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by

Emily Wear Shum

May 2015

RACE AS A MODERATOR OF NEIGHBORHOOD HOME OWNERSHIP AND
ADOLESCENT EXTERNALIZING PROBLEMS

A Dissertation Presented to the
Faculty of the College of Education
University of Houston

In Partial Fulfillment
of the Requirements for the Degree

Doctor of Philosophy

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Abstract

Theories and research on mental health disparities among adolescents suggest that non-White people groups are exposed to an unequal burden of stress. One factor that contributes to this unequal burden of stress is neighborhood quality, which is related to neighborhood home ownership rates among non-White families. The literature indicates that home ownership is a protective factor for adolescent development; however, research is mixed, and home ownership may not equally benefit all people groups. From an ecological perspective the relationships between neighborhood home ownership, race, and adolescent externalizing problems were examined. In particular, race was evaluated as a moderator of the relationship between neighborhood home ownership and adolescent externalizing problems (inattention/hyperactivity) and, in contrast, personal adjustment. Participants were adolescent males, ages ranged from 12 to 17 years old, who had been receiving counseling for a sexual offense in or within the suburbs of a large city in the southern United States. The results of the multivariate analysis of variance indicate that race moderates the relationship between percent home ownership and adolescent externalizing problems. Scores of inattention/ hyperactivity were highest among Black adolescent males in the group with the highest percent home ownership. This particular result suggests that neighborhoods with higher home ownership rates may not equally benefit all racial groups. The relationship between percent home ownership and inattention/ hyperactivity for Hispanic and White adolescent males suggested that higher home ownership rates are protective. Specifically, groups with higher percent home

ownership had lower inattention/ hyperactivity scores. There were also differences between racial groups in relationship between percent home ownership and personal adjustment scores, but they were at a trend level. In particular, Black participants living in neighborhoods in the average-range of percent home ownership had the highest scores on personal adjustment. Clinical and social policy implications are discussed.

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Chapter One

Introduction

Adolescent mental health becomes a problem when externalizing problems, like hyperactivity, impulsivity, theft, and aggression, draw the attention of the criminal justice system (Vazsonyi & Chen, 2010; Makany-Rivera, Sanborn, R., Kimball, M.S., Lew, D., & SoRelle, R., 2010). Mental health disparities among adolescents are implicated in the unequal representation of non-White youth involved in delinquency and the juvenile criminal justice system (Fite, Preddy, Vitulano, Elkins, Grassetti, & Wirnsatt, 2012; Vazsonyi & Chen, 2010). Social scientists have discussed the relationship between adolescent mental health and neighborhood factors conceptually, but few empirical studies examine both direct and indirect effects of neighborhood factors related to adolescent mental health.

Historical and systemic patterns in American society have positioned non-White racial groups within neighborhood environments that are harmful to their physical and mental health (Wilson, 1987). Specifically, the CDC Health Disparities & Inequalities Report - United States (2011) reported that compared to non-Hispanic Blacks, Hispanics and American Indians/Alaska Natives had higher percentages of householders living in inadequate, unhealthy housing. Non-White groups often live in communities with lower socio-economic resources or in poverty (Aneshensel, 2009a). In 2009, the percentage of Black adults living in poverty was one of the highest compared with other racial/ethnic populations, but similar to percentages among American Indians/Alaska Natives and Hispanic Americans (Centers for Disease Control and Prevention, 2011). Thus, people of

non-White racial groups may be affected by an unequal social distribution of stress among individuals (Aneshensel, 2009a; Latkin & Curry, 2003)

Theorists propose that mental health disparities result from this unequal burden of stress on non-White racial groups (Aneshensel, 2009; Dressler, Oths, & Gravlee, 2005). Both biological differences and social inequities have been cited as causes for mental health disparities, but most studies of mental health disparities focus on social inequities since they are preventable and unjust (Aneshensel, 2009). One example of social inequity is the unequal opportunity for non-White families to own homes within higher quality neighborhoods. Research suggests that higher rates of home ownership in a neighborhood is associated with positive mental health outcomes; however, research is mixed regarding whether home ownership consistently benefits people across racial and socio-economic groups (Herbert & Belsky, 2008). Aneshensel (2009) calls for causal research models which examine the social inequities that contribute to mental health disparities in an effort to develop culturally adaptive interventions which would alleviate mental health disparities. Further research is necessary to address the developmental origins of mental health disparities because early intervention will have a greater impact upon health outcomes, compared to modification of health-related behaviors or access to health care in adulthood (Shonkoff, Boyce & McEwen, 2009).

Neighborhood Home Ownership

Social Disorganization theory relates neighborhood home ownership to resident mental health outcomes (Sampson, Raudenbush, & Earls, 1997). Sampson et al. (1997) described two measurable aspects of neighborhood organization which have been

attributed to youth outcomes: social cohesion and social control. Key factors proposed to break down social cohesion and social control are residential instability and concentrated disadvantage (neighborhood socio-economic factors, e.g., poverty). Residential stability is purported to contribute to neighborhood social organization by strengthening social control as neighbors invest over time, build institutional stability and participation, and improve social controls.

