RUNNING HEAD: Neighborhood ethnic congruence and mental health

Who are the people in your neighborhood? The relationship between neighborhood ethnic congruence and mental health

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Abstract

Research has linked neighborhood ethnic congruence to mental health outcomes. However, the exploration of multi-ethnic group differences, curvilinear relationships, and mediating pathways has largely been ignored. This research attempts to address these gaps by examining the linear and curvilinear relationships between neighborhood ethnic congruence and mental health outcomes using an ethnically diverse, largely immigrant sample. In addition, neighborhood cohesion, discrimination, and neighborhood disorder are explored as mediators. Data for this study come from The Survey of Minority Groups, a study of midlife development in the United States (MIDUS). Results suggest that the relationship between neighborhood ethnic congruence and health outcomes does vary across ethnic groups. In general, Dominicans have worse mental health outcomes when they live in ethnically incongruent neighborhoods while Puerto Ricans have worse mental health outcomes when they live in ethnically congruent neighborhoods. For Mexicans, there is a curvilinear relationship that indicates worse outcomes when ethnic congruence is high or low. Mediation was found through experiences of discrimination for Dominicans and neighborhood cohesion for Mexicans.

Research on the relationship between neighborhood ethnic composition and mental health posits that risk for adverse mental health outcomes in ethnic minority individuals increases when they live in neighborhoods where they constitute a smaller proportion of the population (Faris & Dunham, 1939). This "ethnic density effect" has been empirically demonstrated for a variety of ethnic minority groups (Halpern & Nazroo, 1999; Henderson, et al., 2005; Muhlin, 1979; Neeleman, Wilson-Jones, Wessely, 2001; Rabkin, 1979). A problem with many studies in this area has been the reliance on psychiatric admission rates as a measure of mental health. However, more recent work has also demonstrated the ethnic density effect using other mental health outcomes such as suicide (Neeleman & Wessely, 1999), occurrence of deliberate self-harm (Neeleman, Wilson-Jones, Wessely, 2001), incidence of schizophrenia (Boydell et al., 2001), and self-reported neurotic and psychotic symptoms (Halpern & Nazroo, 1999). In addition, some research shows that the ethnic density effect continues to exist after adjusting for neighborhood poverty (Aneshensel & Sucoff, 1996; Wickrama, Noh & Bryant, 2005; Wight, Aneshensel, Botticello, & Sepulveda, 2005).

Early work on the ethnic density effect assumed that neighborhood ethnic density affects individuals from different groups in the same way. However, more recent work suggests that this is not the case. An examination of the ethnic density effect in England found that the effect was not homogenous across the six ethnic minority groups that were considered (Caribbean, Indian, African Asian, Pakistani, Bangladeshi, and Chinese). Although, overall, the results supported the ethnic density effect hypothesis, an opposite effect was found for the Pakistani group, such that higher group concentration was marginally related to higher symptom levels (Halpern & Nazroo, 1999). An examination

of the relationship between neighborhood ethnic density, racial-ethnic identity, and psychological distress in a sample of U.S. adolescents, also found variation across ethnic groups. The authors found that for African American adolescents, living in an ethnically congruent neighborhood was related to lower levels of depressive symptoms. However, the pattern that emerged for Latino adolescents was much more complicated. While no main effect was found, an interaction between neighborhood congruence and racial/ethnic identity emerged, such that, the highest levels of depressive symptoms were found for individuals who had high levels of racial-ethnic identity and lived in ethnically incongruent neighborhoods (Allen, Bat-Chava, Aber, & Seidman; 2005).

In addition to ethnicity, research suggests that factors such as immigrant status, may moderate the relationship between neighborhood ethnic congruence and mental health. The majority of research on neighborhood ethnic composition and psychological disorders has focused on native-born samples, even though the ethnic composition of neighborhoods may be particularly salient for the foreign-born. There is some evidence that immigrants who reside in ethnically congruent neighborhoods have fewer mental health problems than those who reside in incongruent neighborhoods (Kuo, 1976). Additionally, research has shown that neighborhood ethnic composition can influence first-generation immigrants' social support, neighborhood trust, and experiences of discrimination, factors that are related to psychopathology (Hao & Kawano, 2001; Leigh, 2006; Nee & Sanders, 1996; Ooka, 2001; Suarez-Orozco, 2004). Therefore, the relationship between neighborhood ethnic composition and mental health may be particularly relevant for immigrant groups.

The majority of research on neighborhood ethnic congruence and mental health has assumed this relationship to be a linear one, such that individual mental health gets better or worse as neighborhood ethnic congruence increases or decreases. However, research on workplace ethnic composition and psychological well-being suggests that this relationship may be nonlinear. In a study of workplace diversity and psychological functioning, the presence of co-ethnics in the workplace had a significant nonlinear association with psychosomatic complaints and psychological well-being. Specifically, psychological functioning was better for individuals who worked with a midlevel proportion of co-ethnics compared to individuals whose workplaces had very high or low concentrations of co-ethnics (Enchautegui-de-Jesus, Hughes, Jonston, & Oh, 2006). These findings suggest that the effects of setting ethnic congruence may be non-linear. Therefore, it is important to consider the possibility that the relationship between neighborhood ethnic congruence and mental health may also be nonlinear.

Neighborhood ethnic composition and potential mediators

While the relationship between neighborhood ethnic congruence and mental health has been established, the mediating pathways remain relatively unexplored. Although research in related areas offers insight into potential explanations, it also raises contradictory hypotheses. This work attempts to decipher the relative influence neighborhood cohesion, discrimination, and neighborhood disorder by considering the role they play in mediating the relationships between neighborhood ethnic congruence and mental health.

Neighborhood cohesion. Some work suggests that there is a relationship between neighborhood ethnic composition and neighborhood cohesion. Higher neighborhood

ethnic heterogeneity has been related to lower neighbor trust in a sample of first-generation immigrants (Leigh, 2006). Social disorganization theory also lends itself to understanding the relationship between neighborhood ethnic composition and neighborhood cohesion (Shaw & McKay, 1942). Because social disorganization theory posits that the key mechanism underlying the influence of neighborhood characteristics on the individual is social ties among neighborhood residents, it is feasible that neighborhood characteristics also influence individuals' trust in neighbors and perceived sense of neighborhood cohesion. Neighborhood cohesion, in turn, has been linked to mental health. Higher levels of trust and cohesion are related to lower rates of distress, depression, and anxiety (Aneshensel & Sucoff, 1996; Cutrona, Russell, Hessling, Brown, & Murry, 2000; O'Brien, Hassinger, & Dershem, 1994; Philayrath, Chay, Bauman, Brooks, & Silove, 2006).

Discrimination. Little work has been done on the relationship between neighborhood ethnic composition and discrimination. The work that does exist suggests that neighborhood ethnic congruence may be related to experiences of discrimination. Research on workplace ethnic composition and discrimination has found that racial minorities report more stereotyping and negative evaluations in work settings where their group is underrepresented (Reskin, McBrier, & Kmec, 1999). Therefore, this pattern of findings may also hold true for neighborhood effects. In neighborhoods where they are the minority, individuals may perceive more discrimination than in neighborhoods where they are the majority. Support for this hypothesis comes from research that links race-based residential segregation and racial stereotype perceptions (Clark, 1991; Farley, Steeh, & Krysan, 1994). Although this work has focused on Black and white

neighborhood segregation, it suggests that, for Blacks, preferences for non-integrated neighborhoods may be partially driven by apprehensions about white hostility. Additionally, experiences of discrimination are strongly related to negative mental health outcomes (Borrell, Kiefe, Williams, Diez-Roux, & Gordon-Larsen, 2006; Brown et al., 2000; Jackson et al., 1996; Kessler, Mickelson, & Williams, 1999; Landrine & Klonoff, 1996).

