Academic Skills

The results of the analysis demonstrated that all of the child characteristics I included in the model were significantly associated with academic skills. Specifically, older children tended to perform worse than younger children on all three academic outcomes (ap; $b = -0.8$, $p < .05$, lwi; $b = -0.8$, $p < .05$, pc; $b = -1.4$, $p < .05$). The results also showed that the race/ethnicity of the child was important in that White children consistently performed better than Latino children on all three outcomes (ap; $b = -4.7$, $p < .05$, lwi; $b = -6.5$, $p < .05$, pc; $b = -5.9$, $p < .05$). White children also performed better than Black children on both the applied problems and passage comprehension subtests (ap; $b = -6.2$, $p < .05$, pc; $b = -4.3$, $p < .05$). The gender of the child was only significantly associated with performance on the applied problems task such that female children performed worse than male children ($b = -2.0$, $p < .05$). Finally, for children who took the test in Spanish, they performed better on letter-word identification ($b = 17.0$, $p < .05$) and worse on both applied problems ($b = -7.0$, $p < .05$) and passage comprehension ($b = -4.8$, $p < .05$) compared to children who took the test in English.

The Effects of Family Characteristics on Child Academic Skills

As hypothesized, the study results showed that children from families who reported higher incomes performed better on both the applied problems and letter-word identification subtests (ap; $b = 1.5, p < .05$, lwi; $b = 1.3, p < .05$). Also consistent with my predictions, maternal education was associated with child academic skills such that children of mothers who had at least a college education performed better on all three outcomes (ap; $b = 7.1, p < .05$, lwi; $b = 4.2, p < .05$, pc; $b = 6.9, p < .05$). Finally, children of mothers who were never married performed worse on the letter-word identification and passage comprehension subtests (lwi; $b = -5.2, p < .05$, pc; $b = -4.2, p < .05$) but not on the applied problems subtest ($b = 3.1, p < .1$). Children of mothers who were cohabitating with a partner performed worse on both letter-word identification and passage comprehension (lwi; $b = -6.7, p < .05$, pc; $b = -5.8, p < .05$).

Finally, I hypothesized that maternal depression would negatively impact child academic skills. The results of the analysis supported this hypothesis demonstrating that maternal depression was negatively associated with all three subtests (ap; $b = 5.4, p < .05$, lwi; $b = -4.2, p < .05$, pc; $b = -4.1, p < .05$).

The Effects of Neighborhood Characteristics on Child Academic Skills

Children who lived in neighborhoods with higher levels of social capital performed better on the applied problems subtest ($b = 8.5, p < .05$); however, there was no effect of social capital on either of the two other outcomes. Contrary to my expectations, none of the measures of academic skills were associated with either neighborhood residential stability or socioeconomic disadvantage. I present the results of this analysis in Table 2.2.

The Interaction of Maternal Depression and Neighborhood Social Capital on Academic Skills

For the final step of the study, I analyzed a set of models in which I included the interaction of social capital and maternal depression as a predictor. Contrary to the hypotheses, the interaction between maternal depression and social capital was not significantly associated with any of the academic skills outcomes. I present the results of this analysis in Table 3.2.

Discussion

This study examined a comprehensive model of child, neighborhood, and family characteristics on children's math and reading skills. The importance of both the family and neighborhood context to the overall academic skill set of children in poor neighbors is attested to by a number of programs aimed at improving children's academic outcomes. The Harlem Children's Zone is one such program. The Harlem Children's Zone is a community-based anti-poverty intervention aimed at helping children succeed through a variety of programs from public charter schools, fitness and nutrition programs, parenting classes, to community centers (Harlem Children's Zone, 2009). This comprehensive approach acknowledges that interventions aimed at improving children's well-being and academic success need to address multiple factors in the child's background as well as in the neighborhood as a whole. Similarly, the framework for this study is rooted in an ecological understanding of how individual, family, and community characteristics influence child academic achievement.

I examined a comprehensive model that accounts for child characteristics, neighborhood structure (socioeconomic disadvantage and residential stability), family socioeconomic status (income and maternal educational attainment), community social processes (social capital), and family psychological factors (maternal depression) on academic skills. In addition, I investigated how neighborhood social capital attenuated the negative effect of maternal depression on child academic skills.

Although I did not specify hypotheses about the association between children's race/ethnicity and academic skills, the results of this study are consistent with national data on achievement discrepancies (Hemphill & Vanneman, 2011; Vanneman et al., 2009) and showed that White children performed better on all measures of academic achievement compared to Latino children. Similarly, White children performed better than Black children on both the applied problems and passage comprehension subtests. I also found that children who took the test in Spanish performed better on the letter-word identification subtest and worse on both the applied problems and passage comprehension subtest compared to children who took the test in English. It is possible that these differences are due to difference in the forms of the test itself, and not necessarily indicative of performance discrepancies between Spanish- and English-speaking children (Sastry & Pebley, 2010).

The results of the analysis supported my hypothesis that, both family income and maternal educational attainment would be positively associated with child academic outcomes. This finding is in line with the previous findings of other studies (Bradley & Corwin, 2002). The results also supported my second hypothesis that child academic skills would be negatively correlated with maternal depression. Although, the literature on the negative impact of maternal depression on the social, emotional, and behavioral well-being of children is robust (Brennan et al., 2000; Hammen, 2009) there is less consensus on the relationship between maternal depression and child cognitive development and academic outcomes (Grace et al., 2003; Kurstjens & Wolke, 2001). As discussed in the introduction, due to the functional limitations associated with depression, especially severe depression, depressed mothers may be less able to shield her child from the negative effects of stressful events and situations or to provide the warm nurturing support necessary for child cognitive development (Shonkoff et al., 2009). This

finding suggests that individual or family-based services to treat a mother's depression may have an ameliorative effect not just on her, but on her children as well. Furthermore, screening children of depressed mothers may serve to identify those who are at higher risk for negative academic outcomes and who would therefore benefit from additional support.

The results of the study also showed that children whose mothers were cohabitating with a partner or whose mothers were never married, tended to perform worse compared to children whose mothers were married. Previous research has suggested that children living in continuously married, two-parent households, do better on a multiple social, emotional, behavioral, and academic outcomes compared to children in single-parent homes or households with unmarried parents or a step-parent (Amato, 2005; Jeynes, 2000). Not only are single parent families more likely to be socioeconomically disadvantaged, but the stresses associated with parenting alone may reduce an individual's ability to parent effectively (Amato, 2005). Especially for African-American children who are disproportionately likely to grow-up in economically disadvantaged single-parent families (Mather, 2010; Simms, Fortuny, & Henderson, 2009), this finding highlights the importance of programs aimed at supporting the academic achievement of children by improving the quality and quantity of academic instruction (Granger, 2008; Herlihy & Quint, 2006) as well as addressing the social and economic difficulties of the child's family (Green & Anyon, 2010).

At the neighborhood level, I investigated the contribution of neighborhood socioeconomic disadvantage, residential stability, and social capital. Contrary to my expectations, I did not find a significant association between either neighborhood residential stability or socioeconomic disadvantage. Some studies have suggested that neighborhood affluence is a more important predictor of child academic outcomes than neighborhood poverty,

which may be more associated with child social and emotional outcomes (Ainsworth, 2002; Leventhal & Brooks-Gunn, 2003). Affluent neighbors can serve as positive role models, and may also have the economic capital to invest in, and improve, local institutions (Ainsworth, 2002; Wilson, 1987; Wilson, 1991). In contrast, the analyses partially supported my hypothesis about the association between neighborhood social capital and child academic skills. The results showed that children living in neighborhoods with higher social capital performed better on the applied problems subtest. However, there was no association between social capital and either the letter-word identification or passage comprehension subtests.