Underlying the value of residential stability is the financial investment home owners are expected to make to the neighborhood by investing in the social network (Herbert & Belsky, 2008; Sampson et al., 1997). This proposition by Sampson et al. (1997) is supported by recent research which identifies a number of advantages to neighborhood home ownership. Neighbors who own their homes are expected to live in the neighborhood longer, to maintain their homes, to invest in local relationships, and to develop relationships with local resources at social and institutional levels (Dietz & Haurin, 2003). Thus, neighborhood home ownership is a contextual factor which contributes to the health of a community through stable adults who participate in social support and social controls, invest in relationships, maintain their homes and promote maintenance of physical structures in the community (Harkness & Newman, 2003). Based on Durkheim's theory of social integration, the social or collective attachments one maintains protect against negative individual outcomes (e.g., poor mental health) by preventing social isolation and social disinvestment (Durkheim, 1897/ 1951).

Home Ownership at the Family Level. Extant literature on neighborhood effects has distinguished home ownership as an asset to the community and the residents

(Herbert, & Belsky, 2008¹). Two critical studies have aimed to distinguish between the impact of neighborhood home ownership and residential stability (among home owners and renters) on resident benefits. These studies found that residential stability of renters within a neighborhood may be as beneficial to children as neighborhoods of homeowners (Harkness & Newman, 2003). The results of these studies are outliers compared to the large body of literature indicating that home ownership is a protective factor which affects positive outcomes for youth. Home ownership is an indicator of wealth and strongly linked to social class (Stewart and Social Environment working group, 2009). Further research is necessary to examine whether home ownership provides the same advantages to people across all racial groups (Herbert, & Belsky, 2008).

Within family units, home ownership is beneficial across multiple domains. Wealth accumulation provides a financial return for the family investment in a home. The financial investment is expected to be a financial resource available to the family for children's education and health care, a resource that renters do not have available (Herbert, & Belsky, 2008). Owned homes are assumed to be single-family detached housing; thus, children living in an owned home are expected to experience a home environment with higher quality, size, and privacy (Harkness & Newman, 2003; Herbert & Belsky, 2008). Earlier studies have found that parents who are home owners provide more stimulating and emotionally supportive environments for children, qualities associated with higher cognitive ability and lower behavioral problems (Harkness & Newman, 2003). Similarly, residential stability of home ownership is associated with

¹ It should be noted that home ownership research cited references the concept of home ownership prior to the 2008 recession

positive educational outcomes of children of home owners (Harkness & Newman, 2003). Regarding mental health, parents of adolescents who own their homes are hypothesized to experience greater psychological health (self-esteem, life satisfaction, and sense of control) than non-owners (Herbert & Belsky, 2008; Harkness & Newman, 2003). The direct benefits of home ownership for adolescents have been well established. Indirect benefits of home ownership at the neighborhood level has suggested some similar and diverse outcomes compared to direct benefits at the family level.

Home Ownership at the Neighborhood Level. Researchers have identified a number of protective factors for adolescents that live in neighborhoods with high home ownership rates. Adolescent outcomes associated with higher neighborhood home ownership rates are higher educational attainment, less juvenile delinquency, lower rates of teenage pregnancy, and higher rates of subsequent homeownership (Herbert & Belsky, 2008; Harkness & Newman, 2003). Higher levels of adult monitoring and supervision benefit families in neighborhoods with higher home ownership rates (Brooks-Gunn, Johnson, & Leventhal, 2010; Sampson et al., 1997). Positive perceptions of one's neighborhood are associated with positive adolescent mental health outcomes. High neighborhood home ownership rates are associated with higher perceived neighborhood safety (Lindblad, Manturuk, & Quercia, 2013; Latkin & Curry, 2003; Sampson, Morenoff, & Gannon-Rowley, 2002; Anesheseli & Sucoff, 1996), and to lower actual crime rates (Lindblad et al., 2013); however, given the ties between economic status and home ownership, home ownership may not equally benefit all people groups.

Differences in Home Ownership by Race. Multiple and complex systemic factors have positioned non-White individuals primarily in low-income or impoverished neighborhoods. One of these factors is the historical and systemic discrimination against Hispanic and Black home buyers (Roscigno, Karafin, & Tester, 2009). Home ownership promises wealth accumulation, residential stability, and positive life outcomes for children, but critics question whether home ownership actually results in these benefits for non-White home buyers (Herbert & Belsky, 2008). Harkness and Newman (2003) found that the negative consequences of neighborhood poverty are greater for children of homeowners compared to children of renters. Harkness and Newman (2003) also suggest residential stability provided by higher home ownership rates may have a dose response effect, such that the benefit gained by neighborhood home ownership is relative to the level of neighborhood quality. Renters are less likely to experience this effect given the high level of residential mobility associated with renters. Nevertheless, it has been argued that home ownership is an important financial asset among non-White groups. Home equity accounted for 61.8 percent of aggregate wealth among African-Americans and 50.8 percent among Hispanic home owners (Herbert & Belsky, 2008).

Neighborhood home ownership studies demonstrate mixed results when examining the benefits among non-White groups. One benefit of higher home ownership rates within a neighborhood is the expectation that home owners will maintain their home as an investment. However, when families have limited finances, then home maintenance can become more of a burden, and control over one's living environment declines (Herbert & Belsky, 2008). Similarly, if financially stressed home owners are

clustered together in neighborhoods, then their levels of investment in neighborhood maintenance and improvements deteriorates. Historical and systemic socio-economic conditions typically position Hispanic and Blacks families within lower income brackets for a number of reasons: 1) lower education levels than Whites do; 2) lower earnings within comparable education levels, and 3) lower credit scores on average (Herbert & Belsky, 2008). Thus, non-White groups often contend with the same drawbacks to home ownership that other low-income families experience. In addition to the possible financial benefits, the social benefits of home ownership may be compromised if the home is purchased in a neighborhood where multiple home owners are struggling to maintain their homes and are similarly disinvested in developing neighborhood social resources (Herbert & Belsky, 2008). As a result of these potential downfalls of home ownership among low-income or non-White families, adolescents living in such neighborhoods may not derive the benefit of home ownership as a protective factor.