Neighborhood disorder. While research on social disorganization theory has found a positive relationship between neighborhood ethnic heterogeneity and neighborhood disorder, research on residential segregation posits an opposite pattern of effects (Massey & Denton, 1993; Sampson & Groves, 1989; Sugrue, 1996; Thomas, 1997; Wacquant & Wilson, 1989) This work argues that race-based residential segregation contributes to the isolation of residents from economic resources, institutions that support community life, and opportunity structures and is therefore an indirect structural cause of high crime (Krivo & Peterson, 2000; Krivo, Peterson, Rizzo, & Reynolds, 1998; Massey, Douglas, & Eggers, 1990; Massey, Eggers, & Denton, 1994). However, the majority of research on racial residential segregation and neighborhood disorder has focused on African Americans, with little attention being paid to immigrant groups. In addition, this work confounds neighborhood ethnic composition with neighborhood poverty. Therefore, it is necessary to consider how neighborhood ethnic composition and neighborhood crime are related after adjusting for neighborhood socioeconomic status. In addition, perceptions of neighborhood crime and disorder have been linked to depression and anxiety (Aneshensel & Sucoff, 1996; Cutrona, et al., 2000; Hill, Ross, & Angel, 2005; Latkin & Curry, 2003; Ross & Jang, 2000).

Given these gaps in the literature, this study aims to answer three research questions using data from an ethnically diverse, largely immigrant sample:

1) Is there a linear or curvilinear relationship between neighborhood ethnic congruence and mental health?
2) Is the relationship (linear and curvilinear) between neighborhood ethnic congruence and mental health moderated by ethnicity?
3) Is the relationship (linear and curvilinear) between neighborhood ethnic congruence and mental health mediated by neighborhood cohesion, discrimination, or neighborhood disorder?

Methods

Sample

Data for this study come from The Survey of Minority Groups, a study of midlife development in the United States (MIDUS) conducted between 1995-1996, as a part of the John D. and Catherine T. McArthur Foundation's Research Network on Midlife Development (Hughes & Schweder, 2002). The sample consists of men and women, ages 25 and older. Participants are African Americans, Dominicans, and Puerto Ricans in New York City and Mexicans and Puerto Ricans in Chicago (Hughes, 2001, 2003; Ryff, Keyes, & Hughes, 2003). A two-stage sampling procedure was used to identify respondents. First, census block groups were randomly selected after stratifying them by ethnic composition and socioeconomic status of each ethnic group based on the 1990 U.S. Census. Next, quotas of ethnic groups were established within randomly selected census block groups. Interviewers identified eligible respondents by screening residents door to door. Eligible respondents participated in a structured interview in their language of preference (English or Spanish). Data for this study consist of 1,306 Dominican, Mexican, Puerto Rican, and African American men and women (Dominican N=283,

Mexican N=235, Puerto Rican = 449, African American N=339). The majority of African Americans are native-born (98%). Ninety-five percent of the Dominicans are foreign-born and 89% of the Mexicans are foreign-born. The sample is equally split between men and women and the average age is 43 (sd = 14).

Measures

Covariates. The inclusion of baseline characteristics adjusts for pre-existing differences in respondents and allows more accurate estimates of the contribution of neighborhood ethnic congruence on mental health outcomes. These variables are: city where respondent lives, whether the respondent is currently married, respondent's sex, whether the respondent is foreign-born, respondent's highest level of education completed, whether the respondent is currently employed, respondent's age, family income, median neighborhood income, and the number of years the respondent has lived in the neighborhood. All continuous variables (age, family income, median neighborhood income, and the number of years in the neighborhood) are centered. Dummy codes were created for each of the four racial/ethnic groups. In all of the analyses, African American is the reference group.

Neighborhood Ethnic Congruence. Addresses and census block groups were recorded at data collection. Neighborhood ethnic congruence is calculated using Census 1990 raw data. This was done by dividing the number of co-ethnics (Dominican, Mexican, Puerto Rican, or African American) within an individual's census block group by the total number of residents in the census tract. Analysis of this variable indicates significant variation within ethnic groups: Dominicans, *range* 0%-62%, *mean* 31.52%, *standard deviation* 19.61%; Mexicans, *range* 0%-91%, *mean* 32.46%, *standard deviation*

27.37%; Puerto Ricans, *range* 0%-72%, *mean* 30.25%, *standard deviation* 21.15%, African Americans, *range* 0%-94%, *mean* 44.47%, *standard deviation* 27.05%. A squared neighborhood ethnic congruence term was also created to test for curvilinear relationships

Mental Health Outcomes. Depression was measured using the Composite International Diagnostic Interview short form (CIDI-SF) that is designed to classify respondents according to the criteria of a DSM-IV major depressive episode (Kessler, Andrews, Mroczek, Ustun, & Wittchen, 1998). Respondents were asked "During the past 12 months, was there ever a time when you felt sad, blue, or depressed for two weeks or more in a row?" A dichotomous measure indicates whether participants experienced a two-week period of depression in the past 12 months. Twenty-one percent of the sample indicated that they had experienced a two-week period of depression.

Generalized anxiety disorder was measured using the Composite International Diagnostic Interview short form (CIDI-SF) that is designed to classify respondents according to the criteria of DSM-IV generalized anxiety disorder (Kessler, et al., 1998). Participants were asked "Thinking about the past 12 months, did you worry every day, just about every day, most days, about half the days, less than half the days, or what?" A dichotomous measure indicates whether participants worried more than half the days in the previous 12 months. Twenty percent of the sample indicated that they had worried more than half the days in the preceding 12 months.

Psychosomatic distress was measured using 13 items. Participants were asked how often each of the symptoms had happened to them in the past three months. Symptoms included headaches, problems falling asleep, pains in the heart or chest, nausea or upset

stomach, trouble concentrating, and lower back pain. Respondents used a 5-point scale (1 = *never*, 5 = *very often*) to indicate frequency of symptomatology (α = .91). The logarithm of this variable is used to reduce positive skew.

Mediator Measures. The mediators in these analyses include neighborhood cohesion, discrimination, and neighborhood disorder. *Neighborhood cohesion* is measured using 4 items taken from the Buckner Neighborhood Cohesion scale (Buckner, 1988). At the neighborhood-level of analysis, the instrument exhibits discriminatory power and criterion-related validity. Participants respond on a 4-point scale that ranges from "a lot" to "not at all" (α = .93). Sample items include: "I feel I belong to this neighborhood." and "Living in this neighborhood gives me a sense of community."

The measures of *discrimination* include two scales that measure discrete event experiences of discrimination and daily experiences of discrimination. Discrete event discrimination is measured with six items. Participants were asked if they had ever experienced each type of unfair treatment. Twenty-eight percent of the sample indicated that they had experienced some form of discrimination. If they responded "yes" they were then asked whether it had occurred in the past year and if it had, had it occurred once, twice, three, or four or more times in the past year. Sample questions include: "(Have you ever) wanted to move out of a neighborhood because neighbors made life so uncomfortable?" and "(Have you ever) been hassled by the police?" Discrete event discrimination is coded in two ways. A dichotomous measure indicates whether participants experienced some form of discrimination in the past year. In addition, there is a count of discriminatory incidents occurring during the past year. Daily discrimination is measured with nine items (α = .91). Participants were asked how often

they experienced each type of unfair treatment in their day-to-day experiences and responded on a 5-point scale ranging from "never" to "very often". Sample items include: "are you treated with less courtesy than other people" and "are you called names or insulted".

Neighborhood disorder is measured with 11 items ($\alpha = .95$). Participants were asked how much of a problem each item is in their neighborhood and then responded using a 3-point scale ranging from "a big problem" to "not a problem". Sample items include: "burglaries and theft" and "assaults and muggings".

Results

Question 1. Is there a linear or curvilinear relationship between neighborhood ethnic congruence and mental health?