I tested my final hypothesis, that neighborhood social capital would buffer the negative effect of maternal depression on child academic skills, by including the interaction of social capital and maternal depression in the model. However, despite theory and other sound research that shows that family effects are moderated by neighborhood characteristics (Gonzales, 1996; Hagan, MacMillan, & Wheaton, 1996; Wickrama & Bryant, 2003), there was no significant association between this cross-level interaction and any of the measures of child academic skills. This measure of social capital may not capture the types of relationships and resources that would be most likely to promote positive academic outcomes for children experiencing less support in the home. For instance, although children in high social capital neighborhoods may have access to non-familial adult role models, what may be more relevant to children's academic skills are the quality of schools and the relationships those children form with teachers.

There are limitations to the study. First, because I used cross-sectional data, I cannot make inferences about the causal directions of the findings between child academic skills and family or neighborhood characteristics. In addition, due to the constraints of the variables

available in the data set, I was not able to examine how the quality of the child's school was associated with academic outcomes.

Even with these limitations, this study makes a significant contribution to our understanding of the multiple, and co-occurring influences of family and neighborhood contexts on child academic outcomes. Although I cannot account for every factor which could theoretically impact child outcomes, I have tested a fairly comprehensive model. In particular, I was able to estimate the effects of maternal depression and neighborhood social capital on child academic skills, two potentially important factors which receive relatively less attention in the neighborhood literature. In addition, I examined this model in an ethnically and racially diverse sample of children in very low income neighborhoods. Much of the previous research on neighborhood effects has involved primarily African-American and White children. Given that Latinos are the fastest growing racial/ethnic minority group (U.S. Census Bureau, 2008), and given Latino children's relatively poor academic performance compared to White children (Hemphill & Vanneman, 2011), it is important to investigate the determinants of academic success for Latino children.

Disparities in children's academic outcomes, notable when those inequalities are tied to socioeconomic status, are a concern not just for the well-being of the individual child, but for the future economic and social well-being of this country. Indeed, the cognitive skills of American students have been shown to be associated with later national economic growth (Hanushek et al., 2008; Hanushek & Woessmann, 2008). However, the academic achievement gap between children from high- and low-income families is even larger than racial achievement gaps (Reardon, 2011). For the individual child, early cognitive skills and academic achievement are associated with a wide range of later outcomes including job attainment, earnings, health

behaviors, and participation in illegal activities (Deke & Hamison, 2006; Heckman, Stixrud, & Urza, 2006; Strenze, 2007). For the nation, having a large and disadvantaged underclass weakens communities, as well as the economy, and taxes the resources of all Americans. As income inequality in this country continues to expand (Fran, 2008; Shaw & Stone, 2011), and as we rapidly reach the projected point when racial and ethnic minority children become the majority (US Census Bureau, 2008), it will become essential to identify ways to support the academic success of all children.

Table 2.1	
Weighted Means and Percentages of Child/Adolescent and Maternal Sociodemographic Characteristics and Outcome variables, Los Angeles Family and Neighborhood Survey, Wave 1, 2000-2001	
	Children and Adolescents
	(N = 1237)
Age	11.16 (3.35)
Gender	
Male	51.18%
Female	48.82%
Woodcock-Johnson Subtests	
Applied problems	103.14 (17.29)
Letter-word identification	102.99 (18.55)
Passage comprehension	97.71 (16.46)
Race/ethnicity	
Latino	50.41%
White	23.10%
Asian/Pacific Islander	12.12%
Black/African American	12.28%
Native American	2.09%
Family income	\$58,115.14 (\$95,026.73)
Maternal age	39.03 (7.6)
Maternal education	
< High school	35.77%
High school graduate/GED	19.76%
Some/completed vocational school	26.29%
≥ Some college	18.18%
Maternal Marital Status	
Married	65.89%
Cohabiting	11.17%
Separated/divorced/widowed	14.76%
Never married	8.18%

Table 2.2			
Two-Level Hierarchical Linear Regression Predicting Academic Skills of Children, Los Angeles Family and Neighborhood Survey, Wave 1, 2000-2001, N = 1,237			
Academic Skills Outcomes	Applied Prob.	Letter-Word ID	Passage Comp.
	b (S.E.)	b (S.E.)	b (S.E.)
Child Characteristics			
Age	-0.8 (.2)*	-0.8 (.2)*	-1.4 (.2)*
Sex (ref Male)			
Female	-2.0 (1.0)*	1.5 (1.0)	1.1 (0.9)
Race/ethnicity (ref White)			
White	-4.7 (1.8)*	-6.5 (2.2)*	-5.9 (1.8)*
Asian/Pacific Islander	2.0 (2.7)	0.9 (1.9)	-3.2 (2.0)
Black/African American	-6.2 (2.3)*	-3.5 (2.4)	-4.3 (2.2)*
Native American	0.1 (4.0)	-1.1 (3.6)	-1.7 (2.7)
Testing Language (ref English)			
Spanish	-7.0 (1.7)*	17.0 (2.5)*	-4.8 (1.4)*
Family Characteristics			
Family Income	1.5 (.6)*	1.3 (0.7)*	1.0 (0.6) ±
Maternal Age	-0.1 (.1)	0 (0.1)	0 (0.1)
Maternal education (ref < high school)			
High school graduate/GED	0.7 (1.4)	-0.5 (1.7)	0.8 (1.3)
Some/completed vocational school	1.0 (1.6)	-0.6 (1.7)	0.6 (1.8)
≥ Some College	7.1 (2.0)*	4.2 (2.1)*	6.9 (1.7)*
Maternal Marital Status (ref married)			
Cohabiting	-1.3 (1.7)	-6.7 (2.4)*	-5.9 (1.7)*
Separated/divorced/widowed	-2.8 (1.5) ±	-1.1 (1.8)	0.3 (1.4)
Never Married	-3.1 (1.6) ±	-5.2 (1.8)*	-4.2 (1.4)*
Maternal Depression	-5.4 (1.5)*	-4.2 (2.2) *	-4.1 (1.5)*
Neighborhood characteristics			
Residential Stability	-1.1 (.8)	-0.6 (1.0)	-1.0 (0.8)
Socioeconomic Disadvantage	-0.4 (1.0)	-0.6 (1.2)	-0.6 (1.0)
Social Capital	8.5 (4.1)*	3.1 (4.9)	6.7 (4.1)
Cross-level interaction			
Notes: ± p < .1, *p < .05;			
The applied problems, letter-word identification, and passage comprehension subtests are from the Woodcock-Johnson Tests of Achievement – Revised (Woodcock & Johnson, 1989)			

