Community Characteristics are Associated with Blood Pressure Levels in a Racially Integrated Community

L. J. Samuel, R. J. Thorpe, K. M. Bower, and T. A. LaVeist

ABSTRACT *Community problems have been associated with higher, and community resources and social cohesion with lower, blood pressure. However, prior studies have not accounted for potential confounding by residential racial segregation. This study tested associations between community characteristics and blood pressure levels and prevalent hypertension in a racially integrated community. The Exploring Health Disparities in Integrated Communities Study measured blood pressure in residents of two contiguous racially integrated and low-income US Census Tracts. Community characteristics included a standardized community problem score and binary indicators for community social cohesion, having a community leader available, and having at least one community resource observed on the participant's block. In adjusted models, greater community problems and proximity to resources were associated with lower systolic ($\beta=-2.020$, $p=0.028$; $\beta=-4.132$, $p=0.010$) and diastolic ($\beta=-1.261$, $p=0.038$; $\beta=-2.290$, $p=0.031$) blood pressure, respectively, among whites ($n=548$). Social cohesion was associated with higher systolic ($\beta=4.905$, $p=0.009$) and diastolic blood pressure ($\beta=3.379$, $p=0.008$) among African Americans ($n=777$). In one racially integrated low-income community, community characteristics were associated with blood pressure levels, and associations differed by race. Directions of associations for two findings differed from prior studies; greater community problem was associated with lower blood pressure in whites and community social cohesion was associated with higher blood pressure in African Americans. These findings may be due to exposure to adverse environmental conditions and hypertensive risk factors in this low-income community.*

KEYWORDS *Hypertension, Residential segregation, Neighborhood problems, Neighborhood social cohesion, Health disparities*

INTRODUCTION

Socioeconomically deprived communities have higher rates of hypertension than affluent communities.¹⁻³ A constellation of factors likely contribute to hypertensive risk in these communities. As examples, better access to grocery stores or recreational facilities has been associated with lower average blood pressure levels in large studies.⁴⁻⁷ High levels of neighborhood problems, such as crime, have been

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associated with higher blood pressure levels.^{4,7,8} Conversely, neighborhood social cohesion, which is a sense of solidarity, has been associated with lower risk of hypertension.⁷ Interestingly, in one study, associations between neighborhood characteristics and risk of hypertension disappeared after adjusting for race, suggesting an influence of race.⁷

All but two of the reviewed studies^{4,9} were conducted in the USA, where racial segregation is pervasive.¹⁰ In fact, one study conflated segregation with neighborhood crime,¹¹ but the distinct effect of segregation should not be ignored. There is good evidence that hypertension is more common in segregated communities¹² and that African Americans are disproportionately affected by this.¹³ Racial segregation geographically concentrates disadvantage, shaping the geographic distribution of community resources.¹⁴ Segregation may also influence perceptions of the social environment, inducing biases in perceptions of community environments.¹⁵ Thus, segregation may confound associations between community characteristics and blood pressure, but there is little data from racially integrated communities.

This study utilizes data from a racially integrated community to examine associations between community characteristics and blood pressure. Since African Americans and whites reside in the same community, this setting naturally controls for racial differences in environmental exposures and biases induced by segregation. We hypothesize that community characteristics will be associated with blood pressure in this setting, although associations will not be as strong as those in segregated communities. Also, racial differences in perceptions of community characteristics and in their associations with blood pressure are expected due to differences in experiences within an integrated setting.