OLS and logistic regressions were used to test the influence of neighborhood ethnic congruence on depression, anxiety, and psychosomatic distress. The analyses correct for non-independence of observations (individuals are clustered within neighborhoods) using the SAS procedures PROC MIXED (OLS) and PROC GENMOD (logistic). In order to test for a linear relationship between neighborhood ethnic congruence and each of the mental health outcomes, each outcome was regressed on neighborhood ethnic congruence adjusting for covariates. No linear relationships were found between neighborhood ethnic congruence and mental health outcomes.

To test for a curvilinear relationship between neighborhood ethnic congruence and mental health outcomes, the squared neighborhood ethnic congruence term was added to the original model. No curvilinear relationships were found between neighborhood ethnic congruence and mental health outcomes.

Question 2. Is the relationship (linear and curvilinear) between neighborhood ethnic congruence and mental health moderated by ethnicity?

To determine whether ethnicity moderates a linear relationship between neighborhood ethnic congruence and mental health, three ethnicity dummy code by neighborhood ethnic congruence interactions were included in the linear models. Overall, these findings suggest that Dominicans have worse mental health outcomes when they live in ethnically incongruent neighborhoods. In contrast, Puerto Ricans have worse outcomes when they live in ethnically congruent neighborhoods. For anxiety, there is a significant interaction for Dominicans (*OR* = .98, *p* = .05) and a trend level interaction for Puerto Ricans (*OR* = 1.02, *p* = .06) (Figure 1). For psychosomatic distress, there is a significant interaction for Puerto Ricans (*b* = .003, *SE* = 001, *p* = .02) and a trend level interaction for Dominicans (*b* = -.003, *SE* = 002, *p* = .06) (Figure 2).

To assess whether ethnicity moderates a curvilinear relationship between neighborhood ethnic congruence and health outcomes, three ethnicity by squared neighborhood ethnic congruence interactions were included in the nonlinear models[1]. These results suggest that African Americans have the best outcomes when ethnic congruence is either low or high. Conversely, Mexicans have higher levels of negative outcomes when ethnic congruence is either low or high. For psychosomatic distress, there is a trend level interaction for Mexicans (*b* = .0001, *SE* = 0001, *p* = .07) (Figure 3).

Question 3. Is the relationship (linear and curvilinear) between neighborhood ethnic congruence and mental health mediated by neighborhood cohesion, discrimination, neighborhood disorder?

[1] All lower order terms and interactions were also included in the models.

To determine whether the relationship between neighborhood ethnic congruence and mental health can be explained through neighborhood cohesion, discrimination, and neighborhood disorder, it is necessary to estimate three regression equations for each of the mediator variables. In the first equation, the dependent variable is regressed on the independent variable in order to establish the predictor's effect on the outcome. In the second equation the mediator is regressed on the independent variable. In the final equation, the dependent variable is predicted by the independent variable and the mediator. (Baron & Kenny, 1986; MacKinnon, Lockwood, Hoffman, West, & Sheets, 2002; Shrout & Bolger, 2002). The significance of the indirect association is tested using methods recommended in MacKinnon, Lockwood, Hoffman, West, and Sheets (2002).

In order to fully understand how neighborhood cohesion, discrimination, and neighborhood disorder are related to neighborhood ethnic congruence and mental health, mediation was tested for all significant and trend level relationships found in the analyses described under research questions 1 and 2. Specifically, mediation was tested for main effects and linear and curvilinear neighborhood ethnic congruence by ethnicity interactions.

Mediation was found for the interaction of neighborhood ethnic congruence by Dominican dummy code for the outcomes of anxiety and psychosomatic distress. To test for meditation, each of the mediators was first regressed on the neighborhood ethnic congruence by ethnicity interactions. The interaction of neighborhood ethnic congruence and Dominican significantly predicted binary discrimination (OR =.98, SE = .01, p = .04) and discrete event discrimination (b = -.01, SE = .01, p = .09) at the trend level. As figures 4 and 5 show, Dominicans living in neighborhoods with low ethnic congruence

report higher levels of discrimination than Dominicans living in neighborhoods with high ethnic congruence.

In addition, discrete event discrimination (*OR* = 1.37, *SE* = .07, $p < .01$) and binary discrimination (*OR* = 2.31, *SE* = .22, $p < .01$) significantly predicted anxiety. Binary discrimination also predicted psychosomatic distress (*b* = .10, *SE* = .02, $p < .01$). All models adjusted for neighborhood ethnic congruence and neighborhood ethnic congruence by ethnicity interactions. Higher rates of discrimination were related to an increased likelihood to report anxiety and higher rates of psychosomatic distress.

Finally, the indirect associations of the interaction of neighborhood ethnic congruence by Dominican dummy code on anxiety and psychosomatic distress through discrete discrimination experiences and binary discrimination were tested. There were significant indirect associations predicting anxiety for both discrete discrimination experiences (*b* =-.003; *SE* = .002; $p < .05$) and binary discrimination (*b* =-.004; *SE* = .002; $p < .05$). There was a significant indirect association predicting psychosomatic distress for binary discrimination (*b* = -.01; *SE* = .01; $p < .05$).

Support for mediation was also found for the curvilinear relationship of neighborhood ethnic congruence by Mexican dummy code predicting psychosomatic distress. The interaction of the quadratic neighborhood ethnic congruence term by Mexican dummy code significantly predicted neighborhood cohesion (*b* = -.0002; *SE* = .0001; $p = .05$). As figure 6 shows, for Mexicans, there is an inverted U-shaped relationship between neighborhood ethnic congruence and neighborhood cohesion. Mexicans report the lowest rates of neighborhood cohesion in neighborhoods with low ethnic congruence. Rates of neighborhood cohesion increase as neighborhood ethnic congruence increases

and then begin to decline again for Mexicans living in neighborhoods with the highest rates of ethnic congruence. In addition, neighborhood cohesion predicted psychosomatic distress at the trend level (b = -.03; SE = .01; p = .02). This model adjusted for neighborhood ethnic congruence, squared neighborhood ethnic congruence, neighborhood ethnic congruence by ethnicity linear interactions and neighborhood ethnic congruence by ethnicity curvilinear interactions. Higher rates of neighborhood cohesion were related to lower reports of psychosomatic distress. Finally, a significant indirect association for psychosomatic distress was found for neighborhood cohesion (b = .00001; SE = .00001; $p < .05$)

No support of mediation was found for other significant findings.

Discussion

The goal of this study is to examine the complex relationship between neighborhood ethnic congruence and individual mental health. By testing both linear and curvilinear relationships and examining how the relationship between neighborhood ethnic congruence and mental health differs across racial/ethnic groups, this work explores the differential ways that neighborhood ethnic congruence can affect individual health. In addition, this study considers the underlying processes that may explain these relationships.

The results of this study support previous work that has established a relationship between neighborhood ethnic congruence and mental health. However, this study found that these relationships function very differently across racial/ethnic groups. Overall, Dominicans have worse mental health outcomes when they live in ethnically incongruent neighborhoods. These results parallel past research findings on the “ethnic density

effect" (Faris & Dunham, 1939). In contrast, Puerto Ricans have worse mental health outcomes when they live in ethnically congruent neighborhoods. Finally, these findings suggest that for Mexicans and African American, there may be a curvilinear relationship between neighborhood ethnic congruence and mental health outcomes. Specifically, Mexicans have worse mental health outcomes when neighborhood ethnic congruence is low or high. Conversely, African Americans have better mental health outcomes when neighborhood ethnic congruence is low or high.

In an attempt to explain this complex set of findings, several mediators were considered. These include measures of neighborhood cohesion, discrimination, and neighborhood disorder. For Dominicans, the influence of neighborhood ethnic congruence on anxiety and psychosomatic distress is mediated by discrimination. Examining the interaction of neighborhood ethnic congruence by Dominican dummy code predicting discrimination, it becomes apparent that Dominicans in neighborhoods with low ethnic congruence report higher levels of discrimination than Dominicans living in neighborhoods with high ethnic congruence. This pattern of results suggests that for Dominicans living in low congruence neighborhoods, higher rates of anxiety and psychosomatic distress may be explained by higher rates of discrimination.