Table 2.3			
Two-Level Hierarchical Linear Regression Predicting Academic Skills Including the interaction of Social Capital and Maternal Depression, Predicting Academic Skill of Children Los Angeles Family and Neighborhood Survey, Wave 1, 2000-2001, N = 1,237			
Academic Skills Outcomes	Applied Prob.	Letter-Word ID	Passage Comp.
	b (S.E.)	b (S.E.)	b (S.E.)
Child Characteristics			
Age	-0.8 (.2)*	-0.8 (.2)*	-1.3 (.1)*
Sex (ref Male)			
Female	-2.1 (1.0)*	1.5 (1.1)	1.3 (0.8)
Race/ethnicity (ref White)			
White	-4.7 (1.9)*	-6.4 (2.2)*	-5.5 (1.8)*
Asian/Pacific Islander	1.3 (2.6)	0.5 (1.9)	-2.5 (2.1)
Black/African American	-6.1 (2.3)*	-3.2 (2.5)	-3.9 (2.2) ±
Native American	0.2 (4.0)	-1.2 (3.6)	-1.5 (2.7)
Testing Language (ref English)			
Spanish	-6.9 (1.7)*	17.0 (2.5)*	-4.7 (1.4)*
Family Characteristics			
Family Income	1.4 (.6)*	1.6 (0.7)*	1.1 (0.6) ±
Maternal Age	-0.1 (.1)	0 (0.1)	0 (0.1)
Maternal education (ref < high school)			
High school graduate/GED	0.6 (1.4)	-0.4 (1.7)	0.7 (1.3)
Some/completed vocational school	1.0 (1.6)	-0.6 (1.7)	0.7 (1.8)
≥ Some College	7.5 (2.1)*	4.4 (2.1)*	6.7 (1.7)*
Maternal Marital Status (ref married)			
Cohabiting	-1.4 (1.7)	-7.2 (2.3)*	-5.6 (1.7)*
Separated/divorced/widowed	-2.7 (1.5) ±	-1.4 (1.8)	0.2 (1.5)
Never Married	-3.2 (1.6) ±	-5.2 (1.8)*	-4.0 (1.4)*
Maternal Depression	-5.1 (1.5)*	-4.2 (2.1) *	-4.0 (1.5)*
Neighborhood characteristics			
Residential Stability	-1.1 (.8)	-0.4 (1.0)	-1.0 (0.8)
Socioeconomic Disadvantage	-0.4 (1.0)	-0.8 (1.3)	-0.7 (1.0)
Social Capital	9.1 (4.1)*	.4 (5.1)	6.3 (4.2)
Social Capital x Maternal Depression	-3.8 (5.4)	5.3 (5.7)	1.3 (5.1)
Notes: ± p < .1, *p < .05			
The applied problems, letter-word identification, and passage comprehension subtests are from the Woodcock-Johnson Tests of Achievement – Revised (Woodcock & Johnson, 1989)			

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STUDY 3:

Neighborhood Social Capital is Protective against Depression for Latina Mothers

Overview

Purpose: To investigate the effects of individual factors (self-efficacy and parenting related stress) and neighborhood level characteristics (socioeconomic disadvantage, residential stability, the percent of Latinos in the community, and social capital) on depression among Latina mothers.

Hypotheses:

- 1) Mothers who report more parenting stress will report more depression symptoms.
- 2) Higher self-efficacy will be associated with lower levels of depression.
- 3) Neighborhood socioeconomic disadvantage will be associated with more depression symptoms.
- 4) Communities with higher rates of social capital and a larger percent of Latinos in the neighborhood will be protective against depression

Abstract

The purpose of this study is to investigate how neighborhood characteristics, in addition to individual psychological resources and stress, are associated with depression among Latina mothers.

I used data from the Los Angeles and Family and Neighborhood Survey (L.A. FANS). The L.A. FANS was specifically designed to allow researchers explore the association of neighborhood contexts with individual's outcomes. The sample I used consisted of 902 Latina mothers 18 years of age or older who had at least one child, age 17 or younger, living in the house. The outcome variable was past year depression as measured by the Composite International Diagnostic Short Form (CIDI-SF).

Using multiple regression I began by examining how neighborhood structural processes are associated with neighborhood social capital. The results of the analysis showed that neighborhoods with higher levels of socioeconomic disadvantage and residential stability had lower levels of social capital. Also, contrary to my expectations, neighborhoods with a higher percent of Latino residents also had lower levels of social capital.

In the second set of analyses I used two-level hierarchical linear modeling to assess how individual, family, and neighborhood characteristics are associated with depression among Latina mothers. Mothers who reported higher levels of parenting related stress were more depressed, while mothers who had higher self-efficacy were less depressed. At the neighborhood level, I did not find a significant association between maternal depression and any of the indicators of neighborhoods structure (i.e. socioeconomic disadvantage, residential stability, or the percent of Latinos in the neighborhood). However, I did find that neighborhood social capital was negatively associated with maternal depression.

Introduction

In recent decades, there has been greater interest in the role that neighborhoods play in the mental health of residents. The connection between place and health is particularly salient for racial/ethnic minorities because socioeconomically disadvantaged neighborhoods have a disproportionately high proportion of minority residents (Matsunaga, 2008). However, very little of this research involves Latinos (Boyas, 2010); the effort to understand determinants of mental health within the Latino community remains understudied.

Notably, Latina mothers living in impoverished communities may be at increased risk for poor mental health outcomes, such as depression, owing to parenting related stress, limited access to economic resources, and the burden of experiencing gender and ethnic discrimination (Belle & Douvet, 2003; Dennis et al., 2003). Maternal depression is not only detrimental for the mother, but also places her children at a higher risk for a range of negative consequences including depression and other emotional, social, and cognitive problems (Beck, 1999; Hammen & Brennan, 2003; Shonkoff & Phillips, 2000).

Socioeconomically disadvantaged neighborhoods are characterized by high rates of poverty, unemployment, and female headed households, and by lower job and educational attainment of residents (Elliott et al., 1996; Wilson, 2003). Living in such neighborhoods subjects individuals to a range of stressors especially higher rates of crime, which increases the risk to residents of personally experiencing or witnessing violence (Krivo & Peterson, 1996; Morenoff, Sampson & Raudenbush, 2001). Socioeconomically disadvantaged neighborhoods are also often burdened by the presence of potentially detrimental characteristics such as high concentrations of liquor stores, pawn shops and payday check cashing stores (LaVeist &

Wallace, 2000; Sawyer & Temkin, 2004). In addition, the signs of physical and social decay in these communities such as abandoned buildings, visible drug use, and graffiti, signal the breakdown of formal and informal avenues of social control, and promote feelings of insecurity and fear in residents (Sampson, Morenoff, & Gannon-Rowley, 2002; Wandersman & Nation, 1998). Disadvantaged neighborhoods are also characterized by the absence of fundamental and desirable resources that promote resident well-being and increase neighborhood quality of life such as adequate housing, healthy and reasonably priced food, health care services, quality schools and child care, parks and recreational facilities, and access to neighborhood jobs, banks, transportation, and social service organizations (Kim, 2008). Theoretically, the higher presence of chronic stressors and a lack of adequate protective resources combine to place residents at increased risk for developing mental health illnesses including depression (Cutrona, Wallace, & Wesner, 2006; Steptoe & Feldman, 2001).

