

Research Article

Geographic Region Matters in the Relation Between Perceived Racial Discrimination and Psychiatric Disorders Among Black Older Adults

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Abstract

Purpose of the Study: This study examined whether the relation between perceived racial discrimination and psychiatric disorders varied by large geographic region among Black older adults in the United States.

Design and Methods: Black adults aged 55 or older who had experienced racial/ethnic-specific discrimination were drawn from the National Survey of American Life (NSAL). Logistic regression analysis was used to examine main and interaction effects.

Results: Results show that there was a significant main effect of perceived racial discrimination, indicating that greater perceived discrimination was significantly associated with increased odds of having any past-year psychiatric disorder. The interaction of region by perceived racial discrimination was significant: The effect of perceived racial discrimination on any past-year psychiatric disorder was stronger among Blacks in the West than those in the South.

Implications: Findings suggest that whereas, in general, perceived racial discrimination is a risk factor for poor mental health among older Blacks, this association may differ by geographic region. Additional research examining reasons for this variation is needed.

Keywords: Perceived racial discrimination, Geography, Psychiatric disorders, Mental health, Black older adults

Racial discrimination is prevalent in the United States. According to a recent nationwide poll, more than two thirds of Black Americans experienced racial discrimination (Langer, 2009, July). The definition of racial discrimination consists of primarily two components including “(1) differential treatment on the basis of race that disadvantages a racial group and (2) treatment on the basis of inadequately justified factors other than race that

disadvantages a racial group” (Blank, Dabady, & Citro, 2004, p. 39). Focusing on perceived racial discrimination among older Blacks, we followed the social stress process framework and conceptualized racial discrimination as a social stressor that could function as an uncontrollable threat to one’s physical and emotional well-being (Pascoe & Smart Richman, 2009; Williams & Mohammed, 2009). We also followed the cumulative disadvantage

theory as part of the life course models conceptualizing the differential effects of racial discrimination as a function of age (Thrasher, Clay, Ford, & Stewart, 2012).

A substantial literature indicates that discrimination (including perceived racial discrimination) in general has detrimental effects on a wide range of mental health outcomes such as depressive symptoms, diagnoses of psychiatric disorders, and suicidal ideation (e.g., Chou, Asnaani, & Hofmann, 2012; Nadimpalli, James, Yu, Cothran, & Barnes, 2015; Pascoe & Smart Richman, 2009; Williams & Mohammed, 2009). In a study of older African Americans, for example, Nadimpalli and colleagues (2015) reported the positive association of discrimination with depressive symptoms. Research also suggests that the relation between perceived discrimination and mental health status is affected by several factors such as social support, coping style, ethnic identity, and personality variables (Pascoe & Smart Richman, 2009). For example, having a strong support network may buffer the stress of discrimination by helping to rebuild an individual's feelings of self-worth, potentially preventing depressive symptoms from developing (Pascoe & Smart Richman, 2009, p. 533).

One factor that could potentially influence the nature of the relation between racial discrimination and mental health outcomes is geography. Although previous research showed the importance of geography for health behaviors and health status (e.g., Baicker, Chandra, & Skinner, 2005; Fisher, Goodman, & Chandra, 2008; Kim et al., 2013; Kim, Parton, et al., 2014; May & Smith, 2009; Semrad, Tancredi, Baldwin, Green, & Fenton, 2011), there is a dearth of research examining its potential role in the perceived racial discrimination–mental health relation. Given that racism is deeply embedded in American culture (Carter, 2010; Carter, Steelman, Mulkey, & Borch, 2005) and that area racism—measured with Google search queries containing the “N-word”—and racial attitudes differ dramatically by geographic region (Chae et al., 2015), where people live may be an important moderator of the racial discrimination–mental health connection. For example, enhanced social support in geographic areas having higher percentages of Black residents could potentially buffer the stress of racial discrimination. To our knowledge, however, there is no previous research exploring the effect of geographic location on the discrimination–mental health relation; thus, we will explore this topic in the present analysis.

Given limited knowledge about the role of geography, the present study specifically examined whether geographic differences existed in the relation between perceived racial discrimination and psychiatric disorders among older Blacks. We focused on older Blacks in this study based on prior research documenting their long history of experiencing racial discrimination in our society, which is closely associated with poor mental health outcomes (Brown et al., 2000; Williams & Williams-Morris, 2000). Due to the exploratory nature of this study, specific directions of the relation by geographic region were not hypothesized.