METHODS

Sample and Study Design

The Exploring Health Disparities in Integrated Communities Study, described in detail elsewhere,¹⁶ is an ongoing multisite study of race disparities within communities where African Americans and non-Hispanic whites live together and where there are no race differences in socioeconomic status (as measured by median income). The first EHDIC study site was conducted in Southwest Baltimore, Maryland (EHDIC-SWB) in 2003. It was a cross-sectional face-to-face survey of the adult population (age 18 and older) of two contiguous census tracts. In addition to being socioeconomically homogenous (having a median income of \$24,002, with no race difference in income), the study site was racially integrated, with almost equal proportions of African American and non-Hispanic white residents (51 and 44 %, respectively). A total of 1,489 participants consented to participate (41.9 % of the 3,555 adults living in these two census tracts recorded in the 2000 Census). Because our survey had similar coverage across each census block group in the study area, the bias to geographic locale and its relationship with socioeconomic status should be minimal.¹⁶ Comparisons to the 2000 Census for the study area indicated that the EHDIC-SWB sample included a higher proportion of blacks and women, but was otherwise similar with respect to other demographic and socioeconomic indicators.¹⁶ The final sample included 573 whites and 835 African Americans, of whom 549 whites and 777 African Americans had complete data for these analyses. The study was approved by the Committee on Human Subjects Research at the Johns

Hopkins Bloomberg School of Public Health and participants provided written informed consent.

Data

The survey was administered by a trained interviewer and consisted of a structured questionnaire, which included demographic and socioeconomic information, self-reported health behaviors and chronic conditions, and blood pressure (BP) measurement. Blood pressure was calculated using the average of three seated BP measurements taken over approximately 45 min, measured using appropriately sized electronic cuffs that were calibrated to an ambulatory standard. Systolic BP and diastolic BP were defined as the first and fifth phases of the Korotkoff sounds, respectively. Participants were classified as having hypertension if they had a systolic BP ≥ 140 mmHg and/or diastolic BP ≥ 90 mmHg or reported taking antihypertensive medication(s).

Community characteristics were measured using participant responses to survey questions and interviewer observation. A perceived community problem score (ranging from 0 to 30) was calculated by asking participants if 15 potential community problems were “not a problem,” “somewhat of a problem,” or a “major problem” in their community. The score was standardized prior to analyses. The list of potential problems was based on prior research.¹⁷ It included lack of resources such as schooling and healthcare for children, safe roads, public transportation, grocery stores, recreation facilities, street lighting, garbage collection, and financial services and other safety and social characteristics, such as tobacco or drug use, and crime and gang activity. The scale had good internal consistency (Cronbach $\alpha = 0.84$). To measure social cohesion, participants were asked if people in the community work together to solve problems. Participants were also asked if there was a community leader available to them to discuss community problems. The interviewer counted the number of community resources observed on the participant’s block using a checklist, which included a community organization headquarters, church, school or library, recreational facility (such as a park), industrial company, general store, garage or plaza, or mural. Since few community resources were observed, this variable was dichotomized to none or ≥ 1 .

Demographic information obtained included age, sex, race/ethnicity (categorized as white or African American), and annual household income, which was *ln*-transformed prior to analyses to achieve a linear association with blood pressure. Marital status (categorized as married/living as married, widowed, divorced/separated, never married) and length of community residency, in months, were also recorded by participants and considered as potentially confounding variables in analyses, since they may affect an individual’s integration into the community and perceptions of it, and may separately affect blood pressure outcomes. Also, participants who reported a history of hypertension or high blood pressure were asked if they were taking any medications for it and this indicator was included in systolic and diastolic blood pressure level models.

Health behaviors and body mass index (BMI) were treated as potentially mediating variables in regression models, since obesity, lack of physical activity and smoking may be influenced by community characteristics^{18–20} and they increase the risk of hypertension. Physical activity was categorized as never, less than three days per week, and three or more days per week based on participant report of how often they engaged in at least one hour of physical activity. Current smoking status

(categorized as never, former, or current) was based on participant report of ever or currently smoked. Self-reported height and weight was used to calculate BMI.