This is especially true for Latina mothers who may lack economic resources that can mitigate external stressors and who, if they are single mothers, do not have a partner to share the burden of running a household (Belle & Doucet, 2003, Blacher et al., 1997; Miranda et al., 2002). Moreover, newly immigrated and undocumented Latina mothers may have less access to, and/or be ineligible for, services that can provide instrumental support such as health care, housing or monetary assistance (Haider et al., 2004; Ku & Matani, 2001). Yet, as noted, neighborhoods not only convey risk for the development of negative outcomes, they also confer access to protective resources including social capital, which can promote positive mental health outcomes. Social capital encompasses the norms of reciprocity, and trust among group members that increase the ability of individuals to work together for the common good (Putnam, 1993). Even when the neighborhood is economically disadvantaged, high social capital communities

may be resource rich in others ways. There, neighbors may join together to organize or advocate for the acquisition or retention of needed services, such as grocery stores, housing, day care, public transportation, or mental health services (Cullen & Whiteford, 2001).

For the purpose of this work, I investigated the effects of neighborhood level social capital in relation to two questions: First, How is the level of neighborhood social capital associated with structural neighborhood characteristics? and, second, How are these neighborhood social and structural characteristics associated with mental health outcomes, specifically depression among Latina mothers?

I conceptualized social capital as having four major facets: social cohesion, intergenerational closure, child-centered informal social control, and reciprocated exchange (Sampson, Morenoff, & Earls, 1999; Sampson, Raudenbush, & Earls, 1997). The distinction among the overlapping aspects of social capital is useful because each facet functions slightly differently in its role as a protective resource. For instance, social cohesion and reciprocated exchange are central to reducing social isolation, promoting the exchange of health information, and providing access to social affiliations (Kao, 2010). Informal social control and intergenerational closure promote the development of prosocial norms that discourage deviant behavior among all neighborhood residents, particularly children, and therefore contribute to a sense of safety and security (Sampson et al, 1997; Leventhal & Brooks-Gunn, 2003). Latina mothers, as all mothers, may feel reassured about the welfare of their children if they believe that neighbors are willing to intervene on behalf of the children. Access to an environment rich in these social resources helps to reduce distress and prevent the development of depression (Cutrona et al., 2006).

Ultimately, the development of social capital depends on a number of factors including the degree to which structural community characteristics such as neighborhood socioeconomic disadvantage, or social and physical disorder, hinder the development of social capital and instead foster mistrust among residents, who are therefore less likely to act collectively (Sampson, Morenoff, & Gannon-Rowley, 2002; Wandersman & Nation, 1998). The degree of resident transition – that is, the movement of individuals in and out of a neighborhood -- also reduces the level of social capital by impeding the development of loose social affiliations, reducing familiarity between residents, and reducing the stability and effectiveness of community organizations (Israel, 2001; Kingston et al., 2009; Sampson et al., 1999).

Of particular relevance to Latino communities, the level of social capital may vary depending on whether or not the neighborhood is an ethnic enclave (i.e. a community with a high proportion of Latinos). Ethnic enclaves may promote the development of social capital through the facilitating presence of shared cultural values and similar life experiences among residents. Certainly, previous research has demonstrated a protective effect of ethnic enclaves on health (Denner et al., 2001). Residence in ethnic enclaves has been posited to be related to health outcomes through a number of pathways including the presence of advantageous cultural goods such as protective cultural norms (Osypuck et al., 2009), the facilitation of social connections among residents (Almeida et al., 2009; Eschbach et al., 2004), and fewer communication barriers for non-English speakers (Evans, 2004). However, little research has been devoted to understanding whether the link between ethnic enclaves and the health of residents is due in part to higher levels of social capital.

When considering the effects of community characteristics, it is also important to take into account individual level risk and protective factors because not everyone living in the same

community has the same outcomes. Parents living in impoverished circumstances are at risk for encountering difficult life circumstances, including the frustration of having to parent in resource poor environments. Therefore, the concept of self-efficacy may be particularly important for individuals from impoverished communities, because people high in self-efficacy are more likely to believe they can deal with difficult situations and therefore less likely to develop depression when confronted with stressors (Boardman & Roberts, 2000; Raikes & Thompson, 2005).

My investigation is based on a sample of Latina mothers drawn from a survey of Los Angeles families. To understand how the level of neighborhood social capital is associated with structural neighborhood characteristics, I hypothesized that neighborhoods with more economic disadvantage will have less social capital, while neighborhoods with a higher percent of Latinos will have more social capital.

To explore the ways in which individual and neighborhood characteristics are associated with mental health outcomes, I examined a model of the associations of individual and neighborhood level characteristics with maternal depression. In addition to including the predictors of interest outlined above, I also included a number of individual covariates. To account for the association between individual socioeconomic status and depression I included family income and maternal education (Belle & Doucet, 2003; Lara-Cinisomo & Griffin, 2007). I also included maternal marital status as a covariate because there is indication from previous research that single mothers have elevated rates of depression compared to married mothers (Lara-Cinisomo & Griffin, 2007). Living in crowded households and having more children have both been shown to be associated with stress and depression; therefore, I included the number of household members and the number of children the mother has as predictors (Evans & Kantrowitz, 2002; Viana & Welsh, 2010). Finally, it has been suggested in the Latino health

paradox literature, foreign born Latinos are less likely to develop depression compared to native born Latinos (Alegría et al., 2008). Therefore, I included both nativity and whether English or Spanish is spoken in the home as covariates in the analysis. I also included indicators of healthcare and mental health care access such as insurance status and whether or not the participant had visited a psychiatrist in the previous 12 months.

I hypothesized that Latina mothers who report greater parenting stress will also report more depressive symptoms and that those who report higher levels of self-efficacy will report fewer depressive symptoms. At the neighborhood level, I hypothesize that low social capital, and a small percent of Latinos in the census tract, will be negatively associated with maternal depression. Finally, I also hypothesize that for Latina mothers, living in more socioeconomically disadvantaged neighborhoods is predictive of higher levels of depression.

Methods

Data/Sample Design and Selection

In this study, I used data from wave 1 of the Los Angeles Family and Neighborhood Survey (L.A. FANS) that were collected from 2000 to 2001. The survey sampled households in 65 different neighborhoods or census tracts in Los Angeles County. Households from poor neighborhoods (above the 60th percentile of the poverty distribution) and households with children 17 years of age or younger were oversampled. In each household, one adult, the roster respondent, provided basic information on all members of the household. Also, an adult who was selected at random, was designated the randomly selected adult, and participated in further interview. In households with children, one child was selected at random to be interviewed more extensively; this child was termed the randomly selected child. For each randomly selected child, his or her mother was identified as the primary caregiver. In cases where the child's

mother did not live in the home, or when she was unable to provide information on the child, another adult, who indicated that he or she was primarily responsible for the care of the randomly selected child, was designated as the primary caregiver. Surveys were completed in both English and Spanish. For further information on the L.A. FANS survey design refer to Peterson and colleagues (2004).

Analytic Sample

The primary analytic sample for this study consisted of Latina primary caregivers with at least one child age 17 or younger living in the household. I only selected women who had been living in their current residence for at least one year prior to the interview because the outcome of interest is past year depression. I excluded men from the analysis because they represented less than 3% of all the primary caregivers surveyed. These exclusions resulted in an analytic sample of 902 individuals.

In addition, I used a separate, and partially independent, sample of 2,619 randomly selected adults to rate neighborhood social capital. Of these 2,619 adults, I excluded 25 individuals from the analysis because they were missing data for all the items included in the social capital variable. This resulted in a final sample of 2,594 adults. Only 18% of the randomly selected adults were also Latina mothers included in the primary sample.