Methods

Sample

Data were drawn from the National Survey of American Life (NSAL; 2001–2003), one of the three nationally representative surveys included in the Collaborative Psychiatric Epidemiology Surveys (CPES) funded by the National Institute of Mental Health (NIMH). Data were collected via face-to-face interviews. Using a multistage sample design with special supplement for Afro-Caribbean adults, the NSAL sampled 456 area segment units within the 64 primary stage units, consisting of metropolitan statistical areas, single counties, or a grouping of geographically contiguous counties with sample populations (Heeringa et al., 2004). These areas were selected with probabilities proportionate to 1990 census counts of African American households for the area segment (Heeringa et al., 2004, p. 228). More detailed information about data collection procedures and sampling design is available elsewhere (Heeringa et al., 2004). For the present analysis, we restricted analyses to Black adults aged 55 or older who completed perceived discrimination questions and endorsed their racial/ethnic background as a main reason for the perceived discriminatory experience ($n = 429$; estimated $N = 1,713,797$). The spatial description of the selected sample is displayed in the Supplementary Appendix Figures.

Measures

Any Past-Year Psychiatric Disorder

Our outcome variable was a dichotomized diagnosis of any psychiatric disorder during the past year. Respondents were diagnosed with psychiatric disorders based on the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV) using the World Health Organization's Composite International Diagnostic Interview (CIDI), which was assessed by trained interviewers. A total possible range of psychiatric disorders was 0–11.

Region

The publicly available NSAL data set provides four U.S. geographic regions (Northeast, Midwest, South, and West) defined by the U.S. Census. Lower levels of geography (state- or county-level information) were not publicly available.

Perceived Racial Discrimination

Using the Everyday Discrimination Scale (EDS; Williams, Yu, Jackson, & Anderson, 1997), respondents were asked to report how often they experienced unfair treatment in their day-to-day life such as “You are treated with less courtesy than other people are” and “People act as if they are better than you are.” Nine items were assessed using six response categories (1 [almost every day] to 6 [never]). These responses were reverse coded and summated. Total possible range was 9–54, with higher scores indicating

greater perceived discrimination. Internal consistency of the EDS was satisfactory (Cronbach's $\alpha = .852$). Previous research reported measurement equivalence of the EDS in diverse racial/ethnic groups, including Blacks (Kim, Sellbom, & Ford, 2014).

In order to identify those who experienced racial/ethnic-specific discrimination, we used the final question in the EDS asking for the main reason for one's perceived discrimination experiences. The current analyses selected those who endorsed "ancestry or national origin or ethnicity" or "race." Other reasons listed but excluded for the present analyses were "age," "sex," or "height or weight."

Covariates

Sociodemographic covariates shown to be significantly correlated with mental health in previous research (Pascoe & Smart Richman, 2009; Williams et al., 1997) were selected (age, gender, marital status, educational attainments, annual household income, and ethnic subgroups of Blacks [African American vs Afro-Caribbean]).

Data Analysis

We used weighted data for all analyses in order to account for complex sampling design and estimate accurate variance. Descriptive analyses were conducted to report background characteristics. Correlations among variables were checked for potential multicollinearity. Logistic regression analyses were conducted to test main and interaction effects. STATA was used for all analyses.

Results

Background Characteristics

As shown in Table 1, older Blacks reside predominantly in the South (49.4%) followed by the Midwest (21.3%), Northeast (19.9%), and West (9.4%). Significant geographic differences were found in educational attainment and ethnic subgroups, with older Blacks in the West and Midwest having significantly higher educational attainment than those in the South and Northeast; the Northeast and West had significantly more Afro-Caribbeans than the South and Midwest.

With regard to other characteristics that were not significantly different across regions, the mean age was 65.09 years ($SD = 6.82$ years), with a total range of 55–91 years. Over half of older Blacks were female and not married. Over half had household annual income lower than 35,000. The mean perceived discrimination was 21.10 ($SE = 0.44$), with the West having the highest level and the South having the lowest. Thirteen percent of older Blacks had at least one past-year psychiatric disorder. The most common disorders among older Blacks were social phobia (4%) and major depressive disorder (2.6%).