Adolescent Externalizing Problems

Externalizing problems have been defined by hyperactivity, impulsivity (sometimes measured as inattention), verbal and physical aggression, theft, and the general term delinquency. . Early theorists studying differential rates of psychological impairment examined social class, gender, marital status, and race (Aneshesl, 1992). When differential exposure to stressors was examined across these categories, only differences between racial groups remained a contributor to differences in psychological impairment. This early work did not cite how the races differed, but recent literature reviews the common outcomes of mental health disparities. Specifically, Black

Americans have worse mental health outcomes compared to other racial groups (Dressler et al., 2005). Delinquency rates often relate to an adolescent's contact with the criminal justice system. Currently non-White youth are disproportionately represented in juvenile offenders (Aarons, Brown, Garland, & Hough, 2004). From a psychological perspective, the behaviors that contribute to delinquency can be defined as conduct problems. A recent study reported that among male juveniles, Native-American, followed by Hispanic males were most likely to be adjudicated (Freiburger & Burke, 2011). Much of the literature has examined the disproportionate rates of Black adolescents involved in the juvenile justice system, such that Black adolescents supervised by the juvenile justice system are more than double their proportion in the general population (McCord, Widom, & Crowell, 2001). When risk and protective factors are considered, non-White youth often face a higher number of risk factors for psychological impairment. Researchers cite a number of challenges that non-White adolescents face: subtle racism, historical discrimination, systemic disadvantages, economic strain, and lower rates of protective factors (Hull et al., 2008). Some studies suggest that the total number of risk factors contributes more to adolescent externalizing problems rather than specific risk factors (Arthur et al., 2002). Thus, research aimed at distinguishing protective factors for adolescent externalizing problems across races is critical to tailor prevention and intervention strategies.

Differences in Adolescent Externalizing Problems by Race. A large proportion of studies that have examined differential rates of adolescent mental health symptoms have primarily compared White and Black adolescents (McLaughlin, Hilt, &

Nolen-Hoeksema, 2007). General trends suggest that Black adolescents demonstrate higher levels of externalizing problems compared to White adolescents (McLaughlin, Hilt, & Nolen-Hoeksema, 2007; Minsky, Petti, Gara, Vega, Lu, & Kiely, 2006). Fewer studies have included Hispanic adolescents as a comparison group. McLaughlin, Hilt, and Nolen-Hoeksema (2007) addressed this gap in the literature and found that among males, Black adolescents reported the highest levels of externalizing problems (overt aggression), which were significantly higher than levels reported by Hispanic males. By contrast, Roberts, Roberts, and Xing (2006) reported White adolescents were at 1.3 to 2.3 times higher risk for meeting criteria for externalizing disorders (Disruptive Behavior Disorders and ADHD) compared to Black adolescents. The limited literature comparing rates of externalizing problems across racial groups (White, Hispanic and Black) provide mixed results. Further research is necessary to determine whether racial differences in externalizing problems are consistent and whether indirect influences may protect against this relationship.

Relationships between Neighborhood Home Ownership and Adolescent

Externalizing Problems: Models That Address the Role of Race

Bronfenbrenner's ecological model is a broader theory that captures the direct and indirect relationships between individual outcomes and social contexts in which the individual is embedded. Bronfenbrenner's ecological model has influenced a number of studies that evaluate the impact of neighborhood social context on family processes and child outcomes. In recent definitions of the ecological model, social networks are distal processes outside the family that contribute to child development and mental health

(Bronfenbrenner & Evans, 2000). Much of the literature which examines the relationship between neighborhood context and adolescent mental health has focused on depression as an outcome (Hull et al., 2008). The limited empirical evidence that has examined the relationship between neighborhood context and externalizing problems will be reviewed here.

Studies of neighborhood context in relation to adolescent externalizing problems have identified negative neighborhood factors which predict adolescent externalizing problems. Generally, neighborhood problems have been associated with youth externalizing problems (delinquency) (Fite et al., 2012; Wight, Botticello, & Aneshensel, 2006). These studies have highlighted negative neighborhood factors associated with adolescent externalizing problems, but few describe protective factors that may indirectly buffer adolescents from developing externalizing problems. Hurd, Stoddard, and Zimmerman (2013) call for researchers to explore indirect relationships between neighborhood effects and youth psychosocial outcomes to consider how social resources associated with neighborhood factors are transmitted to individual youth outcomes.

The following studies that examine the relationships between home ownership, adolescent externalizing problems, and race are indirect associations primarily because studies have not examined neighborhood home ownership as the neighborhood contextual factor. The relationship between racial discrimination and adolescent externalizing problems (school suspensions and school engagement) was examined among African-American adolescents (Cooper, Brown, Metzger, Clinton, & Guthrie, 2013). Results revealed that community support (religious connection, mentor presence

in neighborhood, and social network) moderated the relationship between racial discrimination and externalizing problems for adolescent boys. Thus, in a socially stressful environment, one result of home ownership, community support, was found to be a protective factor in the development of externalizing problems among African-American adolescents. Cooper et al. (2013) support the trend in the literature which suggests that neighborhoods with community social support are protective for adolescents. Other studies found opposing results. In a comparison of Hispanic and White adolescents, the relationship between adult supervision (parental monitoring) and externalizing problems differed by race (Coohey, Renner, & Sabri, 2013). Specifically, greater adult supervision was associated with fewer externalizing problems for White adolescent males, but not for Hispanic adolescents. Adult supervision is considered a protective factor, characteristic of neighborhoods with higher rates of home ownership. Coohey et al. (2013) highlighted the importance of examining racial differences in the relationship between neighborhood home ownership and adolescent externalizing problems. The neighborhood contextual factors that are protective for one racial group may not be protective for another racial group.