Measures

Operationalization of outcome.

Depression. Depression was assessed using the Composite International Diagnostic Interview Short Form (CIDI-SF) (Kessler et al., 1998). This generates a score from 0 to 1 which indicates the probability that the respondent met the diagnostic criteria for depression in the past 12 months. Higher scores indicate higher probability.

Neighborhood level predictors.

Percent Latino. The percent of residents in the census tract who self-identified as Hispanic. The data are from the 2000 U.S. Census.

Neighborhood socioeconomic disadvantage. The L.A. FANS included a factor score for neighborhood socioeconomic disadvantage where higher scores indicate that a neighborhood is more impoverished. The indicators for this factor are the percent of the census tract residents in poverty, the percent of families with an annual income less than \$24,000, the percent of households headed by females with children, the percent of households receiving public assistance, the percent of the population that is non-White and non-Asian and Pacific Islander, and the percent of the population under 18. The data were drawn from the 2000 Census and the factor score was created by the RAND Corporation for use with the L.A. FANS data.

Residential stability. The L.A. FANS also included a factor score that quantified how transient neighborhood residents are using information from the 2000 Census. Higher scores suggest that the neighborhood is more stable. The indicators for the factor score are the percent of dwellings in the tract that are in multi-unit housing, the percent of housing that is owner occupied, the percent of people occupying the same dwelling as they did in 1995, and the percent of non-family households. This factor score was also provided by the RAND Corporation.

Social capital. I used data from the randomly selected adults in the L.A. FANS dataset to generate a factor score for social capital. In the L.A. FANS survey, the randomly selected adults were asked to respond to 16 items about the quality of the social connections within their neighborhood. I used confirmatory factor analysis (CFA) to examine a proposed factor structure where the 16 items were indicators for 4 first order factors: social cohesion, intergenerational closure, informal social control, and reciprocated exchange. These first order factors were in

turn indicators for the second order factor social capital. The results of the CFA showed that the model fit the data: comparative fit index (CFI) = 0.92, root mean squared error (RMSEA) = 0.04. I then aggregated individual respondent's social capital factor scores to produce an average neighborhood social capital score for each census tract. Higher factor scores correspond to greater levels of social capital.

Individual level predictors.

Demographic information. Information on the caregiver's age and her educational attainment was reported on by the roster respondent who may or may not have been the caregiver. The caregiver herself reported on her marital status, and whether she was born in the U.S. or another country. I present demographic information in Table 3.1.

Family income. The L.A. FANS survey obtained information on annual family income from either the randomly selected adult or that person's spouse/partner depending on who indicated having greater knowledge about the family finances.

Total number of household members. The roster respondent reported on the total number of household members.

Household language. The individual who reported on the household income also reported on whether English or Spanish was the predominant language spoken in the home.

Insurance status. The primary caregiver reported on whether or not she had health insurance coverage throughout the 12 months prior to the interview.

Psychiatric visit. The primary caregiver reported whether she had visited a psychiatrist at least once in the 12 months prior to the interview.

Self-efficacy. Self-efficacy is the belief in one's own ability to work towards and achieve desired goals. The primary caregiver responded to the Pearlin Self-efficacy Scale to measure

self-efficacy. It is a seven item scored using a 4-point Likert scale where higher scores indicate greater self-efficacy (Pearlin et al., 1981). (Cronbach $\alpha = .8$)

Parenting stress. The primary caregiver provided information about the level of distress she experienced in her role as a parent by responding to four items. An example item is: “I feel trapped by parental responsibility.” The items were scored on a 5-point Likert scale with higher scores indicating greater levels of distress. (Cronbach $\alpha = .7$)

Procedure

Data analysis strategy.

I analyzed the data using Mplus version 5.1 (Muthén & Muthén, 1998- 2007). There was relatively little missing data, with 0% to 3% missing for all variables included in the model. I imputed the missing data using maximum likelihood estimation and estimated the models using robust standard errors.

I first used a multiple regression model to examine whether neighborhood social capital was associated with neighborhood structural characteristics – socioeconomic disadvantage, residential stability, and the percent of Latino residents. Next I analyzed two-level hierarchical linear regression models to estimate the effects of individual and neighborhood level predictors on depression. In preparation for analyzing the proposed two-level hierarchical linear regression models, I calculated the intraclass correlation coefficient (ICC). For the depression outcome, the ICC was .01 with a design effect (DEFF) of 1.15. Barcikowski (1981) showed that even with a small ICC of .01 and a group sample size between 10 and 25, the type I error rate or alpha is inflated from the expected value of .05 to between .06 and .08. Furthermore, multilevel modeling is appropriate because the analysis accounts for the structure of the data where mothers

are nested within neighborhoods and adjusts the standard errors to correct for the non-independence of individuals living in the same neighborhood.

Results

The results of the first analysis confirmed my hypothesis that social capital is significantly associated with all of the other neighborhood conditions. More residentially stable neighborhoods had higher levels of social capital ($\beta = 0.9, p < .05$). While neighborhoods with higher levels of socioeconomic disadvantage had lower levels of social capital ($\beta = -0.11, p < .05$). Furthermore, and contrary to my hypothesis, the percent of Latinos in a neighborhood was negatively associated with levels of social capital ($\beta = -.25, p < .05$). I present the results of this analysis in Table 3.2.

I then investigated the effects of these neighborhood variables along with individual variables on depression. For the individual level covariates, the results showed that women who were separated, widowed, or divorced, were more likely to be depressed ($b = .09, p < .05$) as were women who reported more parenting related stress ($b = .01, p < .05$). Similarly, women who reported lower self-efficacy were more likely to be depressed ($b = -0.01, p < .05$). At the neighborhood level, contrary to my hypotheses, neighborhood socioeconomic disadvantage, residential stability, and the percent of Latinos in the neighborhood were not significantly associated with depression. However, neighborhood social capital was associated with depression such that individuals living in neighborhoods with higher rates of social capital were less likely to be depressed ($b = -.15, p < .05$). See Table 3.3 for the full results of these analyses.

For the final step of the analysis, I ran four separate models exploring how the four aspects of social capital: social cohesion, intergenerational closure, reciprocated exchange, and informal social control are associated with depression. I controlled for the same individual and

neighborhood level covariates as I used in the previous models. The results for the individual level covariates are similar to the analysis which included the overall measure of social capital. The exceptions is that for the two analyses with reciprocated exchange and informal social control as predictors, the association between being separated, widowed, or divorced with depression was nonsignificant. The results demonstrated that depression was significantly associated with social cohesion ($b = -0.14, p < .05$) and intergenerational closure ($b = -0.17, p < .05$) and was not significantly associated with reciprocated exchange ($b = -0.13, p < .1$) or informal social control ($b = -0.08, p < .1$) I present the results of these analyses in Table 3.4.

Discussion

As both ethnic minorities and women, Latina mothers are subject to a variety of social pressures including discrimination, which, in combination with the added stressors associated with motherhood, places these women at increased risk for the development of mental health problems (Belle & Douvet, 2003; Dennis et al., 2003). The study results offer insights into two questions relevant to a more precise understanding of the impact of neighborhoods on the mental health of Latina mothers specifically, and Latinos overall.