Statistical Analysis

Associations between community characteristics and systolic and diastolic blood pressure levels were examined using linear regression. Associations between community characteristics and hypertension were examined using Poisson regression with robust standard errors, to estimate prevalence ratios.²¹ Exploratory analyses tested appropriate assumptions prior to building regression models. Since the direction of association between residing in a racially integrated community and high blood pressure likely differs for whites compared to African Americans,²² a decision was made a priori to racially stratify all analyses. Model 1 includes all community characteristic variables and adjusts for hypothesized confounders including demographic characteristics, marital status, length of community residency, and in the systolic and diastolic models, taking antihypertensive medication. Model 2 adds potentially mediating variables, including physical activity, smoking status, and BMI, to determine if associations attenuated with their inclusion. As a planned sensitivity analysis, the number of community problems was considered as an alternative measurement, similar to other work.²³ All analyses were performed in Stata 12.

RESULTS

Sample characteristics by race are described in Table 1. Community characteristics did not differ by race, except that whites were more likely than African Americans to perceive that their community had a leader available to them ($p=0.001$). There was no racial difference in hypertension prevalence or use of anti-hypertensive medications among those reporting hypertension. Although African-Americans had slightly higher average systolic ($p=0.001$) and diastolic ($p<0.001$) blood pressure levels than whites, the difference is unlikely to be clinically significant. Also, to verify the appropriateness of racial stratification, interaction terms between each community characteristic variable and race were tested in non-stratified models, adjusting for age, sex, income, and race. Race interacted with the community problem score as they related to systolic ($p=0.013$) and diastolic blood pressure ($p=0.043$), but not prevalent hypertension ($p=0.101$). No interactions were found for the social cohesion, community leader, or community resource indicators.

Among whites, in models adjusting for potentially confounding variables, each standard deviation increase in the perceived community problem score was associated with approximately 2 mmHg lower systolic and approximately 1 mmHg lower diastolic blood pressure levels (Table 2, Model 1). Neither perceived community social cohesion nor perceived community leader availability was associated with systolic or diastolic blood pressure or prevalent hypertension. Whites living on a block that had at least one observed resource had approximately 4 mmHg lower systolic and 2 mmHg lower diastolic blood pressure and an 18 % lower likelihood of hypertension than whites lacking such resources. Older age, male sex, and being divorced instead of married were each associated with higher systolic and diastolic blood pressure and older age and male sex were associated with a higher likelihood of hypertension. No statistically significant associations were found for income. Associations remained largely unchanged after additional adjustment for potentially mediating variables (Model 2). Increasing BMI was

TABLE 1 Selected sample characteristics by race, Exploring Health Disparities in Integrated Communities

	White (n=549)	African American (n=777)	p value ^a
Mean community problem score ^b (SD)	14.90 (5.53)	14.94 (6.70)	0.906
Community social cohesion ^c (%)	128 (23.3)	185 (23.8)	0.835
Community leader available ^c (%)	172 (31.3)	182 (23.4)	0.001
≥1 Observed community resource ^c (%)	229 (41.7)	351 (45.2)	0.211
Mean age (SD)	43.83 (16.11)	38.33 (13.16)	<0.001
Male (%)	238 (43.4)	366 (47.1)	0.177
Mean income (SD)	\$25,061.13 (23,634.32)	\$23,731.38 (33,238.32)	0.395
Marital status (%)			
Married	144 (26.2)	120 (15.4)	<0.001
Divorced/separated	201 (36.6)	176 (22.7)	
Never married	204 (37.2)	481 (61.9)	
Mean months community residence (SD)	240.86 (213.01)	87.08 (122.82)	<0.001
Taking HTN medication (%)	92 (16.8)	113 (14.5)	0.272
Mean BMI (SD)	27.15 (6.85)	27.92 (7.29)	0.048
Physical activity frequency (%)			
Never	142 (25.9)	144 (18.5)	0.003
<3 days/week	102 (18.6)	180 (23.2)	
≥3 days/week	305 (55.6)	453 (58.3)	
Smoking status (%)			
Never	132 (24.0)	290 (37.3)	<0.001
Former	92 (16.8)	68 (8.8)	
Current	325 (59.2)	419 (53.9)	
Mean systolic blood pressure (SD)	129.98 (19.50)	133.63 (21.52)	0.001
Mean diastolic blood pressure (SD)	94.25 (12.62)	97.04 (14.34)	<0.001
Hypertension (%)	367 (66.9)	551 (70.9)	0.114

^aCorresponds to *t* test or χ^2 , as appropriate
^bBased on a score from 15 items, ranging from 0 to 30
^cBinary indicators

associated with slightly higher systolic blood pressure and slightly higher rate of hypertension, but no other associations were found for behavioral variables.

