Racial/Ethnic Residential Segregation and Perceived Discrimination: A Multilevel Investigation of Individual- and Institutional-Level Discrimination among U.S. - and Foreign-Born Blacks

Kellee White
Department of Society, Human Development, and Health
Harvard School of Public Health
677 Huntington Avenue
Kresge Building, 7th Floor
Boston, MA 02115
Email: kwhite@hsph.harvard.edu
Phone: 617.384.8726

David R. Williams
Department of Society, Human Development, and Health
Department of Sociology
Harvard School of Public Health
677 Huntington Avenue
Kresge Building Room 615
Boston, MA 02115
Email: dwilliam@hsph.harvard.edu

Paper submitted to the 2010 Annual Meeting of the Population Association of America.

Short Abstract

Racial/ethnic health disparities continue to persist across mortality and morbidity outcomes despite accounting for genetics and individual-level socioeconomic position. A growing body of literature suggests that the chronic exposure to racial discrimination is critical to understanding the disparities. Racial discrimination which is produced and maintained at the individual- and institutional-level has been shown to adversely affect the health of blacks. However, the joint effects of individual- and institutional-level racial discrimination are not clearly understood. This research seeks to characterize the relationship between individual-level (e.g. perceived discrimination) and institutional-level (e.g. residential segregation) discrimination. Further the analyses investigates whether the joint effect of individual- and institutional-level discrimination predict variations in psychological distress among U.S. - and foreign-born blacks. Given the multiple pathways by which discrimination may influence health outcomes, it is important to assess the role of individual-level discrimination within the larger context of institutional-level discrimination.

Extended Abstract

Introduction

The persistence of racial/ethnic health disparities across mortality and morbidity outcomes continues to be widely documented (Ong et al. 2007; Rosenbaum 2008; Wong et al. 2002). The debate regarding the source of disparities continues to emphasize individual-level factors such as genetics and socioeconomic position, although a growing body of evidence suggests that even after taking into account these factors, disparities still remain. Studies that continue to use race as a biological construct or as a crude proxy for socioeconomic position and genetics, ignore the social, political, and historical context and significance of race (Jones 2000). Researchers contend that understanding the causes of racial/ethnic health disparities should focus on the factors that either differentially or uniquely affect racial and ethnic groups (LaVeist 2003). Increasingly, the chronic exposure to racial discrimination is considered such a risk factor. Racial discrimination may be produced and maintained at multiple levels (Ahmed, Mohammed and Williams 2007; Gee 2002; Jones 2000). Individual- and institutional-level racial discrimination has been shown to adversely affect the health of blacks. However, the joint effects of individual- and institutional-level racial discrimination on the health of blacks residing in the U.S. are not clearly understood.

An individual-level pathway of racial discrimination refers to perceived experiences of discrimination. Perceived racial discrimination can be manifested by lack of respect, suspicion, and devaluation (Jones 2000) and may be characterized as “everyday” or “ major lifetime” experiences of discrimination. There is evidence to suggest that perceptions of everyday and lifetime experiences of discrimination are psychosocial stressors that adversely affect physical and mental health outcomes (Ahmed et al. 2007). The mechanisms that link perceived discrimination to health risk include altering physiologic functioning of the immune and neuroendocrine systems and vascular reactivity, namely elevated heart rate and blood pressure (Mays, Cochran and Barnes 2007; Schulz et al. 2005). This bodily response to stressful daily life events has been referred to as allostasis (McEwen and Seeman 1999). Although most of the evidence of perceived discrimination primarily focuses on African Americans there is a burgeoning literature exploring the effects upon Blacks of Caribbean descent.

Institutionalized discrimination refers to institutional structures and policies that leads to the differential access to goods, services, opportunities, and residential environments (Jones 2000). This level of discrimination may manifest as racial/ethnic residential segregation. Racial/ethnic residential segregation (hereafter referred to as residential segregation) refers to the degree to which two or more groups live separately from one another in a geographic region (Massey and Denton 1988; Williams and Collins 2001). It is a multidimensional concept with various geographic patterns. Specific mechanisms by which racial/ethnic residential segregation is hypothesized to influence health include shaping: 1) health behaviors; 2) the distribution of amenities, resources, and stressors; 3) neighborhood physical environment and housing quality; 4) the concentration of poverty and; 5) access to economic and educational opportunity structures (Mays et al. 2007; Schulz et al. 2005; Schulz et al. 2002; Williams and Collins 2001). Segregation has been established as a fundamental cause of racial/ethnic health disparities as a result of its influence on a myriad of factors important for promoting health and avoiding disease (Williams and Collins 2001). Further it has been associated with adult mortality (Collins and Williams 1999; Jackson et al. 2000; Peterson and Krivo 1999), infant outcomes (Bell et al. 2006; Ellen 2000; Grady 2006; Polednak 1996), poor self-rated health (Subramanian, Acevedo-Garcia and Osypuk 2005; White and Borrell 2006), adult chronic conditions (Acevedo-Garcia 2001; Fabio et al. 2004), and health behaviors (Bell et al. 2007; Chang 2006; Cooper et al. 2007) . Residential segregation has come to be synonymous with the clustering of stressors