I asked first whether neighborhood level social capital is associated with three structural characteristics -- socioeconomic disadvantage, residential stability, and the percent of Latino residents in the neighborhood. I hypothesized that these characteristics are important determinants of neighborhood social capital because they can serve to influence whether residents develop the sense of safety, trust, and common purpose necessary to the development of social capital. The results confirmed my hypotheses that more socioeconomically disadvantaged neighborhoods and more residentially unstable neighborhoods had lower levels of social capital. However, contrary to expectations, neighborhoods with a higher percent of Latino

residents had lower levels of social capital. These findings suggest that living in neighborhoods with a higher percent of individuals with like ethnicity may not alone be sufficient to promote a sense of social capital.

These results suggest that being of the same ethnicity does not guarantee that neighbors feel a sense of shared community with one another. Members of an ethnic group may vary in any number of ways such as country of origin, immigrant versus U.S. born, documented versus undocumented residency, and preference for speaking English or Spanish, to name only a few. Examining the effects of having a common Latino heritage only through the lens of ethnicity may obscure differences that people perceive between themselves and their neighbors. It may be such differences which could conceivably be historic, and not personal, that complicates the development of trust and a sense of commonality, thereby reducing the level of social capital in the neighborhood. It is also possible that individuals in communities with a high percent of Latino residents are *less likely* to develop a sense of social capital because a greater concentration of residents of any one racial or ethnic minority group serve to concentrate disadvantage, creating barriers that isolate the group from resources and prevent development of a shared belief in the worth and viability of joint action (Sampson et al., 1999).

The next analysis addressed the question of how individual and neighborhood characteristics are associated with depression in Latina mothers. At the individual level, mothers who reported more parenting related stress also endorsed more depressive symptoms. Furthermore, women with lower self-efficacy reported higher levels of depression. Finally, women who were separated, widowed, or divorced reported higher levels of depression compared to married mothers.

These findings speak to the idea that parenting in high stress circumstances, such as when there is a lack of community resources, or when the mother does not have the social and economic support of a partner; can negatively affect maternal mental health. However, possessing self-efficacy and other psychological resources can act as a buffer: a belief in one's own ability to function or parent well even in adverse conditions can be protective for maternal mental health (Blazer, 2002; Jackson, 2000; Raikes & Thompson, 2005).

As for the effects of neighborhood characteristics on depression, my hypothesis was partly supported. The results demonstrated, as hypothesized, that the aggregate measure of social capital functioned as a protective factor such that mothers living in neighborhoods with higher levels of social capital reported fewer depression symptoms. However, contrary to my hypotheses, none of the other neighborhood characteristics were significantly associated with depression.

For the final step in the analysis, I examined the relationship between depression and each aspect of social capital separately, to determine whether certain aspects of social capital are more important determinants of mental health for Latina mothers. The results showed that both social cohesion and intergenerational closure were significantly and negatively associated with depression, but that neither reciprocated exchange nor informal social control were significantly related. This finding suggests that social capital in general, and social cohesion and intergenerational closure in particular, are important factors in the mental well-being of Latina mothers. Social cohesion and intergenerational closure speak to a general sense of community, related to feelings of trust and shared values among neighbors, and to the level of familiarity and interaction among neighbors. Previous research has documented that simply having a sense of belonging to a community is associated with positive mental health outcomes (Kawachi &

Berkman, 2001). The less significantly related aspects of social capital -- informal social control and reciprocated exchange -- instead encompass a sense of whether neighbors will take action to assist one another and intervene for the good of all members of the community. It is possible that this sense that neighbors will actively intervene on behalf of other residents is less likely to develop than a sense of general trust of and familiarity for ones' neighbors. Furthermore, individuals may be more likely to rely on a close network of friends and family for assistance than neighbors, and more likely to look to formal sources of control, such as police and school officials for monitoring and intervening in children's behavior for the good of the community.

There are limitations to this study. The cross-sectional design does not allow me to draw causal inferences about my findings. I hypothesized that neighborhood socioeconomic disadvantage, residential stability, and racial/ethnic composition are important structural antecedents of neighborhood social capital. However, a bidirectional relationship could exist such that in neighborhoods with higher social capital, residents are able to work together to achieve shared priorities, for example, setting up a day care cooperative, shutting down a drug house, or constructing a community garden, any of which promotes the well-being of the community. Although I was not able to test these causal assertions, the results of this study help us to develop a better understanding of the relationship among social and economic characteristics at the community level.

Another limitation is that, due to the sample size, I was unable to analyze data for specific Latino subpopulations such as immigrant vs. native born or by country of origin. Latinos are a heterogeneous group of people and grouping them into a single ethnic category may obscure important cultural and regional difference between subgroups. However, as there are few studies on the effects of neighborhood structural and social characteristics on the mental health

outcomes of Latinos, this study nonetheless represents an important contribution and foundation upon which to develop additional research.

This study has several significant strengths including the fact that the data I used oversampled from impoverished (between the 60th and 89th percentiles of the poverty distribution) and very impoverished (top 10 percent of the poverty distribution) neighborhoods. Investigating the association between neighborhood poverty and individual mental health is essential during this time of economic distress. Another strength is that neighborhood social capital was rated by multiple individuals in each neighborhood and this sample of raters was partially independent from the sample of Latina mothers who were included in this study. This approach to assessing social capital is advantageous because it reduces the possibility that the association between neighborhood social capital and depression is being driven by individuals who are both rating their neighborhoods poorly and endorsing more depressive symptoms due to their generally negative outlook.

Even with the increasing interest in how aspects of Latino communities may provide protective resources and how these resources may be essential to the explanation of the Latino health paradox, little research has been devoted to examining the role of social capital, which in the wider neighborhood literature is considered an important protective characteristics of neighborhoods. The results of this study demonstrate that social capital, in the context of other psychological resources and environmental characteristics, is protective against depression in Latina mothers. This leaves us then to consider next steps. Certainly, these findings call for additional research to identify and examine the effects of relevant cultural and contextual factors in preventing the development of depression in Latinas. Should social capital continue to be identified as a potentially beneficial and modifiable community resource, interventions designed

to promote social capital could have a widespread positive effect for all community members. This is not to discount the difficulties involved in developing such interventions, nor to suggest that developing social capital in the absence of improved economic opportunities and access to health resources will be sufficient to improve the mental health of residents (Farquhar et al., 2005). However, previous research has shown that by involving established community organizations and trusted community leaders, neighborhoods can be empowered to draw on their existing strengths and resources for the good of the community (Domínguez & Asford, 2010; Farquhar et al., 2005).