The fact that Dominicans living in low congruence neighborhoods report higher levels of discrimination raises the question of what other racial/ethnic groups are sharing these neighborhoods. Examining the percentage of Puerto Ricans, Mexicans, African Americans, and Whites that reside in low congruence Dominican neighborhoods reveals the predominate ethnic group to be Puerto Ricans. On average, these neighborhoods are 40% Puerto Rican, 0% Mexican, 19% African American, and 20% White. Ethnographic

work has documented the conflicts that arise between ethnic groups as immigration changes the demographic makeup of cities and neighborhoods (Pessar, 1995). It may be that the higher rates of discrimination reported by Dominicans living in low congruence neighborhoods is a function of tensions born out of shifts in neighborhood ethnic makeup.

While experiences of discrimination may explain the pattern of effects for Dominicans, a different underlying process seems to affect Mexicans. For Mexicans, the curvilinear relationship between neighborhood ethnic congruence and psychosomatic distress is mediated by neighborhood cohesion. The interaction of squared neighborhood ethnic congruence by Mexican dummy code predicts neighborhood cohesion. The shape of this interaction indicates that there is an inverted U-shaped relationship between neighborhood ethnic congruence and neighborhood cohesion. This pattern of results suggests that higher levels of psychosomatic distress in neighborhoods with low and high levels of ethnic congruence may explained by corresponding low levels of neighborhood cohesion.

These findings partially support work that has found higher neighborhood ethnic heterogeneity to be related to lower rates of neighbor trust for first-generation immigrants (Leigh, 2006). While immigrant status is confounded with ethnicity, the majority of Mexicans in this sample (89%) are first-generation immigrants. Therefore, the particularly low rates of neighborhood cohesion in the neighborhoods with the lowest ethnic congruence may be driven by first-generation immigrants' mistrust of their neighbors. In contrast, some research suggests that for some residents, living in a tightly knit ethnic community may limit economic mobility and produce downward leveling

norms (Portes, 1998). Therefore, it may be that there for some groups there is an optimal level of in-group representation. Too few group members or too many group members may result in lower levels of neighborhood cohesion.

The pattern of effects for Puerto Ricans and African Americans were not able to be explained through the mediating processes explored in this study. The mediators proposed in this study are just some of the many factors that may be driving these patterns of results. In addition, these analyses combine Puerto Ricans living in Chicago and New York. Although these cities are similar in that they are both urban areas with ethnically diverse populations, their neighborhoods are very different contextual settings. Therefore, it may be that the underlying processes affecting individuals in these cities are also very different. Future work will examine city specific effects to explore this possibility.

There are several limitations to this study that result from the nature of the data. First, the data is cross-sectional, making it impossible to draw causal inferences about the results. In addition, the sampling structure largely confounds ethnicity and immigrant status. Finally, the mediators explored in this study are limited to possibilities for which the necessary measures exist.

This work highlights the complexity of the relationship between neighborhood ethnic congruence and mental health. Not only is neighborhood ethnic congruence an important factor in racial and ethnic minority mental health, it functions differently across groups. In addition, differential underlying processes appear to be driving these patterns of effects. This work highlights how setting characteristics and individual experiences can intersect to influence mental health. As globalization continues to change the

racial/ethnic makeup of America's cities, it becomes increasingly important for research to explore how these changes can affect individual mental health.

References

Allen, L., Bat-Chava, Y., Aber, J.L., & Seidman, E. (2005). Adolescents racial and ethnic identity in context. In G. Downey, J. Eccles, & C. Chatman (Eds.), *Social Identity, Coping, and Life Tasks.* New York, NY: Russell Sage Foundation.

Aneshensel, C.S. & Sucoff, C.A. (1996). The neighborhood context of adolescent mental health. *Journal of health and social behavior, 37,* 293-310.

Baron, R.M. & Kenny, D.A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology, 51(6),* 1173-1182.

Borrell, L.N., Kiefe, C.I., Williams, D.R., Diez-Roux, A.V. & Gordon-Larsen, P. (2006). Self-reported health, perceived racial discrimination, and skin color in African Americans in the CARDIA study. *Social Science and Medicine, 63(6),* 1415-1427.

Boydell, J.,Van Os, J., Mckenzie, K., Allardyce, J. Goel, R., McCreadie, R.G., et al. (2001). Incidence of schizophrenia in ethnic minorities in London: Ecological study into interactions with environment. *British Medical Journal, 323,* 1336-1338.

Brown, T., Williams, D., Jackson, J., Neighbors, H., Torres, M., Sellers, S. et al. (2000). Being Black and feeling blue: The mental health consequences of racial discrimination. *Race and Society, 2(2),* 117-31.

Buckner, J.C. (1988). The development of an instrument to measure neighborhood cohesion. *American Journal of Community Psychology, 16(6),* 771-791.

Clark, W.A. (1991). Residential preferences and neighborhood racial segregation: A test of the Schelling segregation model. *Demography, 28,* 9-19.

Cutrona, C.E., Russell, D.W., Hessling, R.M., Brown, P.A., & Murry, V. (2000). Direct and moderating effects of community context on the psychological well-being of African American women. *Journal of Personality and Social Psychology, 79(6),* 1088-1101.

Enchautegui-de-Jesus, N., Hughes, D., Johnston, K.E., & Oh, H.J. (2006). Well-being in the context of workplace ethnic diversity. *Journal of Community Psychology, 34(2),* 211-223.

Faris, R.E. & Dunham, H.W. (1939). *Mental disorders in urban areas.* Chicago: University of Chicago Press.

Farley, R., Steeh, C., & Krysan, M. (1994). Stereotypes and segregation: Neighborhoods in the Detroit area. *American Journal of Sociology, 100,* 750-780.

Halpern, D. & Nazroo, J. (1999). The ethnic density effect: Results from a national community survey of England and Wales. *International Journal of Social Psychiatry, 46(1),* 34-46.

Hao, L. & Kawano, Y. (2001). Immigrants' welfare use and opportunity for contact with co-ethnics. *Demography, 38,* 375-389.

Henderson, C., Diez Roux, A.V., Jacobs, D.R., Jr., Kiefe, C.I., West, D., & Williams, D.R. (2005). Neighbourhood characteristics, individual level socioeconomic

factors, and depressive symptoms in young adults: The CARDIA study. *Journal of Epidemiological Community Health, 59,* 322-328.

Hill, T.D., Ross, C.E., & Angel, R.J. (2005). Neighborhood disorder: Psychophysiological distress, and health. *Journal of Health and Social Behavior, 46(2),* 170-186.

Hughes, D. (2001). Cultural and contextual correlates of obligation to family and community among urban Black and Latino adults. In A.S. Rossi (Ed.), *Caring and doing for others: Social responsibility in the domains of family, work, and community* (pp.179-224). Chicago: University of Chicago Press.

Hughes, D. (2003). Correlates of African American and Latino parents' messages to children about ethnicity and race: A comparative study of racial socialization. *American Journal of Community Psychology, 31,* 15-33.

Hughes, D.L. & Shweder, R.A. (2002). Midlife development in the United States (MIDUS): Survey of minority groups (Chicago and New York City), 1995-1996 [Computer file; ICPSR version]. Ann Arbor, MI: Inter-university consortium for Political and Social Research.

Jackson, J., Brown, T., Williams, D., Torres, M., Sellers, S., & Brown, K. (1996). Racism and the physical and mental health status of African Americans: A thirteen-year national panel study. *Ethnicity and Disease, 6(1-2),* 132-147.