The Present Study

The aim of the present study is to examine race as a moderator of the relationship between neighborhood home ownership and adolescent externalizing problems. First, this moderation model will assess two aspects of externalizing behaviors, hyperactivity and impulsivity, as well as conduct problems (harmful social interactions). These externalizing problems were chosen for their reflection of psychological disorders

diagnosed in childhood or adolescence, ADHD and disruptive behavior disorders. A common pattern across studies of externalizing problems indicates that males are more likely than females to demonstrate externalizing problems (Gudino, Lau, Yeh, McCabe, & Hough, 2009; Li, Nussbaum, & Richards, 2007; Roberts et al., 2006), therefore, this study will include a sample of young males.

Previous literature establishes neighborhood social context as a predictor of adolescent mental health outcomes. Second, the present study will provide a unique contribution to the literature by examining the indirect effects of neighborhood context through the moderator of race. Third, the present study will also contribute to the limited research which examines the relationship between neighborhood social context and adolescent externalizing problems. As called for by Aneshensel (2009), this study will contribute to the growing literature which explores the social inequities that contribute to mental health disparities. Such studies are critical for the development of interventions which target mental health disparities.

Hypothesis 1: After controlling for adolescent age, neighborhood home ownership is hypothesized to predict adolescent externalizing problems. Specifically, lower rates of neighborhood home ownership are expected to predict higher levels of adolescent externalizing problems.

Hypothesis 2: The level of adolescent externalizing problems is expected to differ among racial groups.

Hypothesis 3: Race is expected to moderate the relationship between neighborhood home ownership and adolescent externalizing problems.

Chapter Two

Methods

Sample

The sample was drawn from archival records of youth who received mandated sex offender treatment at a community-based and inpatient treatment program from 2005 to 2012. All clients received weekly group counseling with same-aged peers. Clients in the inpatient treatment facility received weekly individual counseling and community-based treatment included weekly or biweekly individual sessions as needed. Parents participated in monthly parent groups and family therapy sessions as needed. On average, in-patient treatment was completed in nine months, while community-based treatment was completed in 18 months.

The participants in this convenience sample are adolescent males (ages ranged from 12 to 17 years old) that were charged with a sexual offense in or within the suburbs of a large city in the Southern United States. A total of 133 participants were eligible for this study. In regards to racial composition, 25.6% of the participants were White, 38.3% were Black and 36.1% were Hispanic. On average, the White participants were in eighth grade, the Black participants equally were either in 8th or 9th grade, and the Hispanic participants were in ninth grade. Related to neighborhood socio-economic characteristics, Black participants lived in neighborhoods with the highest percent people with income below poverty (31.66%), while White participants lived in neighborhoods with the lowest (9.38%). Average neighborhood household income was highest for White participants (\$90, 916) and lowest for Black participants (\$42,165). Although this was a population in treatment, as discussed in the literature, youth that display sexual

behavior problems are diverse in characteristics similar to average adolescents (Finkelhor, Ormrod, & Chaffin, 2009). The average participant did not score within the At-Risk or Clinically Significant ranges on either the Inattention/ Hyperactivity or Personal Adjustment scales of the BASC-2.

Measures

Demographics. The only demographic variable included in this model was the adolescents' race (White, Black, and Hispanic). This variable was collected primarily from parent assessment forms. If the parent form left the race question blank then the race was collected from the juvenile record in the client file.

Neighborhood home ownership. To account for neighborhood populations that approximate conditions experienced by participants within the range of 2005 to 2012, the 2010 U.S. Census data was selected. The 2010 U.S. Census bureau item "owner vs. renter" was chosen to determine neighborhood home ownership rates. The number of owner occupied units was divided by the number of occupied units. The percent home ownership was calculated at the census tract level for each participant. The census tract is a commonly used approximation of the neighborhood surrounding a residential address. This variable was split into three groups to create equal groups. Equal groups were chosen to account for the assumption of homogeneity of covariance matrices.

Adolescent externalizing problems. Adolescent psychological and behavioral symptoms were measured with the Behavior Assessment Scale for Children-2nd Edition (BASC-2; Reynolds & Kamphus, 2004). The BASC-2 for adolescents is a 176 item self-report of personality features; the first 69 items are dichotomous (true/false) and the last 107 items are rated on a four-point scale of frequency (*Never, Sometimes, Often, Almost*

Always). The scores result in composite values for School Problems, Internalizing Problems, Inattention/Hyperactivity, Emotional Symptoms Index, and Personal Adjustment. For the present study, only the composite scores for Personal Adjustment (Relations with Parents, Interpersonal Relations, Self-Esteem and Self-Reliance), and Inattention/ Hyperactivity will be examined as externalizing problem variables.