Logistic Regression Analysis

As displayed in Table 2, racial discrimination was significant in both unadjusted (Model 1) and adjusted models (Models 2 and 3). In our final model (Model 3), after adjusting for covariates, both region and racial discrimination were significant ($p < .05$): Being in the South (vs West) and greater perceived racial discrimination were associated with increased odds of having any past-year psychiatric disorder. There was a significant interaction between region and racial discrimination.

In order to interpret the significant interaction effect, we conducted separate logistic regression analyses by region. The effect of perceived racial discrimination on having any past-year psychiatric disorder was stronger in the West (odds ratio [OR] = 1.44, 95% confidence interval [CI] = 1.12–1.85) than in the South (OR = 1.06, 95% CI = 1.01–1.11) (results not shown in tables).

Discussion

In accordance with previous research (Chou et al., 2012; Pascoe & Smart Richman, 2009; Williams & Mohammed, 2009), we found that perceived racial discrimination was associated with poor mental health among older Blacks in the United States. The present study provides suggestive evidence that the effect of racial discrimination may differ by the geographic region in which older Blacks reside. The effect of racial discrimination on psychiatric disorders among older Blacks was stronger in the West, showing that Blacks in the West with higher levels of perceived racial discrimination were more likely to have any past-year psychiatric disorder than Blacks experiencing a similar level of discrimination in the South. Our findings highlight the importance of understanding the role of geographic region in the relation between discrimination and mental health, which may help us identify ways to reduce existing disparities in mental health and mental health care beyond the individual level.

The observed differential effect of racial discrimination by geographic region could be explained by two factors. First, different population characteristics of older Blacks in geographic regions may be related to the experience of racial discrimination. For example, older Blacks in the West had higher levels of educational attainment than those in other regions, which may expose them to a wider range of situations in which they might experience racial discrimination. Second, regional norms could explain the differential effect of racial discrimination by geographic region. People generally perceive that racial discrimination is more culturally normative in the South than in other regions in the United States. What is experienced as strong racial discrimination in other regions may be perceived by Southern Blacks as "status quo" and not a source of distress. This was evidenced in our finding that older Blacks in the South had the lowest level of perceived racial discrimination,

Table 1. Characteristics of Black Older Adults Who Experienced Racial Discrimination (Weighted)

	<i>M</i> ± <i>SE</i> or %				
	Overall	Northeast	Midwest	South	West
Region					
South	49.43	—	—	—	—
Northeast	19.92	—	—	—	—
Midwest	21.27	—	—	—	—
West	9.37	—	—	—	—
Age	65.09 ± 0.44	64.05 ± 1.01	65.54 ± 0.78	65.07 ± 0.66	66.36 ± 1.53
Gender					
Male	48.37	43.27	53.19	45.24	64.80
Female	51.63	56.73	46.81	54.76	35.20
Marital status					
Not married	57.47	69.51	57.94	53.47	51.93
Married	42.52	30.49	42.06	46.53	48.07
Educational attainment***					
0–11 years	35.29	27.99	25.26	48.76	2.49
12 years	30.93	42.10	28.73	25.22	42.32
13–15 years	15.94	12.75	22.80	10.08	38.13
≥16 years	17.84	17.16	23.21	15.95	17.06
Household income					
<20K	42.86	45.93	38.43	47.68	20.92
20K–34K	21.13	23.47	19.15	21.31	19.73
35K–74K	22.38	20.15	21.81	22.33	28.70
≥75K	13.64	10.46	20.61	8.67	30.65
Black subgroups**					
African American	93.08	83.00	95.97	96.91	87.75
Afro-Caribbean	6.92	17.00	4.03	3.09	12.25
Perceived discrimination	21.10 ± 0.44	20.77 ± 0.74	22.20 ± 0.93	20.02 ± 0.63	24.95 ± 1.56
Any psychiatric disorder (12 months)	13.00	18.41	12.36	10.24	17.57
0	87.00	81.59	87.64	89.76	82.43
1	8.50	6.19	8.10	7.88	17.57
2	3.87	11.90	3.33	1.61	0.00
3+	0.63	0.32	0.93	0.75	0.00

Notes: *M* = mean; *SE* = standard error.