and a scarcity of health promoting resources. However, studies that have examined formal measures of residential segregation have paid relatively little attention to assessing how it shapes perceived discrimination.

Variations in perceived discrimination have typically focused on other individual-level characteristics such as gender, age, and socioeconomic status (Forman, Williams and Jackson 1997). Although these factors may indeed predict variations in exposure to discrimination, studies have investigated the association between perceptions of discrimination and neighborhood racial composition, a proxy measure of residential segregation. Welch et al study of perceptions of discrimination and neighborhood racial composition in Detroit demonstrated a curvilinear relationship where the highest levels of perceived discrimination among African Americans living in roughly equally mixed racial context (Welch et al. 2001). In a study that only looked at a nationally representative sample of women, a linear, inverse association was observed between perceptions of everyday and lifetimes racial discrimination and neighborhood racial composition (Hunt et al. 2007). In general, these studies have demonstrated that the context is important when considering perceptions of discrimination. More specifically, individuals residing in area where they are the majority experience less-discrimination. Each of these studies operationalized institutionalized discrimination, using neighborhood racial composition, a proxy measure of residential segregation. Racial composition does not provide an accurate depiction of segregation because it does not capture the complex processes of racial inequality (Acevedo-Garcia and Lochner 2003; Morello-Frosch and Lopez 2006; Wong 2002); whereas a formal measure takes into account the macro-level social processes and dynamics of racial inequality in education, housing and labor markets (Schulz et al. 2002). Empirical test of whether this patterns holds true across formal measures of residential segregation (i.e. evenness or exposure) have remained largely unexplored.

Both individual- and institutional-level discrimination has been shown to have an independent, deleterious effect on individual health. However, there is a paucity of studies examining the joint effect of individual- and institutional-level discrimination. Becares et al examined ethnic density and perceptions of discrimination (Becares, Nazroo and Stafford 2009) among Africans, Caribbean Blacks, Pakastani, and Bangladeshi people in the UK. The findings from this study suggested ethnic group density provided protective effects for psychotic symptomatology, but not for general self-rated health. Prior studies have suggested that ethnic group density may be protective of the mental health of Blacks (Halpern 1993). It is possible that increases in ethnic density may lead to mutual social support, social cohesion, strong sense of community, and reduced exposure to discrimination (Becares et al. 2009; Gee 2002) which may translate into positive health outcomes. Moreover, recent studies in the U.S have found a lower risk of all-cause mortality among Blacks (Fang et al. 1998; Hutchinson et al. 2009; Inagami et al. 2006). However, none of these studies examine perceived discrimination. Notably, the Hutchinson et al study examined the mediating effect of neighborhood social capital, one possibly pathway by which perceived discrimination may be attributed to lower health risk. Further, it is not known whether the context of perceived of discrimination would vary by black nativity status.

Given the multiple pathway through which discrimination may influence health outcomes, it is important to understand the relationship between perceptions of racial discrimination and residential segregation. Williams and Mohammed state that the role of perceived discrimination must be understood and assessed within the larger context of institutional racism (Williams and Mohammed 2009). Exploring the joint effects of individual- and institutional-level racial discrimination may further facilitate the elucidation of the multilevel causes of racial/ethnic health disparities. The objective of this paper is to characterize perceptions of discrimination in the

context of a formal measure of residential segregation. More specifically this analysis seeks to address the following research questions:

- What is the relationship between perceived discrimination and residential segregation?
- Does perceived discrimination vary by dimension of residential segregation?
- Is the relationship between perceived discrimination and residential segregation the same for US born and foreign born blacks?
- Does the joint effect of institutional and individual level discrimination predict variations in psychological distress health among U.S. - and foreign-born blacks?