Kessler, R.C., Andrews, G., Mroczek, D., Ustun, B., & Wittchen, H.U. (1998). *The World Health Organization Composite International Diagnostic Interview Short-Form (CIDI-SF).* Geneva, Switzerland: World Health Organization.

Kessler, R., Mickelson, K., & Williams, D. (1999). The prevalence, distribution, and mental health correlates of perceived discrimination in the United States. *Journal of health and social behavior, 40(3),* 208-230.

Krivo, L.J. & Peterson, R.D. (2000). The structural context of homicide: Accounting for racial differences in process. *American Sociological Review, 65(4),* 547-559.

Krivo, L.J., Peterson, R.D., Rizzo, H., & Reynolds, J.R. (1998). Race, segregation and the concentration of disadvantage: 1980-1990. *Social Problems, 45,* 61-80.

Kuo, W.H. (1976). Theories of migration and mental health: An empirical testing on Chinese-Americans. *Social Science Medicine, 10,* 297-306.

Landrine, H. & Klonoff, E. (1996). The schedule of racist events: A measure of racial discrimination and a study of its negative physical and mental health consequences. *Journal of Black Psychology, 22(2),* 144-168.

Latkin, C.A. & Curry, A.D. (2003). Stressful neighborhoods and depression: A prospective study of the impact of neighborhood disorder. *Journal of Health and Social Behavior, 44(1),* 34-44.

Leigh, A. (2006). Trust, inequality, and ethnic heterogeneity. *The Economic Record, 82(258),* 268-280.

MacKinnon, D.P., Lockwood, C.M., Hoffman, J.M., West, S.G., & Sheets, V. (2002). A comparison of methods to test mediation and other intervening variable effects. *Psychological Methods, 7(1),* 83-104.

Massey, D. & Denton N. (1993). *American apartheid: Segregation and the making of the underclass.* Boston, MA: Harvard University Press.

Massey, D., Douglas, S., Eggers, M.L. (1990). The ecology of inequality: Minorities and the concentration of poverty., 1970-1980. *American Journal of Sociology, 95,* 1153-88.

Massey, D., & Eggers, M.L., Denton, N.A. (1994). Disentangling the causes of concentrated urban poverty. *International Journal of Group Tensions, 24,* 267-316.

Muhlin, G.L. (1979). Mental hospitalization of the foreign-born and the role of cultural isolation. *International Journal of Social Psychiatry, 25,* 258-266.

Nee, V. & Sanders, J. (2001). Trust in ethnic ties: Social capital and immigrants. In K.S. Cook (Ed.), *Trust in society.* New York: Russell Sage Foundation (pp374-392).

Neeleman, J. & Wesseley, S. (1999). Ethnic minority suicide: A small area geographical study in south London. *Psychological Medicine, 29,* 429-436.

Neeleman, J., Wilson-Jones, C. & Wessely, S. (2001). Ethnic density and deliberate self-harm: A small area study in south-east London. *Journal of Epidemiology and Community Health, 55,* 85-90.

O'Brien, D.J., Hassinger, E.W., & Dershem, L. (1994). Community attachment and depression among residents in two rural Midwestern communities. *Rural Sociology, 59,* 255-265.

Ooka, E. (2001). Social capital and income attainment among Chinese entrepreneurs in Toronto. *Asian and Pacific Migration Journal, 10,* 123-144.

Pessar, P.R. (1995). *A Visa for a Dream: Dominicans in the United States.* Massachusetts: Allyn and Bacon.

Philayrath, P., Chay, T., Bauman, A., Brooks, R. & Silove, D. (2006). Social capital, socio-economic status and psychological distress among Australian adults. *Social Science and Medicine, 63(10),* 2546-2561.

Portes, A. (1998). Social capital: Its origins and applications in modern sociology. *Annual Review of Sociology, 24,* 1-24.

Rabkin, J.G. (1979). Ethnic density and psychiatric hospitalization: Hazards of minority status. *American Journal of Psychiatry, 136,* 1562-1566.

Reskin, B.F., McBrier, D.B., & Kmec, J.A. (1999). The determinants and consequences of workplace sex and race composition. *Annual Review of Sociology, 25,* 335-362.

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

Roy, A.L. & Yoshikawa, H. (2007). *Welfare policy, race/ethnicity, and school dropout: Steps toward understanding the school leaving process.* Manuscript in preparation.

Ryff, C.D., Keyes, C.L.M., & Hughes, D.L. (2003). Status inequalities, perceived discrimination, and eudemonic well-being: Do the challenges of minority life hone purpose and growth? *Journal of Health and Social Behavior, 44,* 275-291.

Sampson, R.J. & Groves, W.B. (1989). Community structure and crime: Testing social-disorganization theory. *American Journal of Sociology, 94,* 774-780.

Shrout, P. & Bolger, N. (2002). Mediation in experimental and nonexperimental studies: New procedures and recommendations. *Psychological Methods, 7(4),* 422-445.

Suarez-Orozco (2004). Formulating identity in a globalized world . In M. M. Suarez-Orozco & D.B. Qin-Hilliard. (Eds.), *Globalization: Culture and education in the new millennium* (pp. 173-202). Berkeley: University of California Press.

Shaw, C. & McKay, H. (1942). *Juvenile delinquency and urban areas.* Chicago: University of Chicago Press.

Sugrue, T.J. (1996). *The origins of the urban crisis: Race and inequality in postwar Detroit.* Princeton, NJ: Princeton University Press.

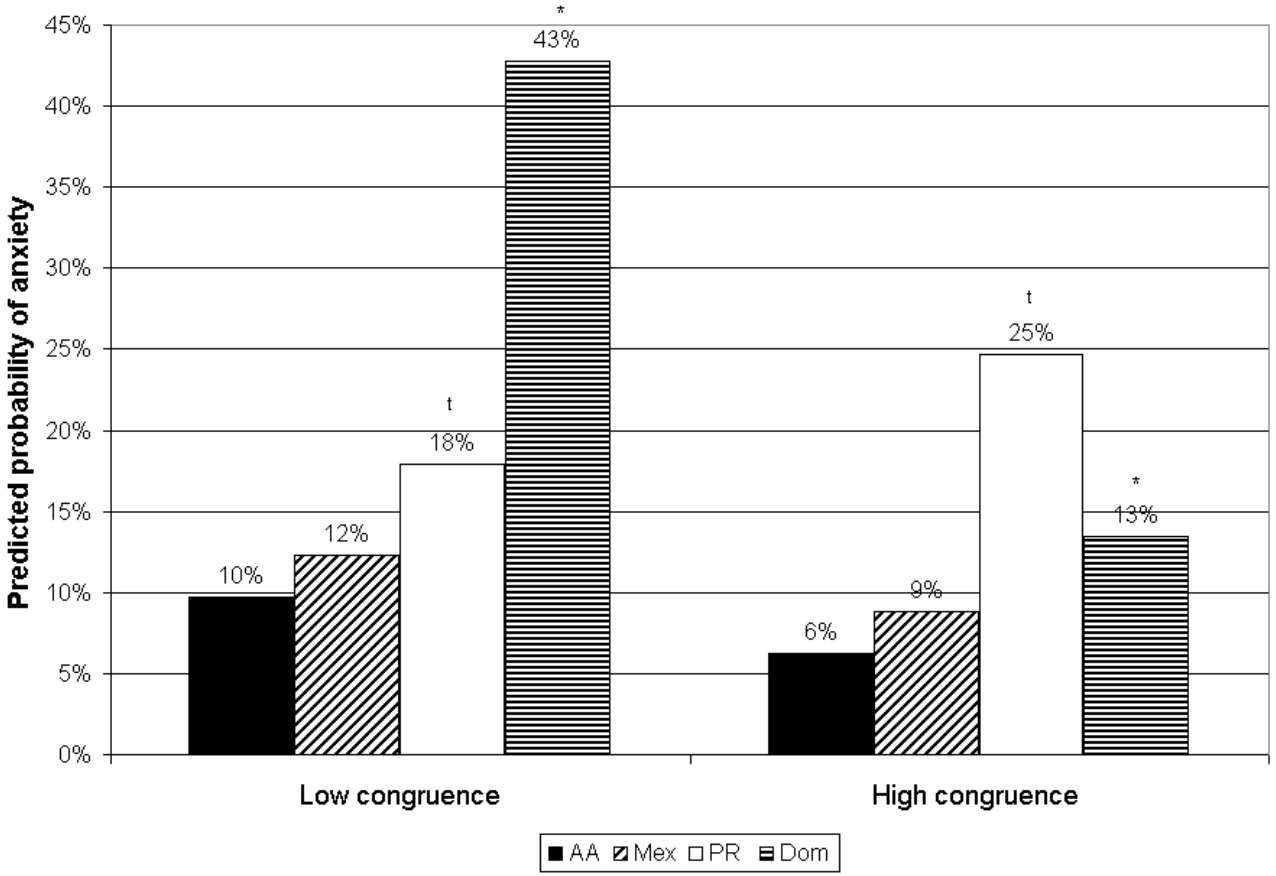
Thomas, J.M. (1997). *Redevelopment and race: Planning a finer city in postwar Detroit.* Baltimore, MD: Johns Hopkins University Press.