p* < .01. *p* < .001.

although other studies reported more discrimination in the South (Carter, 2010; Carter et al., 2005). The different findings may be due to different sample characteristics, measures/questions used to assess discrimination and time. Third, given that the South has the highest concentration of Blacks in the United States (U.S. Census Bureau, 2013) and that the South tends to have close family ties and high levels of collectivism (Plaut, Markus, & Lachman, 2002), it is also possible that the social support afforded by this large subculture may function as a buffer against the stress of racial discrimination. Conversely, being surrounded by fewer Blacks in the West may result in greater vulnerability. Future research should further elucidate reasons for the differential regional experiences and effects of perceived racial discrimination.

Despite our focus on older adults, the role of age in perceived discrimination and its relation to mental health should be highlighted. Older age, in the present study of older Blacks, was significantly related with lower levels

of perceived discrimination and having any past-year psychiatric disorder. This was consistent with previous research suggesting perceived discrimination declined with age, especially after age 51 (Yip, Gee, & Takeuchi, 2008). As shown in the Supplementary Appendix Table, our additional analysis on regional differences in the relation between age and perceived discrimination revealed that the relation between age and discrimination was strongest in the South (adjusted $r = .246$, $p < .000$) compared with other regions, after adjusting for all covariates included in the main analysis (i.e., sex, marital status, education, income, and ethnic subgroup). It is possible that in areas where many Blacks reside, such as the South, older Blacks may experience less racial discrimination than their younger counterparts, who may be perceived by some people as threatening. Future research should elucidate reasons for the different role of age in racial discrimination by geographic region or at lower levels of geography.

Table 2. Logistic Regression Analysis of Any Past-Year Psychiatric Disorder (Weighted)

	Outcome: any past-year psychiatric disorder					
	Model 1		Model 2		Model 3	
	OR (95% CI)	<i>p</i> Value	OR (95% CI)	<i>p</i> Value	OR (95% CI)	<i>p</i> Value
Main effects						
Region						
South	Referent	—	Referent	—	Referent	—
Northeast	2.09 (0.87–5.03)	.099	2.41 (0.90–6.49)	.080	2.25 (0.77–6.59)	.765
Midwest	1.07 (0.40–2.83)	.899	1.57 (0.60–4.06)	.356	1.06 (0.30–3.71)	.300
West	1.35 (0.35–5.28)	.665	2.37 (0.57–9.85)	.234	0.02 (0.00–0.64)*	.027
Perceived discrimination	1.09 (1.05–1.13)***	.000	1.10 (1.05–1.14)***	.000	1.07 (1.01–1.13)*	.027
Covariates						
Age			0.94 (0.89–0.99)*	.032	0.93 (0.87–0.99)*	.020
Female			1.73 (0.80–3.76)	.163	1.96 (0.88–4.37)	.098
Married			2.51 (1.04–6.09)*	.041	2.91 (1.18–7.15)*	.020
Educational attainments			0.92 (0.62–1.36)	.671	0.90 (0.61–1.32)	.582
Household income			0.74 (0.47–1.19)	.218	0.80 (0.50–1.28)	.351
African American (vs Afro-Caribbean)			0.62 (0.15–2.47)	.496	0.59 (0.15–2.34)	.451
Interaction effects						
Discrimination × South					Referent	—
Discrimination × Northeast					1.00 (0.90–1.12)	.932
Discrimination × Midwest					1.06 (0.97–1.17)	.205
Discrimination × West					1.56 (1.23–1.98)***	.000

Notes: CI = confidence interval; OR = odds ratio; Model 1 = main effects; Model 2 = main effects + covariates; Model 3 = main effects + covariates + interaction effects.

* $p < .05$. *** $p < .001$.