Table 3.1	
Means and Standard Deviations or Percentages of Maternal Sociodemographic Characteristics and Outcome Variables, Los Angeles Family and Neighborhood Survey, Wave 1, 2000-2001	
	Maternal Characteristics
	(N = 902)
Age	35.04 (9.22)
Education	
< High school	56%
High school graduate/GED	20%
Some/completed vocational school	20%
≥ Some college	5%
Marital Status	
Married	60%
Cohabiting	17%
Separated/divorced/widowed	11%
Never married	13%
Number of Children	
1	20%
2	28%
3	25%
4 or more	26%
Nativity	
Born in the US	23%
Born Abroad	77%
Insurance Status	
Insured over the past year	49.22%
Uninsured for part of all of the past year	50.78%
Country of Origin (by family ancestry or place of birth)	
Mexican American/Mexicano	74%
Central American	19%
Caribbean/Other Latino	5%
Language Used in Household	
English	33%
Spanish	67%

Family income	\$33,921.67 (\$43,738.53)
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Table 3.2			
Multiple Regression of the Association of Social Capital with other Neighborhood Conditions, Los Angeles Family and Neighborhood Survey, Wave 1, 2000-2001			
	Beta	Standard Error	Significance (p-value)
Concentrated Disadvantage	-0.13	0.03	0.0
Residential Stability	0.09	0.21	0.0
Percent of Latinos	-0.25	0.11	0.02
Model R ² = .75 (p < .01)			

Table 3.3	
Two-Level Hierarchical Linear Models Predicting Maternal Depression, Los Angeles Family and Neighborhood Survey, Wave 1, 2000-2001, N = 902	
	Maternal Depression
Individual and family characteristics	b (S.E.)
Age	0 (0)
Education	
High school graduate/GED	.001 (.03)
Some/completed vocational school	-.006 (.03)
≥ Some college	-.032 (.04)
Marital Status (ref: married)	
Cohabiting	.017 (.03)
Separated/divorced/widowed	.088 (.04)*
Never married	-.019 (.03)
Number of Children	-.001 (.01)
Nativity (ref: born in the US)	
Born Abroad	.024 (.04)
Insurance Status (ref = uninsured)	
Insured over the past year	.02 (.03)
Household Language (ref: English)	
Spanish	-.033 (.03)
Total Number of Household Members	.003 (.01)
Family income	.005 (.01)
Seen a Psychiatrist in 12 months (ref = no)	
seen a psychiatrist in previous 12 months	.148 (.8) ±
Self-efficacy	-.013 (0)**
Parenting Related Stress	.013 (0)**
Neighborhood characteristics	
Residential Stability	-.001 (.01)
Percent Latinos	0.18 (.05)
Socioeconomic Disadvantage	-.025 (.02)
Social Capital	-.147 (.07)*

Notes: $\pm p < .1$, $*p < .05$, $**p < .01$

Table 3.4				
Two-Level Hierarchical Linear Models Predicting Maternal Depression from aspects of Social Capital, Los Angeles Family and Neighborhood Survey, Wave 1, 2000-2001, N = 902				
Aspect of Social Capital	SC	IC	RE	ISC
	b (S.E.)	b (S.E.)	b (S.E.)	b (S.E.)
Individual and family characteristics				
Age	0 (0)	0 (0)	0 (0)	0 (.0)
Maternal education				
High school graduate/GED	.001 (.03)	.001 (.03)	-.003 (.03)	0 (.03)
Some/completed vocational school	-.006 (.03)	-.006 (.03)	-.009 (.03)	0 (.03)
≥ Some college	-.031 (.04)	.033 (.04)	-.029 (.04)	-.03 (.04)
Marital Status (ref: married)				
Cohabiting	.017 (.03)	.017 (.03)	.012 (.03)	.01 (.03)
Separated/divorced/widowed	.087 (.04)*	.087 (.04)*	.076 (.04) \pm	.08 (.04) \pm
Never married	-.019 (.03)	-.02 (.03)	-.034 (.03)	-.03 (.03)
Number of Children	-.001 (.01)	-.001 (.01)	0 (.01)	0 (.01)
Nativity (ref : Born in the US)				
Born Abroad	.024 (.04)	.024 (.04)	.016 (.04)	.02 (.04)
Insurance Status (ref: uninsured)				
Insured over the past year	.02 (.03)	.02 (.03)	.022 (.03)	.02 (.03)
Household Language (ref: English)				
Spanish	-.033 (.03)	-.033 (.03)	-.038 (.03)	-.04 (.03)
Number of Household Members	.003 (0)	.003 (.01)	.002 (.01)	0 (0)
Family income	.004 (.01)	.004 (.01)	-.009 (.01)	-0 (.01)
Seen a Psychiatrist (ref : no)				
seen a psychiatrist in previous 12 months	.148 (.08) \pm	.149 (.08) \pm	.152 (.08) \pm	.15 (.08) \pm
Self-efficacy	-.013 (0)*	-.013 (0)*	-.014 (0)*	-.01 (0)*
Parenting Related Stress	.012 (0)*	.013 (0)*	.012 (0)*	.01 (0)*
Neighborhood characteristics				
Residential Stability	-.001 (.01)	-.001 (.01)	.001 (.01)	-.01 (.01)
Percent Latinos	.018 (.05)	.017 (.05)	.017 (.05)	.03 (.05)
Socioeconomic Disadvantage	-.025 (.02)	-.024 (.02)	-.016 (.02)	-.02 (.02)
Social Capital	-.141 (.07)*	-.167 (.08)*	-.126 (.07) \pm	-.084 (.05) \pm
Notes: $\pm p < .1$, $*p < .05$				
SC = Social Cohesion, IC = Intergenerational Closure, RE = Reciprocated Exchange, ISC = Informal Social Control				

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DISSERTATION DISCUSSION

What makes the examination of neighborhood effects a worthy area of study? Human development does not occur in a vacuum, and decades of research have pointed out the ways that neighborhoods are an explanatory factor in health and well-being. It is within this history of neighborhood research that the notion of social capital emerged as a variable of interest for psychologists and other disciplines concerned with human development and mental health. It is clear from the results of this dissertation, as well as from previous work, that we are all subject to the overlapping and interacting influence of proximal and distal contexts (Bronfenbrenner, 1994). Research on neighborhoods does not downplay the potentially more powerful effects of those proximal processes, such as the parent-child relationship or individual personality, but rather it acknowledges that even if the measured effects are small, communities are important in our well-being (Caspi et al., 2000; Dietz, 2002).

The results of my dissertation have further illuminated the confluence of factors that come together to affect maternal depression, child behavior problems, and child academic skills. In each study, I included multiple dimensions of neighborhood characteristics including economic disadvantage, residential stability, racial/ethnic composition of the neighborhood, and a measure of social capital that is based on years of previous sociological research (Sampson, Morenoff, & Earls, 1999; Sampson, Raudenbush, & Earls, 1997). I brought all of these factors to bare in an examination of the relationship of the neighborhood context to maternal depression as well as examinations of the relationship between maternal depression and child behavioral and academic outcomes

Socioeconomically disadvantaged neighborhoods are detrimental to the mental health and developmental outcomes of both mothers and children (Bradley & Corwin, 2002; Cutrona,

Wallace, & Wesner, 2006; Ross, 2000). One of the reasons that socioeconomically disadvantaged neighborhoods are harmful to residents is that those neighborhoods often lack essential resources, such as quality public schools, recreational facilities, or adequate health care centers (Acevedo-Garcia, 2008; Evans, 2004; Small & Newman, 2008). Socioeconomically disadvantaged neighborhoods are also frequently characterized by signs of the lack of social order including vandalism, violence, abandoned buildings, and visible drug use (Aneshensel, 2009; Sampson & Raudenbush, 1999). These communities sometimes have lower social capital as indexed by the presence of fewer civic organizations and a lack of a sense of community empowerment (Cohen-Vogel, Goldring, & Smrekar, 2010). In addition, neighborhood disorganization and social capital have a reciprocal relationship such that disorganization creates a sense of fear and mistrust among residents which reduces social capital (Sampson, Morenoff, & Gannon-Rowley, 2002; Wandersman & Nation, 1998).