Wacquant, L. & William, W.J. (1989). The cost of racial and class exclusion in the inner city. *Annals of the American Academy of Political and Social Sciences, 501,* 8-25.

Wickrama, K.A.S., Noh, S. & Bryant, C.M. (2005). Racial differences in adolescent distress: Differential effects of the family and community for Blacks and whites. *Journal of Community Psychology, 33(3),* 261-282.

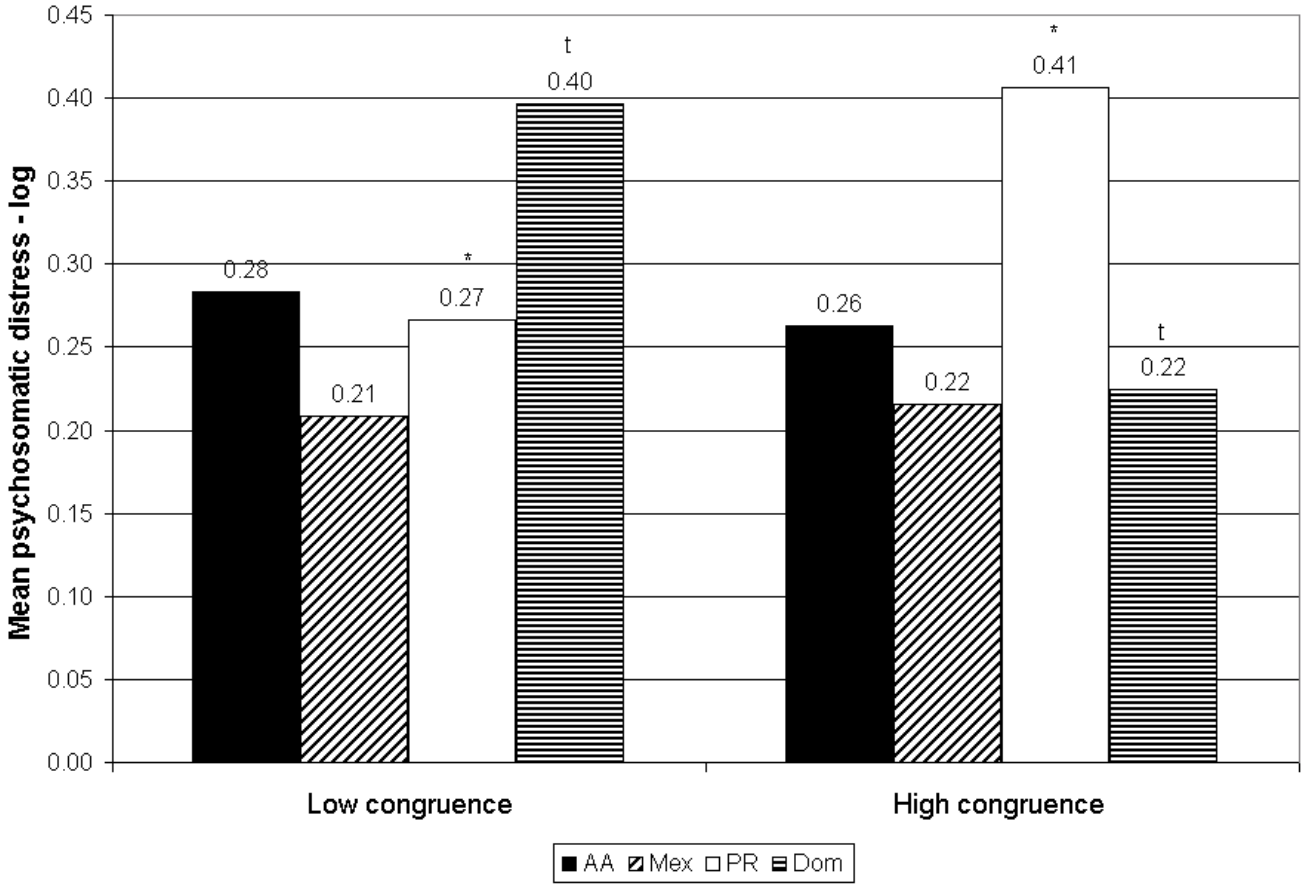
Wight, R.G., Aneshenshel, C.S., Botticello, A.L., & Sepulveda, J.E. (2005). A multilevel analysis of ethnic variation in depressive symptoms among adolescents in the United States. *Social Science & Medicine, 60,* 2073-2084.

Figure 1. Interaction of Neighborhood Ethnic Congruence by Ethnicity Predicting Anxiety



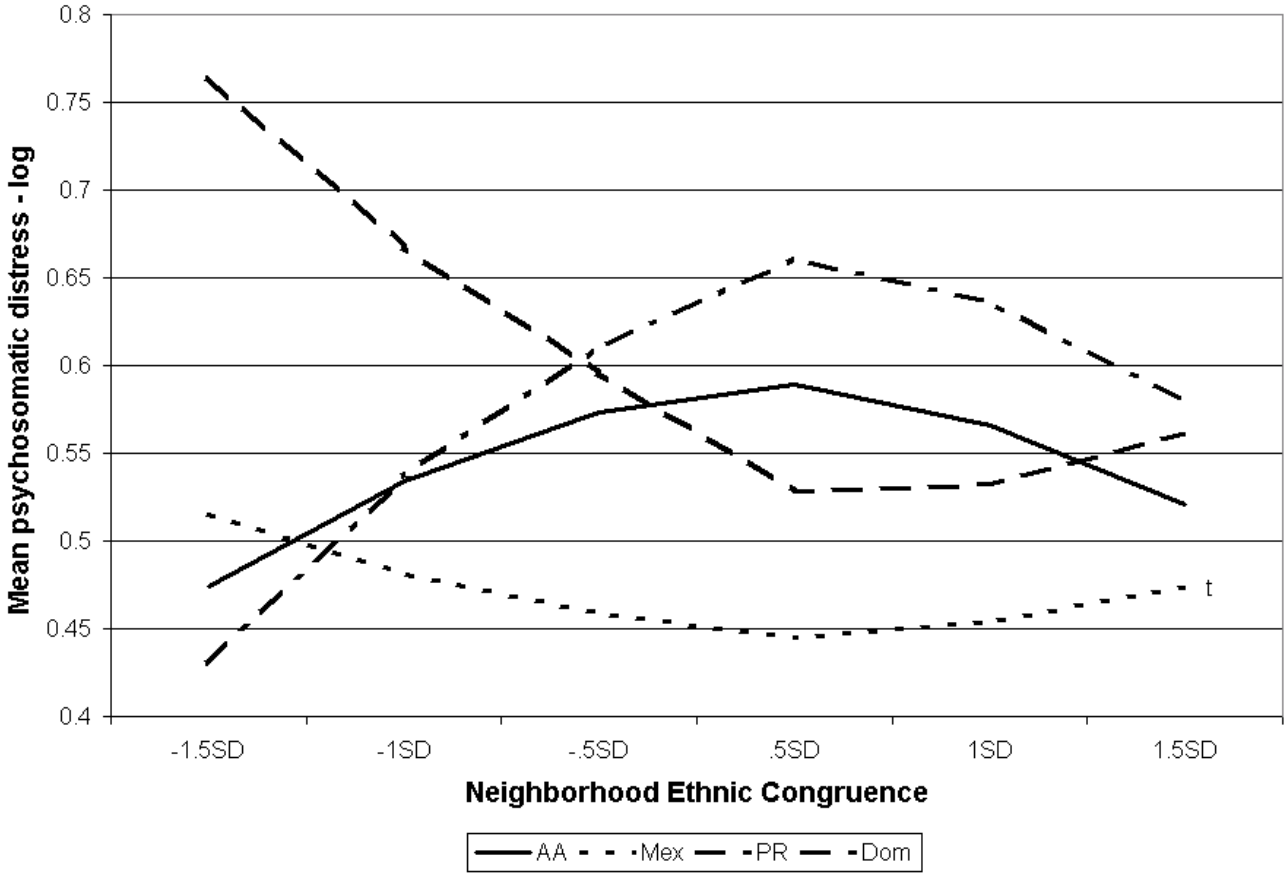
African Americans are the reference group.
Adjusting for covariates: ethnicity, city where respondent lives, whether the respondent is currently married, respondent's sex, whether the respondent is foreign-born, respondent's highest level of education completed, whether the respondent is currently employed, respondent's age, family income, median neighborhood income, and the number of years the respondent has lived in the neighborhood.
* = significant at $p < .05$; t = significant at $p < .10$