Study limitations should be discussed. First, we used a self-reported perceived discrimination measure and no verification of actual discriminatory events was provided. The subjective nature of these reports raises the possibility that other individual-level factors (e.g., personality, other trait variables, or general stress levels) may have contributed to self-reported discrimination. Using objective measures of racism such as Whites' attitudes toward African Americans used in the American National Election Studies (Reid, Dovidio, Ballester, & Johnson, 2014) and an Internet search-based measure of area racism (Chae et al., 2015) could strengthen future research on racial discrimination. Second, our analysis was based on larger geographic region. More fine-grained levels of geography such as county level or census tract level should be considered in future research. Third, given the cross-sectional nature of these data, the causal direction of the relation between perceived racial discrimination and psychiatric disorders is not known. Fourth, given that many Blacks in the South live in rural areas and Blacks in other regions are more likely to live in urban areas (Rastogi, Johnson, Hoeffel, & Drewery, 2011), future research on geographic disparities with the Black population should consider rural–urban comparisons for the relation between perceived discrimination and mental health in addition to the larger geographic regional differences. Fifth, there may be potential subgroup

differences between African Americans and Caribbean Blacks. We attempted to conduct analysis separately for African Americans and Caribbean Blacks, but due to the small sample size of older Caribbean Blacks having any past-year psychiatric disorder, we were not able to compare results. Future research with a larger sample size is needed to identify subgroup differences among Blacks. Lastly, given our use of any psychiatric disorder as our outcome variable, future research should consider distinguishing between different types of mental disorders.

Despite the limitations, the present study contributes to the literature by demonstrating that regional differences in the relation between perceived racial discrimination and psychiatric disorders may exist among older Blacks in the United States. Future research should focus on elucidating reasons for these geographic differences. Specifically, the effect of local-level geographic factors such as community racial/ethnic composition would be an important area of future research. In addition, better spatial data than the Census region (e.g., Cromley, Wilson-Genderson, & Pruchno, 2012) should be used for future research to understand spatial variability in the relationship between racism and mental health. Anti-racism campaigns on the local and regional levels would also be beneficial as part of comprehensive societal efforts to reduce mental health problems experienced by older Blacks.

Supplementary Material

Please visit the article online at <http://gerontologist.oxford-journals.org/> to view supplementary material.