However, in communities with sufficiently high social capital, the influence of informal social control serves to reduce deviant behavior such as gang violence and defacing of building with graffiti (Sampson et al., 1997). Also, neighborhoods high in social capital would be expected to have stronger institutions which, in turn, discourages the development of mental disorders in mothers and serve to mitigate the detrimental effect of those disorders if they are present (Carpiano, 2006). Equally true, is the positive effect of social capital on the developmental outcomes of children (Ainsworth, 2002; Cullen & Whiteford, 2001; Schafer-McDaniel, 2004), even in the face of a lack of strong positive parenting (Portes, 1998). Ultimately, social capital is directly protective for the well-being of both mothers and children (Ainsworth, 2002; De Silva et al., 2005; Pachter et al., 2006).

These studies have helped to further our understanding of how the relationship between neighborhood characteristics and individual outcomes works. The results demonstrated a protective effect of social capital for children's behavioral and academic outcomes, and for mother's depression. To a lesser extent, I also demonstrated that neighborhood socioeconomic disadvantage is detrimental for children's emotional and behavioral well-being. As a clinical psychologist, I am interested in the implications that these results have for the development of evidence based practices that can reduce mental illness for people living in impoverished communities. I am also interested in better understanding how to deliver individual services that address mental health recovery, as well as ways to leverage community resources to assist in that recovery.

As clinicians, considering the pervasive toll that poverty and neighborhood disadvantage take on our clients can feel overwhelming and leave us asking what, if anything, we can do. But understanding how neighborhood poverty impacts the emotional well-being of children and parents can help us to better understand the multitude of stressors that our clients are experiencing (Walton, & Takeuchi, 2010). With this understanding, we will be better equipped to help our clients identify the sources of stress in their lives and in their environment. We can also assist clients to capitalize on potential environmental resources, such as social capital by, for example, becoming involved with neighborhood-based organizations (Ohmer, 2007; Xue, 2005). Furthermore, research has demonstrated the beneficial effect of both primary (i.e. problem solving, emotional regulation) and secondary coping (i.e. acceptance, cognitive restructuring) for reducing the association between parents and children's experience of economic stress and their psychological symptoms (Wadsworth et al., 2005). This finding suggests that clients can still

experience psychological benefit from learning positive coping skills through therapy even when the client is unable to escape his or her impoverished circumstances.

Also, the results from study one highlight the importance of considering the role a client's family context takes in shaping his or her emotional well-being. As I demonstrated, a mother's depression affects her children's emotional/behavioral health and academic skills. In addition, although I did not directly test for this association, child behavioral problems may, in turn, have a negative impact on mother's psychological symptoms. Therefore, and particularly in families experiencing economic hardship, whether the mother or the child comes into our office as the identified patient, it behooves us to consider the need for more comprehensive family services. Adopting a family therapy approach, as opposed to individual counseling, would allow clinicians to directly observe and intervene in this feedback loop between maternal and child psychopathology.

In addition, armed with an appreciation for how living in poverty limits an individual's access to critical resources beneficial for psychological and behavioral functioning, clinicians should consider the utility of referrals to non-mental health services in addition to the services the clinician is providing. Individuals and families may benefit from access to a multitude of programs including, but not limited to, housing services, job training, academic assistance, and parent training classes. The need for comprehensive support for at-risk youth and families is central to the mission of Wraparound programs. Wraparound programs are intensive, individualized, and flexible service programs for youth and their families. Central to the idea of Wraparound is that it is a team-based approach that helps children and families identify and develop a flexible set of supports drawn from their own community (Miles et al., 2011).

Another essential undertaking for clinicians and researchers is further developing our understanding of how the community impacts children's academic outcomes. In a recent statistic, African-American males had the highest rate of school suspension of any racial/ethnic minority group (Fabel et al., 2011). As the results of the second study suggest, academic outcomes for children in economically disadvantaged neighborhoods may be the product of a complex set of environmental and family dynamics including having a parent with a mental illness and a community without a safety net. Yet suspension represents an individual solution that only furthers complicates the development and well-being of minority children, in particular for children whom the neighborhoods offer little beneficial services during the suspension. Research that helps to highlight the relationship of academic skills development to neighborhood characteristics provides further support for the necessity of neighborhood programs to address individual level mental health and problems.

Furthermore, for clinicians, having a better understanding of how communities affect the mental health of residents allows us to identify where to target our outreach services and how to identify individuals within those distressed communities who would particularly benefit from mental health intervention (Ayer & Hudziak, 2009; Walton, & Takeuchi, 2010). The results of my dissertation speak to the need for researchers to develop a more refined understanding of which residents are most impacted by neighborhood conditions. As I demonstrated in the first study, adolescents only experienced the beneficial effect of social capital when they also had a mother who was depressed. This finding suggests that we should not make assumptions that all, or the majority of, children in a particular neighborhood will benefit from additional supportive services. Rather, we should identify individuals who may not be receiving sufficient supports at home, and target our interventions at those children.

Additional work needs to be done to fully articulate how neighborhood processes differ across neighborhoods. In the third study, I extend the previous work on neighborhood effects by asking how the neighborhood context influences the mental health of Latina mothers. This is an important effort because previous work has documented that the racial and ethnic make-up of a community may influence the association of neighborhood social and structural processes with individual outcomes. Although, the direction of this influence remains an open question. Indeed, some studies have demonstrated a positive health effect for Latinos who live in ethnic or immigrant enclaves (Cagney et al., 2007; Shaw et al., 2010), while other research has demonstrated a negative association (Osypuk, et al., 2010). Walton and Takeuchi (2010) found that Latino ethnic enclaves, at least those located on the west coast, tend to be more socioeconomically disadvantaged compared to more diverse neighborhoods. They also found a negative association between living in an ethnic enclave and self-rated health. The authors speculate that living in these communities is detrimental for health because the high rates of poverty, and low educational attainment of residents, makes it difficult for them to assist one another in ways that would be beneficial for health outcomes (Walton & Takeuchi, 2010).

The results of this dissertation call not just for an individual or family-based approach to improving the emotional and behavioral outcomes of children and their parents. These results also highlight the importance of developing neighborhood-level interventions to reduce economic hardship and promote social capital. The Harlem Children's Zone and the Obama Administration's Neighborhood Revitalization Initiative are just two examples of programs that are helping communities implement ecological interventions aimed at improving the economic well-being of the neighborhood as a whole and supporting the healthy development of residents (Harlem Children's Zone, 2009; The Office of Urban Affairs).

Given the fact that the measured effect size of the relationships between neighborhoods and individual behavioral and emotional outcomes are relatively small (Leventhal & Brooks-Gunn, 2000), some might question the utility of community-wide interventions. However, even with these small effects, community-based interventions have the potential to reach a large segment of the population, including individuals who would never seek mental health services. For example, for Latinos in particular, rates of mental health service utilization are relatively low even when need is present. One study found that only 31% of Latinos with a depressive disorder in the past year sought mental health services compared to 60% of their White counterparts (Alegría et al., 2008). This statistic reminds us that, as clinicians, our reach will only go so far if we simply wait for clients to walk through our door.

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