Data

Study population

The National Survey of American Life (NSAL) is part of the National Institute of Mental Health Collaborative Psychiatric Epidemiological Surveys initiative that included 3 national surveys: then NSAL, the National Comorbidity Survey Replications (NCS-R), and the National Latino and Asian American Study.(Pennell et al. 2004) NSAL is a national household probability sample of 3,570 African Americans, 1621 Blacks of Caribbean descent and 891 non-Hispanic Whites aged 18 years and older located in the 48 contiguous states. African Americans self-identified as black but did not report ancestral ties to the Caribbean. Caribbean blacks self-identified as black and indicated: that they were of West Indian or Caribbean descent; that they were from a Caribbean country; or that their parents or grandparents were born in a Caribbean country. The Caribbean sample was selected from residential areas that were sampled to reflect the distribution of the African American population and from additional metropolitan areas were Caribbean Blacks composed more than 10% of the population. Face-to-face interviews were conducted in English using a computer-assisted personal interview. The data were collected between February 2001 and June 2003. The overall response rate was 72.3% with race/ethnic specific response rates as follows: 69.7% for Whites; 70.7% for African Americans; and 77.7% for Caribbean Blacks. Recruitment and consent procedures were approved by the human subjects committee of the University of Michigan.

Measurements

Racial/ethnic residential segregation: Several measures of residential segregation are computed. Residential segregation was operationalized at the metropolitan statistical area (MSA) level. Formal measures of residential segregation are represented by one of the following 5 multidimensional geographic patterns: evenness, concentration, centralization, clustering, and exposure (Massey and Denton 1988). Measures characterizing each of the dimensions were selected: *Evenness,* measured by the index of dissimilarity, refers to the degree to which members of racial/ethnic groups are overrepresented or underrepresented across neighborhoods within a metropolitan area. *Concentration* refers to the relative amount of physical space occupied by a group and is measured using the delta index. *Clustering* is the extent to which minority groups live disproportionately in contiguous areas and corresponds to the spatial proximity index. *Centralization* indicates the degree to which a group is located near the center of an urban area and is captured by the absolute centralization index. *Exposure,* alternatively referred to isolation, measures the degree of potential contact between groups and reflects the degree to which groups share a common residential area. The isolation index was used to characterize this dimension. The scores for each index ranged from 0-1 with increasing scores reflective of higher segregation.

Perceived discrimination: Questions of perceived major lifetime and everyday discrimination were assessed (Williams, Neighbors, & Jackson, 1997). Major lifetime discrimination was ascertained with the following question: ‘‘In the following questions, we are interested in the way

other people have treated you or your beliefs about how other people have treated you. Can you tell me if any of the following has ever happened to you:'' Nine situations (e.g. not hired, denied a bank loan, or fired) were presented and respondents identified whether they have experienced unfair treatment. For each situation the participants identified out of 11 options (''ancestry or national origin''; 'gender''; ''race''; ''age''; ''religion''; ''height or weight''; ''shade of skin color''; ''sexual orientation''; ''physical disability''; ''other'') what was the ''main reason for this experience.'' The Everyday Discrimination Scale captured aspects of chronic and routine interpersonal discrimination that have occurred in the prior year (Williams and Mohammed 2009). Participants were asked: "In your day-to-day life, how often have any of the following things happened to you?" across a range of 10 situations (i.e. treated with less courtesy or less respect than other people). Respondents who indicated experiencing any of the events at least once, were then asked: "What do you think was the main reason for this/these experience(s)?" The same 11 options used in the major lifetime discrimination scale were used.

Psychological distress: Psychological distress was assessed by a 10-item scale which queried respondents about often respondents they felt symptoms of distress (e.g. nervous, hopeless, and depression).

Individual-level covariates: The adjusted models included the following covariates that are known or suspected confounders of the residential segregation and self-reported relationship: age, educational attainment, marital status, income, health insurance status, smoking, and weight status.

Analytic Strategy

Descriptive statistics were used to explore the relationship between perceived discrimination and the five dimensions of residential segregation. In order to account for the complexity of the data structure, multilevel models were employed to deal with the micro-level of individuals and the macro-level of contexts simultaneously (Diez-Roux 2000). Separate hierarchical logistic regression models were used to examine perceived discrimination and each dimension of residential segregation and other covariates. Additional multilevel logistic models were constructed where self-reported health was the outcome. A series of models were constructed to assess the joint effect of individual- and institutional-level racial discrimination on psychological distress. Analyses were weighted to account for the complex sampling design of the NSAL which involved multiple stages, clustering, and stratification (Seaton et al. 2008).