The Personal Adjustment composite was chosen to capture the pattern of negative or violent relationships that are observed among adolescents with conduct problems. Adolescents that score low on the Personal Adjustment composite are likely experiencing adjustment problems and some Axis II personality traits rather than internalizing problems (Reynolds & Kamphus, 2004). The clinical presentation of negative interactions is more pervasive among adolescents with learning disabilities and Attention-Deficit Hyperactivity Disorder (ADHD). Although conduct problems may be present among adolescents with ADHD, not all adolescents with ADHD demonstrate a pattern of negative interpersonal problems. Adolescents that score within the At-Risk or Clinically Significant range on the Inattention/ Hyperactivity composite may meet criteria for ADHD. Based on the normative sample for adolescent males aged 12-18 years old, reliability scores on composites were adequate (Personal Adjustment = .90; Inattention/Hyperactivity = .84). The internal reliability for the Inattention/ Hyperactivity composite for this study was .75, and for the Personal Adjustment composite reliability was .74.

Given that juvenile populations frequently experience learning disabilities (LD) and Attention Deficit Hyperactivity Disorder (ADHD), the clinical sample reliabilities of the subscales are reported for males with LD and ADHD: Personal Adjustment = .89/.90,

and Inattention/Hyperactivity = .77/.81. To evaluate construct validity the BASC SRP-A was compared to the *Achenbach System of Empirically Based Assessment* (ASEBA; Achenbach, & Rescorla, 2001) in a sample of 51 adolescents aged 12 to 18 years old (Reynolds, & Kamphus, 2004). Regarding ADHD composites, the Inattention/Hyperactivity composite compared to the ADHD scale of the ASEBA resulted in a correlation of .75. One subscale included in the Personal Adjustment composite, Interpersonal Relations, is associated strongly with the ASEBA Withdrawn/Depressed (-.70) and Withdrawn (-.56) scales. In a sample of 54 adolescents aged 11 to 18 year old, the Conners-Wells' Adolescent Self-Report Scale (CASS) was compared to the BASC SRP-A. The CASS ADHD Index correlated moderately with the Attention Problems subscale of the BASC (.59). The subscale, Relations with Parents, correlated with the CASS Family Problems scale (-.58).

Procedures

During intake interviews with a staff psychologist of the sex offender treatment program, parents (or caregivers) and participants completed a set of self-report questionnaires. In general the intake questionnaires included: BASC-2 parent and self-report forms, a family stress measure, an adolescent self-report of substance abuse, and an adolescent self-report of suicide. The participants completed sex offender treatment between 2004 and 2012. Deidentified data was collected for the purposes of this study. The study received approval from the Institutional Review Board at University of Houston. From client files, demographic data, BASC-2 self-report items and composite scores (Inattention/ Hyperactivity and Personal Adjustment) were included in the deidentified electronic file.

In order to assess the characteristics of the communities where participants lived, participants' addresses were entered into the U.S. Census Bureau website, American Factfinder at . From American Factfinder, the census tract for each address was recorded. From the "Profile of General Population and Housing Characteristics: 2010, 2010 Demographic Profile Data" the data for percent home ownership were collected. For the purposes of sample characteristics, data from "Selected Economic Characteristics, 2009-2013 American Community Survey 5-Year Estimates" was collected.

Statistical Analyses

Power Analysis. A power analysis was conducted using the G*Power program (Faul, Erdfelder, Lang, & Buchner, 2007). Results demonstrated that a sample size of 100, with size of .03, and a p -value of .05 would produce an outcome with a low level of power (.31). While an effect size of .06 under the same conditions would produce an outcome with a moderate level of power (.57).

Bivariate Correlations. A correlation matrix was used to examine the bivariate associations between independent (Percent Home Ownership and Adolescent Race) and dependent variables (Inattention/ Hyperactivity and Personal Adjustment).

Multivariate Analyses. A multivariate analysis of variance (MANOVA) was used to assess the moderation model. Specifically, the relationship between neighborhood home ownership, the independent variable, and adolescent externalizing problems, the dependent variable, will be tested across categories of race. The MANOVA analysis reveals the interaction between variables (comparable to the moderation analysis conducted in regression analyses) and analyzes whether the patterns

of the dependent variables significantly distinguish among categorical groups (in this case, White, Black, and Hispanic).

Chapter Three

Results

A 2 x 2 between-subjects multivariate analysis of variance (MANOVA) was conducted to assess whether the relationship between Percent Neighborhood Home Ownership and Adolescent Externalizing Behaviors (Inattention/Hyperactivity and Personal Adjustment) differed by Race (Black, Hispanic, White). Assumptions of independence of observations and homogeneity of variance/ covariance matrices were assessed. Evaluation of assumptions of normality, linearity and multicollinearity were satisfactory. The assumption of homogeneity of variance/ covariance matrices was met for most variables. Yet, when the Neighborhood Home Ownership variable was examined it appeared to be heterogeneous between groups. Among the White participants, three outliers were lower than the others. MANOVA is robust to moderate non-normality, but sensitive to outliers (Pallant, 2014). Therefore, outliers for the Neighborhood Home Ownership variable were examined through Mahalanobis distance statistics. The cases with the most extreme values satisfied the inclusion criteria of Mahalanobis distance and remained in the analyses.

A missing values analysis was conducted and Little's MCAR was non-significant indicating that the values were missing completely at random. The original sample size of 151 was reduced to 143 when four cases were deleted because they were missing the BASC-2 data; four participants were biracial and excluded from analyses. Eighteen cases were missing the race variable and were imputed based on the average race of the participant's census. Ten cases were missing the Percent Home Ownership and were excluded from analyses.