Figure 2. Interaction of Neighborhood Ethnic Congruence by Ethnicity Predicting Psychosomatic Distress Log



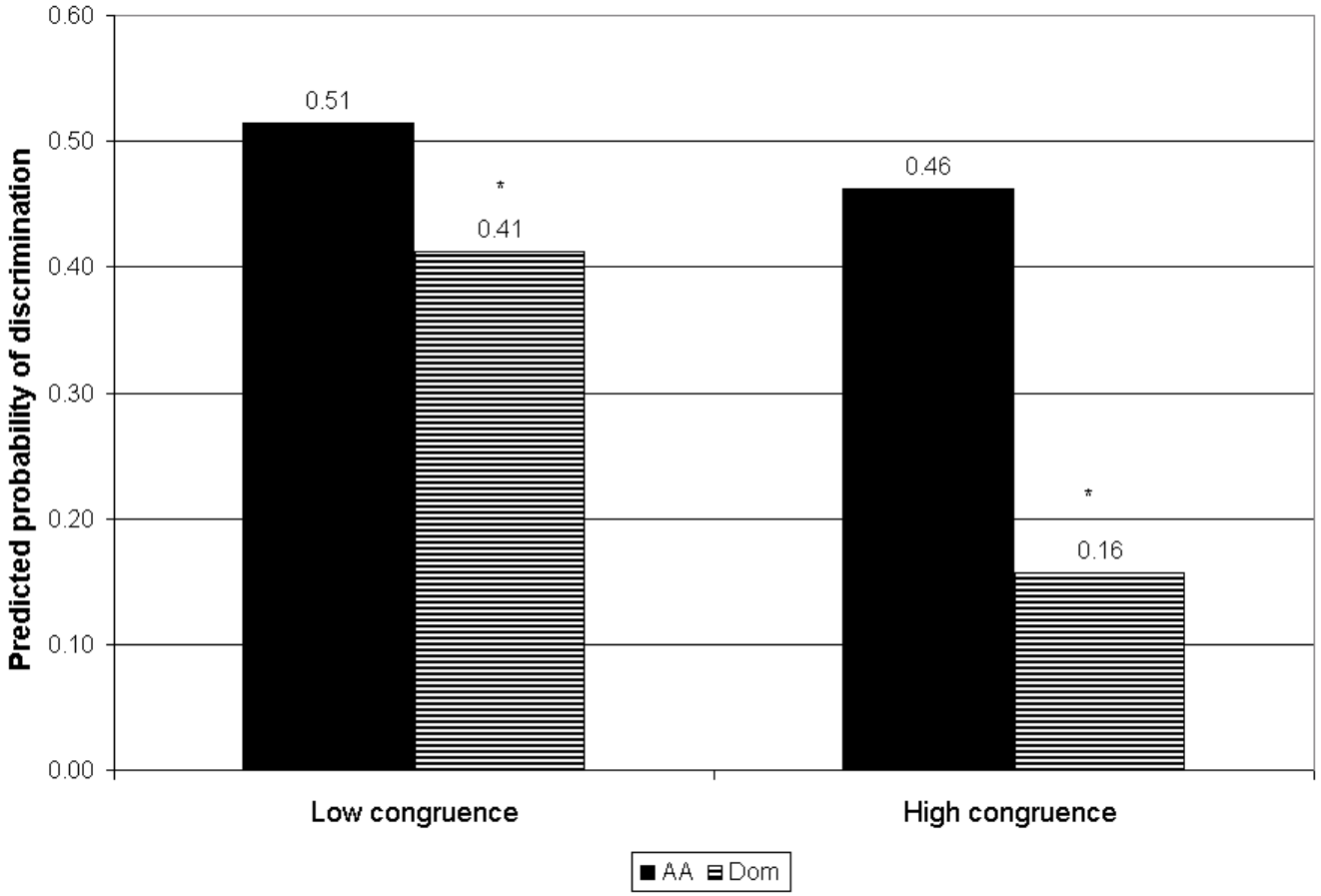
African Americans are the reference group.
Adjusting for covariates: ethnicity, city where respondent lives, whether the respondent is currently married, respondent's sex, whether the respondent is foreign-born, respondent's highest level of education completed, whether the respondent is currently employed, respondent's age, family income, median neighborhood income, and the number of years the respondent has lived in the neighborhood.
* = significant at $p < .05$; t = significant at $p < .10$

Figure 3. Interaction of Curvilinear Neighborhood Ethnic Congruence by Ethnicity Predicting Psychosomatic Distress Log