References

Acevedo-Garcia, D. 2001. "Zip code-level risk factors for tuberculosis: neighborhood environment and residential segregation in New Jersey, 1985-1992." *Am J Public Health* 91(5):734-741.

Acevedo-Garcia, D.and K.A. Lochner. 2003. "Residential Segregation and Health." in *Neighborhoods and Health*, edited by I. Kawachi and L.F. Berkman.

Ahmed, A.T., S.A. Mohammed, and D.R. Williams. 2007. "Racial discrimination & health: Pathways & evidence." *Indian Journal of Medical Research* 126(4):318-327.

Becares, L., J. Nazroo, and M. Stafford. 2009. "The buffering effects of ethnic density on experienced racism and health." *Health & Place* 15(3):670-678.

Bell, J.F., F.J. Zimmerman, G.R. Almgren, J.D. Mayer, and C.E. Huebner. 2006. "Birth outcomes among urban African-American women: a multilevel analysis of the role of racial residential segregation." *Soc Sci Med* 63(12):3030-3045.

Bell, J.F., F.J. Zimmerman, J.D. Mayer, G.R. Almgren, and C.E. Huebner. 2007. "Associations between residential segregation and smoking during pregnancy among urban African-American women." *Journal of Urban Health-Bulletin of the New York Academy of Medicine* 84(3):372-388.

Chang, V.W. 2006. "Racial residential segregation and weight status among US adults." *Soc Sci Med* 63(5):1289-1303.

Collins, C.A.and D.R. Williams. 1999. "Segregation and mortality: The deadly effects of racism?" *Sociological Forum* 14(3):495-523.

Cooper, H.L., S.R. Friedman, B. Tempalski, and R. Friedman. 2007. "Residential Segregation and Injection Drug Use Prevalence Among Black Adults in US Metropolitan Areas." *Am J Public Health*.

Diez-Roux, A.V. 2000. "Multilevel analysis in public health research." *Annual Review of Public Health* 21:171-192.

Ellen, I.G. 2000. "Is segregation bad for your health? The case of low bithweight." Pp. 203-239 in *Papers on urban affairs*, edited by W.G. Gale and J.R. Pack. Washington, DC: Brookings Institute Press.

Fabio, A., W. Li, S. Strotmeyer, and C.C. Branas. 2004. "Racial segregation and county level intentional injury in Pennsylvania: analysis of hospital discharge data for 1997-1999." *Journal of Epidemiology and Community Health* 58(4):346-351.

Fang, J., S. Madhavan, W. Bosworth, and M.H. Alderman. 1998. "Residential segregation and mortality in New York City." *Soc Sci Med* 47(4):469-476.

Forman, T.A., D.R. Williams, and J.S. Jackson. 1997. "Race, place, and discrimination." *Perspectives on Social Problems* 9:231-261.

Gee, G.C. 2002. "A multilevel analysis of the relationship between institutional and individual racial discrimination and health status." *American Journal of Public Health* 92(4):615-623.

Grady, S.C. 2006. "Racial disparities in low birthweight and the contribution of residential segregation: a multilevel analysis." *Soc Sci Med* 63(12):3013-3029.

Halpern, D. 1993. "Minorities and mental-health " *Social Science and Medicine* 36(5):597-607.

Hunt, M.O., L.R. Wise, M.C. Jipguep, Y.C. Cozier, and L. Rosenberg. 2007. "Neighborhood racial composition and perceptions of racial discrimination: Evidence from the black women's health study." *Social Psychology Quarterly* 70:272-289.

Hutchinson, R.N., M.A. Putt, L.T. Dean, J.A. Long, C.A. Montagnet, and K. Armstrong. 2009. "Neighborhood racial composition, social capital and black all-cause mortality in Philadelphia." *Social Science and Medicine* 68(10):1859-1865.

Inagami, S., L.N. Borrell, M.D. Wong, J. Fang, M.F. Shapiro, and S.M. Asch. 2006. "Residential segregation and Latino, black and white mortality in New York City." *J Urban Health* 83(3):406-420.

Jackson, S.A., R.T. Anderson, N.J. Johnson, and P.D. Sorlie. 2000. "The relation of residential segregation to all-cause mortality: a study in black and white." *Am J Public Health* 90(4):615-617.