Bivariate correlations between variables are shown in Table 2. The outcome variables were moderately correlated, while percent home ownership was inversely correlated with adolescent race (1=White, 2=Black and 3=Hispanic). This would suggest that participants in the Hispanic group had the lowest percent home ownership; however, the group means indicate that Black participants had the lowest percent home ownership compared to White and Hispanic participants.

Means and standard deviations for inattention/ hyperactivity and personal adjustment by racial group and percent home ownership group are displayed in Table 3. Results of the multivariate analysis of variance are shown in Table 4. An examination of Wilk's Λ criteria demonstrated that the combined dependent variables were statistically significantly associated with the interaction between Child Race and Percent Home Ownership, $F(8, 246) = 2.136, p < .033, \eta^2 = .065$. The interaction explained 6.5% of the variation in the combined DVs. Specifically, this result indicates that the relationship between Percent Home Ownership and the linear combination of Inattention/ Hyperactivity and Personal Adjustment significantly differed by Child Race. The main effect of Child Race was non-significant, $F(4, 246) = 2.043, p = .09, \eta^2 = .032$. The main effect of Percent Home Ownership was non-significant, $F(4, 246) = .477, p = .75, \eta^2 = .008$.

The significant effect of the interaction term (Child Race by Percent Home Ownership) on the linear combination of inattention/ hyperactivity and personal adjustment was examined more closely. Mean scores suggest that Black participants in neighborhoods with the highest percent home ownership had the highest levels of inattention/ hyperactivity compared to other groups. In general the sample means

indicate that Black participants had the highest scores for inattention/ hyperactivity compared to White and Hispanic participants. Hispanic participants in the neighborhoods with the highest percent home ownership had the lowest levels inattention/ hyperactivity compared to other groups. Related to personal adjustment, White participants living in neighborhoods with the lowest levels of home ownership had the lowest scores; this particular group must be interpreted with caution given the small cell size (see Discussion for socio-contextual factors contributing to these differences). Black participants living in neighborhoods in the average-range of percent home ownership had the highest scores on personal adjustment.

The between subjects effects were not significant at the .025 level (required by Bonferroni's criteria); thus the following results are discussed as trends in the data. In particular, the ANOVAs indicated that there were mean differences in the scores of Inattention/ Hyperactivity that differed by Child Race, $F(2, 124) = 3.302, p = .040, \eta^2 = .051$. Specifically Black participants had the highest Inattention/ Hyperactivity scores, while Hispanic participants had the lowest Inattention/ Hyperactivity scores. The trend that mean differences on Inattention/ Hyperactivity differ by Child Race suggests that this relationship contributes the majority of the variance (6.5%) in the effect of the interaction term (Child Race x Percent Home Ownership). Specifically, 7.3% of the variance in Inattention/ Hyperactivity is accounted for by the interaction between Child Race and Percent Home Ownership. In relation to Personal Adjustment, there were no significant differences by Child Race or the linear combination of Child Race and Percent Home Ownership.

Chapter Four

Discussion

The results of this study challenge the premise in the literature that overall, children living in neighborhoods with higher percent home ownership would benefit from community factors and are expected to have better mental health than children living in neighborhoods with lower levels of home ownership. The results of this study suggest that this premise is not true for Black adolescent males. Specifically, this difference is most apparent in that the results indicated the highest levels of inattention/ hyperactivity among Black participants that lived in neighborhoods with the highest percent home ownership. However, Hispanic participants followed the expected trend: Hispanic adolescents in the highest level of percent home ownership reported the lowest levels of inattention/ hyperactivity. Hispanic participants in the average range of percent home ownership had lower scores on inattention/ hyperactivity than the Hispanic participants in the lowest and the highest group of percent home ownership (See Table 3). This result supports the findings of Coohy et al. (2013) which suggest that protective factors related to higher levels of home ownership may affect adolescents differentially by race. The proposal by Coohy et al. (2013) does not specify whether the intersection between race and economic status contributes to how neighborhood home ownership may affect adolescent mental health.

Sampson's social disorganization theory (1997) suggests the mental health benefits of neighborhood home ownership are attributed to the intersection between neighborhood quality and economic status within the neighborhood. Thus, the intersection between race and economic status must be considered in the interpretation of

these results. The demographic census data indicated that on average, the Black participants with the highest percent home ownership lived in neighborhoods with the lowest percentage of residents below poverty and the highest household income (See Table 1). Thus, the Black participants living in the neighborhoods with the highest percent home ownership did not appear to be protected by a higher neighborhood economic status. Compared to adult mental illness, adolescent mental illness is less confounded with family economic disadvantage. Challenges faced by non-White adolescents (e.g., subtle racism, historical discrimination, systemic disadvantages) may contribute to the different outcomes between Black adolescents living in the average range for percent home ownership and the group with the highest percent home ownership (Hull et al., 2008). Specifically Black adolescent males report higher levels of racism and discrimination when living and schooling in higher income communities compared to Black adolescent males living in lower income communities (Allen, 2010). Racism and discrimination predict poor mental health outcomes among non-White individuals within the United States (Carter, 2007; Helms, Nicolas, & Green, 2010; Surko, Ciro, Blackwood, Nembhard, & Peake, 2005, U.S. Department of Health and Human Services, 2001).