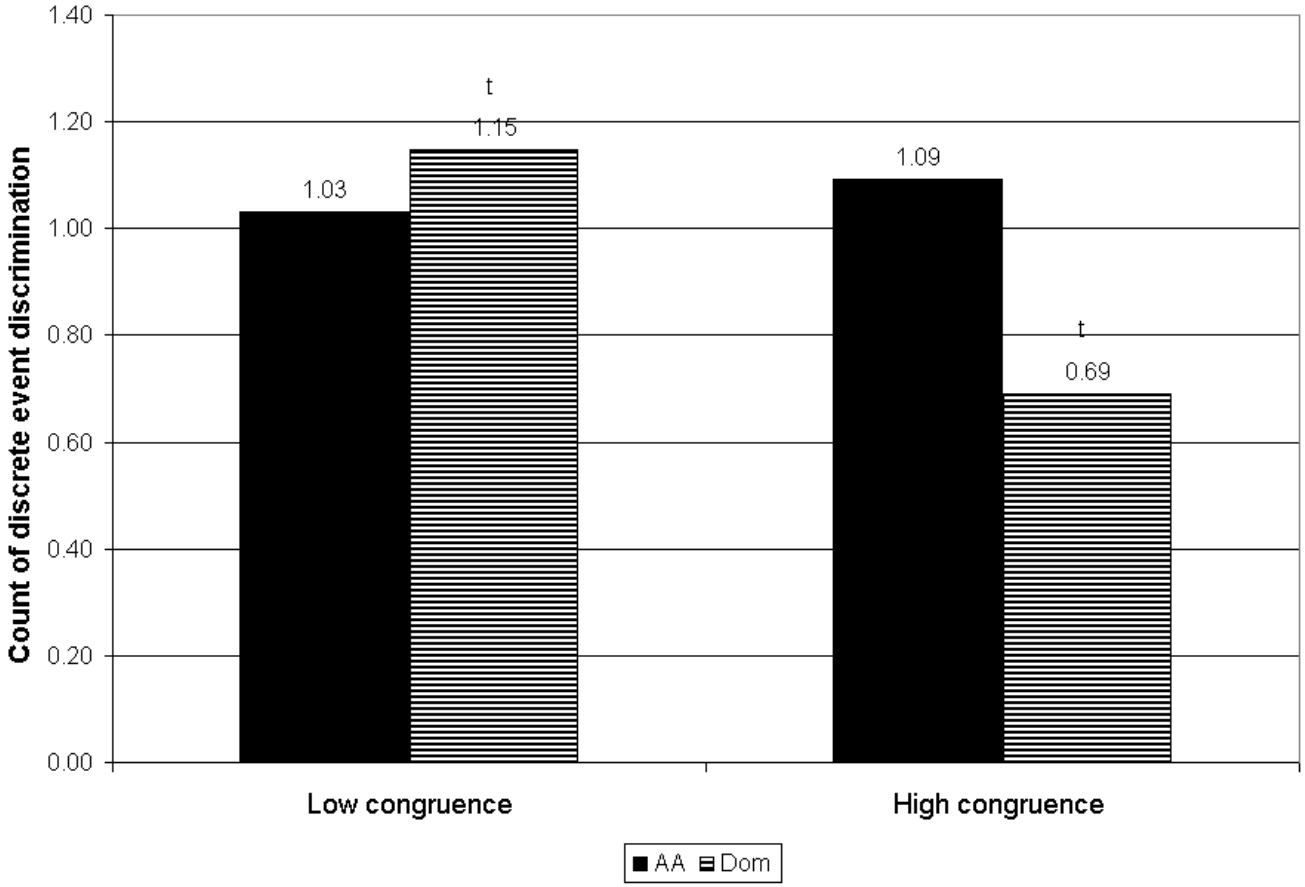
African Americans are the reference group.
Adjusting for covariates: ethnicity, city where respondent lives, whether the respondent is currently married, respondent's sex, whether the respondent is foreign-born, respondent's highest level of education completed, whether the respondent is currently employed, respondent's age, family income, median neighborhood income, and the number of years the respondent has lived in the neighborhood.
* = significant at $p < .05$; t = significant at $p < .10$

Figure 4. Interaction of Neighborhood Ethnic Congruence by Dominican Predicting Count of Binary Discrimination



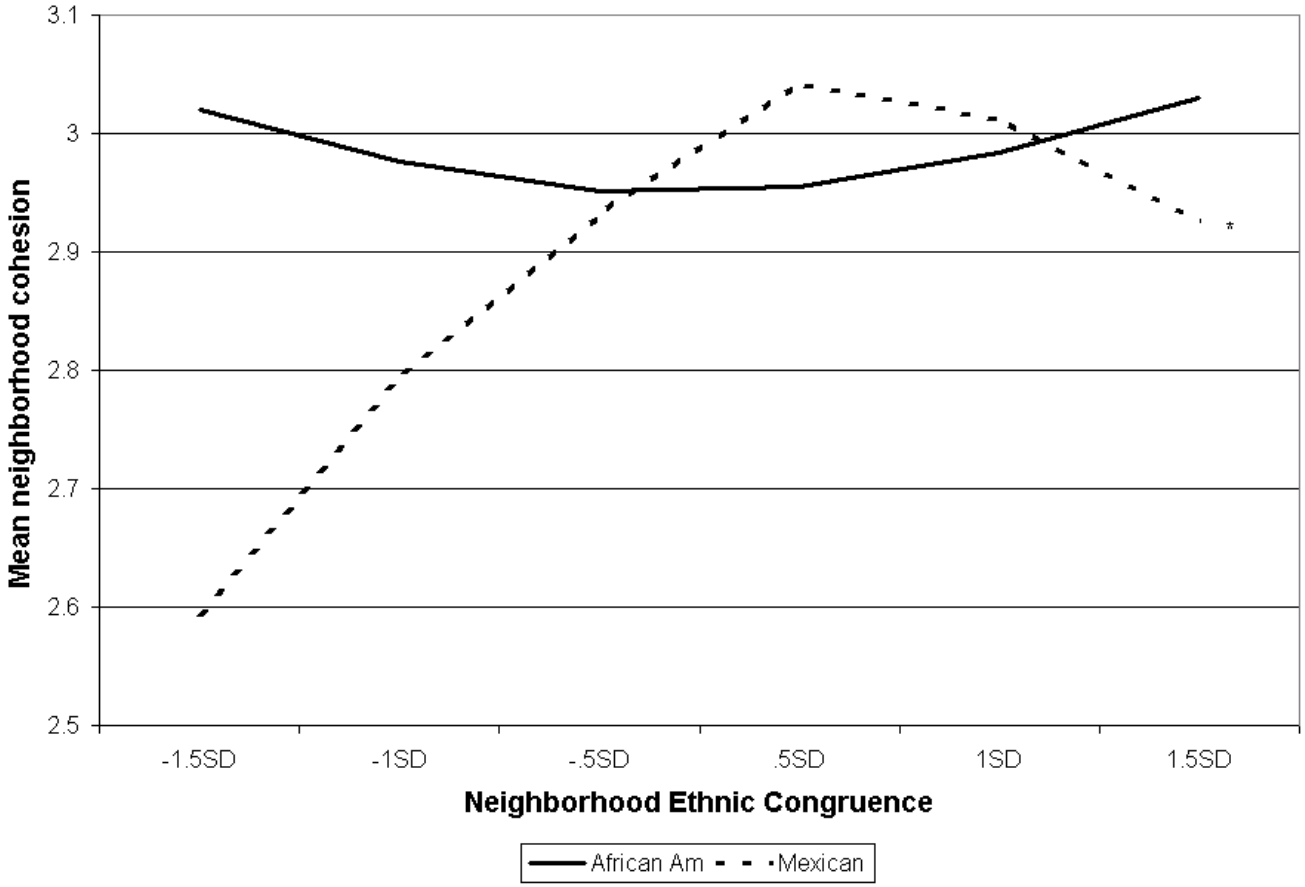
Adjusting for covariates: ethnicity, city where respondent lives, whether the respondent is currently married, respondent's sex, whether the respondent is foreign-born, respondent's highest level of education completed, whether the respondent is currently employed, respondent's age, family income, median neighborhood income, and the number of years the respondent has lived in the neighborhood.
* = significant at $p < .05$; t = significant at $p < .10$

Figure 5. Interaction of Neighborhood Ethnic Congruence by Dominican Predicting Count of Discrete Event Discrimination



Adjusting for covariates: ethnicity, city where respondent lives, whether the respondent is currently married, respondent's sex, whether the respondent is foreign-born, respondent's highest level of education completed, whether the respondent is currently employed, respondent's age, family income, median neighborhood income, and the number of years the respondent has lived in the neighborhood.
* = significant at $p < .05$; t = significant at $p < .10$

Figure 6. Interaction of Neighborhood Ethnic Congruence by Mexican Predicting Neighborhood Cohesion



Adjusting for covariates: ethnicity, city where respondent lives, whether the respondent is currently married, respondent's sex, whether the respondent is foreign-born, respondent's highest level of education completed, whether the respondent is currently employed, respondent's age, family income, median neighborhood income, and the number of years the respondent has lived in the neighborhood.
* = significant at $p < .05$; t = significant at $p < .10$