Jones, C.P. 2000. "Levels of racism: A theoretic framework and a gardener's tale." *American Journal of Public Health* 90(8):1212-1215.

LaVeist, T.A. 2003. "Racial segregation and longevity among African Americans: An individual-level analysis." *Health Services Research* 38(6):1719-1733.

Massey, D.S.and N.A. Denton. 1988. "The Dimensions of Residential Segregation." *Social Forces* 67(2):281-315.

Mays, V.M., S.D. Cochran, and N.W. Barnes. 2007. "Race, race-based discrimination, and health outcomes among African Americans." *Annual Review of Psychology* 58:201-225.

McEwen, B.S.and T. Seeman. 1999. "Protective and damaging effects of mediators of stress - Elaborating and testing the concepts of allostasis and allostatic load." Pp. 30-47 in *Socioeconomic Status and Health in Industrial Nations*.

Morello-Frosch, R.and R. Lopez. 2006. "The riskscape and the color line: Examining the role of segregation in environmental health disparities." *Environmental Research* 102(2):181-196.

Ong, K.L., B.M.Y. Cheung, Y.B. Man, C.P. Lau, and K.S.L. Lam. 2007. "Prevalence, awareness, treatment, and control of hypertension among United States adults 1999-2004." *Hypertension* 49(1):69-75.

Pennell, B.E., A. Bowers, D. Carr, S. Chardoul, G.Q. Cheung, K. Dinkelmann, N. Gebler, S.E. Hansen, S. Pennell, and M. Torres. 2004. "The development and implementation of the National Comorbidity Survey Replication, The National Survey of American Life, and the National Latino and Asian American Survey." *International Journal of Methods in Psychiatric Research* 13(4):241-269.

Peterson, R.D.and L.J. Krivo. 1999. "Racial segregation, the concentration of disadvantage, and black and white homicide victimization." *Sociological Forum* 14(3):465-493.

Polednak, A.P. 1996. "Trends in US urban black infant mortality, by degree of residential segregation." *Am J Public Health* 86(5):723-726.

Rosenbaum, E. 2008. "Racial/ethnic differences in asthma prevalence: The role of housing and neighborhood environments." *Journal of Health and Social Behavior* 49(2):131-145.

Schulz, A.J., S. Kannan, J.T. Dvonch, B.A. Israel, A. Allen, 3rd, S.A. James, J.S. House, and J. Lepkowski. 2005. "Social and physical environments and disparities in risk for cardiovascular disease: the healthy environments partnership conceptual model." *Environ Health Perspect* 113(12):1817-1825.

Schulz, A.J., D.R. Williams, B.A. Israel, and L.B. Lempert. 2002. "Racial and spatial relations as fundamental determinants of health in Detroit." *Milbank Q* 80(4):677-707, iv.

Seaton, E.K., C.H. Caldwell, R.M. Sellers, and J.S. Jackson. 2008. "The prevalence of perceived discrimination among African American and Caribbean Black youth." *Developmental Psychology* 44(5):1288-1297.

Subramanian, S.V., D. Acevedo-Garcia, and T.L. Osypuk. 2005. "Racial residential segregation and geographic heterogeneity in black/white disparity in poor self-rated health in the US: a multilevel statistical analysis." *Soc Sci Med* 60(8):1667-1679.

Welch, S., L. Sigelman, T. Bledsoe, and M. Combs. 2001. *Race and place: race relationships in an American city*. Cambridge, UK: Cambridge University Press.

White, K.and L. Borrell. 2006. "Racial / ethnic neighborhood concentration and self-reported health in New York City." *Ethnicity & Disease* 16(4):900-908.

Williams, D.R.and C. Collins. 2001. "Racial residential segregation: a fundamental cause of racial disparities in health." *Public Health Rep* 116(5):404-416.

Williams, D.R.and S.A. Mohammed. 2009. "Discrimination and racial disparities in health: evidence and needed research." *Journal of Behavioral Medicine* 32(1):20-47.

Williams, D.R., Y. Yu, J.S. Jackson, and N.B. Anderson. 1997. "Racial differences in physical and mental health: socioeconomic status, stress, and discrimination." *Journal of Health Psychology* 2:335-351.

Wong, D.W. 2002. "Spatial measures of segregation and GIS." *Urban Geography* 23(1):85-92.

Wong, M.D., M.F. Shapiro, W.J. Boscardin, and S.L. Ettner. 2002. "Contribution of major diseases to disparities in mortality." *New England Journal of Medicine* 347(20):1585-1592.