In contrast to Black adolescents in neighborhoods with high percent home ownership, Black adolescents living in neighborhoods within the average range for percent home ownership had the highest scores for personal adjustment compared to all participants. These findings support the study by Cooper et al. (2013) and specify that neighborhood home ownership predicts lower externalizing problems among Black adolescents and may serve as a protective factor. By contrast, there appears to be a dose

response effect, such that inattention/ hyperactivity scores are highest for Black adolescents living in neighborhoods with the highest percent home ownership.

In light of the dose response effect experienced by Black adolescent males in this study, the results from the Hispanic adolescent males indicate that there are different factors influencing the relationship between percent neighborhood home ownership and inattention/ hyperactivity. In the county sampled by this study, 59 percent of Hispanic residents live in “owner occupied” housing, compared to their White counterparts at 69 percent (Houston Department of Health and Human Services, 2013). These rates are compounded by higher rates of overcrowding; 16 percent of Hispanic residents in the county report overcrowding, compared to only one percent of White residents. The higher rates of overcrowding among Hispanic residents is considered a risk factor for health outcomes. However, the protective nature of ethnic enclaves within this county may give the illusion that Hispanic adolescents experience similar benefits from neighborhood home ownership as their White counterparts. However, further research within ethnic enclaves is necessary to determine whether the social support provided within ethnic enclaves buffers the risk factors of overcrowding and high poverty rates.

White participants in the neighborhoods with the lowest percent home ownership had the lowest personal adjustment scores, similar to the Hispanic participants in the group with the lowest percent home ownership. Thus, these findings support the hypothesis and validate the earlier research premise that lower neighborhood home ownership is related to higher levels of mental health problems. The study results did not support the hypothesis that percent neighborhood home ownership alone predicts adolescent externalizing problems. Instead, the results reveal that race moderates this

relationship and must be considered when purporting that neighborhood home ownership is a protective factor for adolescent mental health. Overall, the hypothesis that the relationship between percent home ownership and externalizing problems is moderated by adolescent race was supported by the results of this study. In this study the relationship differed for each racial group (White, Black, and Hispanic).

Strengths

The results of this study will uniquely contribute to the neighborhood and community psychology literature in a number of ways. The study results challenge a long-standing claim in the literature that neighborhood home ownership is a consistent protective factor for adolescent mental health. In particular, the study suggests that higher neighborhood home ownership is related to higher scores of inattention and hyperactivity among Black male adolescents, which differed from scores of inattention and hyperactivity among White and Hispanic male adolescents. Along with the study by Lima, Caughy, Saundra & O'Campo (2010), this study is one of the few to empirically demonstrate a link between neighborhood characteristics which may serve as protective factors or for some groups may increase risk factors for adolescent externalizing behavior problems. This study used adolescent self-reports of mental health, which have been shown to be as informative or more informative when compared to parents' and teachers' reports (McLaughlin, Hilt, & Nolen-Hoeksema, 2007).

Limitations

When the intersection between race and percent home ownership was considered in this study, the actual inequalities that were predicted (e.g., lower percentages of White adolescents living within neighborhoods with low percent home ownership) were not

expected to be a statistical limitation. The sample would have benefitted from intentionally oversampling adolescents from neighborhoods with lower percent home ownership to increase the racial diversity in that group. Even though the sample was representative of the racial disparities that exist in American society, (i.e., that more White adolescents live in neighborhoods with higher percent home ownership compared to their Black and Hispanic counterparts); this sample was based on a convenience sample of a clinical population. Thus, the participants were not stratified across regions in the city, economic levels nor were authors able to intentionally recruit Asian participants.

Race is the demographic variable that the U.S. Census has collected for many years. However, this formulation of ethnic identity and cultural considerations that affect psychological constructs is more complex than these crude demographic categories. A number of researchers have recommended that studies which examine mental health disparities should consider ethnic group identification rather than the socially constructed category of race (Krieger, 2005). Similarly, census tracts are predetermined areas based on coordinates within a neighborhood rather than community-defined neighborhood boundaries. The use of census tracts to measure neighborhoods is a method used widely across neighborhood level research and has support as a proxy for neighborhoods (Benson, Wooldredge, Thistlethwaite, & Fox, 2004). Future research may consider surveying community stakeholders about parameters which define the neighborhood, which could reveal different results. Given that family level home ownership is related to adolescent outcomes, an ideal study would control for family level home ownership. However, only 30% of participants in this sample had complete data for this question.

Current trends in the housing market after the 2007-2009 recession are important to consider in the generalizability of these results. Specifically, the national average home ownership rate dropped by 1.7 percent from the 2007-2009 to the 2010-2012 American Community Surveys (Flanagan & Wilson, 2013). The brief by Jacobsen and Mather (2011) reported that declines in home ownership rates occurred across race/ethnic groups; however, Black and Hispanic home owners experienced disproportionately higher rates of foreclosures compared to non-Hispanic White home owners. By the same token, renter occupied housing rates increased in metropolitan areas. The national decline in home ownership rates was significantly different than the local trend where this sample was collected. Specifically, the county level home ownership rate only dropped .79 percentage points. Thus, the effect of the 2007-2009 recession may have had less impact on home ownership rates within this sample. The findings of this study are more likely to generalize to large metropolitan areas where home ownership rates were not as high as the national average during the recession.

The premise of neighborhood selection is a complex process which involves a number of intentional (e.g., preference for segregated neighborhoods) and unintentional factors (e.g., historical discrimination practices within U.S. housing policies, and financial disinvestment in communities of color) (York, Smith, Stanley, Stark, Novic, Harlan, et al., 2010). Thus, neighborhood selection is difficult to account for but is indirectly considered in this study as racial differences uniquely contribute to neighborhood outcomes (Lima et al., 2010).