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References

- Baicker, K., Chandra, A., & Skinner, J. S. (2005). Geographic variation in health care and the problem of measuring racial disparities. *Perspectives in Biology and Medicine*, *48*(Suppl.), S42–S53.
- Blank, R. M., Dabady, M., & Citro, C. F. (Eds.). (2004). *Measuring racial discrimination*. Washington, DC: National Academies Press.
- Brown, T. N., Williams, D. R., Jackson, J. S., Neighbors, H. W., Torres, M., Sellers, S. L., & Brown, K. T. (2000). "Being black and feeling blue": The mental health consequences of racial discrimination. *Race and Society*, *2*, 117–131.
- Carter, J. S. (2010). Cosmopolitan way of life for all?: A reassessment of the impact of urban and region on racial attitudes from 1972–2006. *Journal of Black Studies*, *40*, 1075–1093.
- Carter, J. S., Steelman, L. C., Mulkey, L. M., & Borch, C. (2005). When the rubber meets the road: Effects of region and regional residence on principle and implementation measures of racial tolerance. *Social Science Research*, *34*, 408–425.
- Chae, D. H., Clouston, S., Hatzenbuehler, M. L., Kramer, M. R., Cooper, H. L., Wilson, S. M., ... Link, B. G. (2015). Association between an Internet-based measure of area racism and Black mortality. *PLoS One*, *10*, e0122963. doi:10.1371/journal.pone.0122963
- Chou, T., Asnaani, A., & Hofmann, S. G. (2012). Perception of racial discrimination and psychopathology across three U.S. ethnic minority groups. *Cultural Diversity & Ethnic Minority Psychology*, *18*, 74–81. doi:10.1037/a0025432
- Cromley, E. K., Wilson-Genderson, M., & Pruchno, R. A. (2012). Neighborhood characteristics and depressive symptoms of older people: Local spatial analyses. *Social Science & Medicine* (1982), *75*, 2307–2316. doi:10.1016/j.socscimed.2012.08.033
- Fisher, E. S., Goodman, D. C., & Chandra, A. (2008). *Regional and racial variation in health care among Medicare beneficiaries: A brief report of the Dartmouth Atlas Project*. Robert Wood Johnson Foundation.
- Heeringa, S. G., Wagner, J., Torres, M., Duan, N., Adams, T., & Berglund, P. (2004). Sample designs and sampling methods for the Collaborative Psychiatric Epidemiology Studies (CPES). *International Journal of Methods in Psychiatric Research*, *13*, 221–240.
- Kim, G., Parton, J. M., DeCoster, J., Bryant, A. N., Ford, K. L., & Parmelee, P. A. (2013). Regional variation of racial disparities in mental health service use among older adults. *The Gerontologist*, *53*, 618–626. doi:10.1093/geront/gns107
- Kim, G., Parton, J. M., Ford, K. L., Bryant, A. N., Shim, R. S., & Parmelee, P. (2014). Geographic and racial-ethnic differences in satisfaction with and perceived benefits of mental health services. *Psychiatric Services*, *65*, 1474–1482. doi:10.1176/appi.ps.201300440
- Kim, G., Sellbom, M., & Ford, K. L. (2014). Race/ethnicity and measurement equivalence of the Everyday Discrimination Scale. *Psychological Assessment*, *26*, 892–900. doi:10.1037/a0036431
- Langer, G. (2009, July). Racial discrimination: Obama, gates and the police. *ABC News*. Retrieved December 7, 2013, from <http://abcnews.go.com/blogs/politics/2009/07/racial-discrimination-obama-gates-and-the-police/>
- Mays, G. P., & Smith, S. A. (2009). Geographic variation in public health spending: Correlates and consequences. *Health Services Research*, *44*(5 Pt 2), 1796–1817.
- Nadimpalli, S. B., James, B. D., Yu, L., Cothran, F., & Barnes, L. L. (2015). The association between discrimination and depressive symptoms among older African Americans: The role of psychological and social factors. *Experimental Aging Research*, *41*, 1–24. doi:10.1080/0361073X.2015.978201
- Pascoe, E. A., & Smart Richman, L. (2009). Perceived discrimination and health: A meta-analytic review. *Psychological Bulletin*, *135*, 531–554. doi:10.1037/a0016059
- Plaut, V. C., Markus, H. R., & Lachman, M. E. (2002). Place matters: Consensual features and regional variation in American well-being and self. *Journal of Personality and Social Psychology*, *83*, 160–184.
- Rastogi, S., Johnson, T. D., Hoefel, E. M., & Drewery, M. P., Jr. (2011). *The black population: 2010*. US Department of Commerce, Economics and Statistics Administration, US Census Bureau. Retrieved from <https://www.census.gov/prod/cen2010/briefs/c2010br-06.pdf>
- Reid, A. E., Dovidio, J. F., Ballester, E., & Johnson, B. T. (2014). HIV prevention interventions to reduce sexual risk for African Americans: The influence of community-level stigma and psychological processes. *Social Science & Medicine* (1982), *103*, 118–125. doi:10.1016/j.socscimed.2013.06.028
- Semrad, T. J., Tancredi, D. J., Baldwin, L. M., Green, P., & Fenton, J. J. (2011). Geographic variation of racial/ethnic disparities in colorectal cancer testing among Medicare enrollees. *Cancer*, *117*, 1755–1763.
- Thrasher, A. D., Clay, O. J., Ford, C. L., & Stewart, A. L. (2012). Theory-guided selection of discrimination measures for racial/ethnic health disparities research among older adults. *Journal of Aging and Health*, *24*, 1018–1043. doi:10.1177/0898264312440322
- U.S. Census Bureau. (2013). Census data mapper. Washington, DC. Retrieved from <http://tigerweb.geo.census.gov/datamapper/map.html>
- Williams, D. R., & Mohammed, S. A. (2009). Discrimination and racial disparities in health: Evidence and needed research. *Journal of Behavioral Medicine*, *32*, 20–47. doi:10.1007/s10865-008-9185-0
- Williams, D. R., & Williams-Morris, R. (2000). Racism and mental health: The African American experience. *Ethnicity & Health*, *5*, 243–268. doi:10.1080/713667453
- Williams, D. R., Yu, Y., Jackson, J. S., & Anderson, N. B. (1997). Racial differences in physical and mental health: Socio-economic status, stress and discrimination. *Journal of Health Psychology*, *2*, 335–351. doi:10.1177/135910539700200305
- Yip, T., Gee, G. C., & Takeuchi, D. T. (2008). Racial discrimination and psychological distress: The impact of ethnic identity and age among immigrant and United States-born Asian adults. *Developmental Psychology*, *44*, 787–800. doi:10.1037/0012-1649.44.3.787