Clinical and Policy Implications

In light of the results from the present study, methods to promote positive neighborhood social climates rather than home ownership rates may be more of an investment in promoting more equal mental health outcomes. The results suggest that benefits of home ownership are unequally distributed by racial groups. Thus, it is recommended that socio-economic location, historical contextual factors, the experience of racism, and discrimination be considered in future research. Critical race theory is one framework which considers systemic inequities that are important to account for in the relationship between community factors and mental health disparities by race (Crenshaw, Gotanda, Peller, & Thomas, 1995). Furthermore, community psychologists and mental health professionals who function within a strengths-based model assess individual, family, and community level assets. This model has been used in the LINC model of crisis intervention and the Community-Based Participatory Research model (Arthur, Hawkins, Brown, Briney, Oesterle, & Abbott, 2010; Israel, Eng, Schulz, & Parker, 2013; Landau, 2010). The translation into practice of empirical evidence which identifies community level factors related to mental health disparities must involve asset and empowerment based approaches (Aneshensel, 2009).

As researchers continue to evaluate racial and economic mental health disparities in the United States, cultural beliefs and policy agendas are likely to shift in response. In consideration of the results of this study, it appears that the American dream of owning a home and settling into a neighborhood differentially benefits adolescents by racial group. Specifically, pursuing a neighborhood with high home ownership rates is related to negative mental health outcomes (i.e., inattention and hyperactivity) for Black adolescent

males. American policies which promote home ownership may be less valuable compared to public health policies that reflect the importance of community processes which contribute to social capital (Snowden, 2005). Population level research related to mental health disparities has the potential to shape policy initiatives and future community-level interventions (Aneshensel, 2009; U.S. Department of Health and Human Services, 2001), and the present study reflects this potential influence.

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Appendix A

Table 1. Characteristics of study sample (N= 133)

Table 1.

Characteristics of study sample (N= 133)

	White (n=34)		Black (n=51)		Hispanic (n=48)	
	Mean		Mean		Mean	
<i>Percent Home Ownership (SD)</i>						
Percent Home Ownership Low	31.5	(7.6)	24.7	(11.7)	29.1	(1.3)
Percent Home Ownership Average	63.3	(8.6)	59.0	(7.7)	59.3	(8.9)
Percent Home Ownership High	83.6	(7.4)	79.8	(6.2)	81.9	(7.1)
<i>% People in Neighborhood with Income Below Poverty</i>						
Percent Home Ownership Low	18.20		31.66		28.13	
Percent Home Ownership Average	16.31		26.98		27.11	
Percent Home Ownership High	9.38		15.62		12.97	
<i>Household Income for Neighborhood</i>						
Percent Home Ownership Low	54,372		42,165		42,553	
Percent Home Ownership Average	62,857		46,179		46,888	
Percent Home Ownership High	90,916		72,117		72,604	
Average Age (Range)	15 years	(13-17)	15 years	(12-17)	15 years	(12-17)
Average Grade (percent)	8 th	(26.5)	8 th /9 th	(25.5)	9 th	(29.2)
Average Inattention/ Hyperactivity score (SD)	49.35	(9.48)	52.14	(12.43)	48.23	(11.46)
Average Personal Adjustment score ^a (SD)	48.80	(8.86)	49.45	(10.18)	50.25	(10.02)

^aPersonal Adjustment scores are interpreted in the reverse direction (higher Personal Adjustment scores are a positive outcome).

Appendix B

Table 2. Bivariate Correlations for Independent and Dependent Variables

Table 2.

*Bivariate Correlations for Independent and
Dependent Variables*

Variable	1	2	3	4
1. Adolescent Race	-	-.34**	-.54	.059
2. Percent Home Ownership	-	-	-.031	-.002
3. Inattention/ Hyperactivity	-	-	-	-.494**
4. Personal Adjustment	-	-	-	-

* $p < 0.05$

** $p < .01$

Appendix C

**Table 3. Descriptive Statistics for Inattention/ Hyperactivity and
Personal Adjustment by Racial Group and Percent Home Ownership Group**

Table 3
Descriptive Statistics for Inattention/ Hyperactivity and
Personal Adjustment by Racial Group and Percent Home Ownership Group

Scale	White			Black			Hispanic		
	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>
Inattention/ Hyperactivity									
<i>Percent HO^a 1</i>	51.00	17.78	3	51.00	9.46	20	51.25	12.35	20
<i>Percent HO^a 2</i>	43.87	5.693	8	50.50	14.49	22	48.88	11.58	16
<i>Percent HO^a 3</i>	51.04	9.023	23	58.67	11.91	9	42.33	7.74	12
Personal Adjustment									
<i>Percent HO^a 1</i>	45.00	7.00	3	47.30	9.29	20	51.30	7.58	20
<i>Percent HO^a 2</i>	49.50	6.99	8	52.64	11.01	22	48.56	9.75	16
<i>Percent HO^a 3</i>	49.04	9.77	23	46.44	8.66	9	50.75	13.92	12

Appendix D

Table 4. Adolescent Race X Percent Home Ownership
Multivariate Analysis of Variance

Table 4

Adolescent Race X Percent Home Ownership

Multivariate Analysis of Variance

IV	F-value (4, 246)	<i>p</i>	η^2
Adolescent Race	2.043	.089	.032
Percent Home Ownership	.477	.752	.008
Adolescent Race X Percent Home Ownership	2.136	.033	.065