Among African Americans, in models adjusting for potentially confounding variables, individuals who perceived their community to be socially cohesive had approximately 5 mmHg higher systolic and approximately 3.5 mmHg higher diastolic blood pressure levels, compared with participants who did not (Table 3, Model 1). No statistically significant associations were found for perceived community problems, perceived community leader availability, or observed community resources. Taking antihypertensive medications was associated with more than 13 mmHg higher systolic and almost 8 mmHg higher diastolic blood pressure levels. Associations for age, sex, marital status, and income were similar to those in whites. Associations remained largely unchanged after additional adjustment for potentially mediating variables (Model 2). Increasing BMI was associated with slightly higher systolic and diastolic blood pressure and slightly higher rate of hypertension and being a former smoker was associated with approximately

TABLE 2 Associations between community characteristics and blood pressure levels and prevalent hypertension, before and after control for potentially mediating variables, among 549 white participants, Exploring Health Disparities in Integrated Communities

	Systolic blood pressure ^a β (p value)		Diastolic blood pressure ^a β (p value)		Hypertension PR (95 % CI)	
	Model 1 ^b	Model 2 ^c	Model 1 ^b	Model 1 ^c	Model 1 ^b	Model 2 ^c
Community problem score	-2.020 (0.028)	-1.993 (0.029)	-1.261 (0.038)	-1.238 (0.042)	0.96 (0.90–1.02)	0.95 (0.89–1.02)
Community social cohesion	2.651 (0.187)	3.264 (0.104)	1.238 (0.352)	1.499 (0.262)	1.03 (0.90–1.18)	1.08 (0.95–1.23)
Community leader available	-0.631 (0.725)	-1.140 (0.528)	-0.065 (0.957)	-0.187 (0.876)	1.10 (0.97–1.24)	1.06 (0.94–1.20)
≥1 Observed community resource	-4.132 (0.010)	-3.725 (0.020)	-2.290 (0.031)	-2.159 (0.043)	0.82 (0.73–0.93)	0.83 (0.74–0.93)
Age	0.260 (<0.001)	0.255 (<0.001)	0.113 (0.008)	0.108 (0.015)	1.01 (1.01–1.01)	1.01 (1.01–1.01)
Male	8.121 (<0.001)	9.217 (<0.001)	5.284 (<0.001)	5.774 (<0.001)	1.30 (1.16–1.45)	1.35 (1.20–1.52)
In household income	-0.621 (0.386)	-0.656 (0.359)	-0.326 (0.492)	-0.302 (0.526)	1.01 (0.94–1.08)	1.01 (0.94–1.07)
Married (ref.)	—	—	—	—	—	—
Divorced/separated	5.291 (0.011)	5.961 (0.005)	3.662 (0.008)	3.966 (0.005)	1.07 (0.93–1.24)	1.09 (0.95–1.26)
Never married	1.790 (0.395)	2.482 (0.241)	1.024 (0.463)	1.333 (0.344)	1.04 (0.89–1.22)	1.09 (0.93–1.28)
Community residence (months)	-0.002 (0.627)	-0.002 (0.619)	-0.000 (0.917)	-0.001 (0.840)	1.00 (1.00–1.00)	1.00 (1.00–1.00)
Taking HTN medication	1.850 (0.422)	0.647 (0.782)	0.058 (0.970)	-0.451 (0.772)	—	—
BMI	—	0.369 (0.002)	—	0.156 (0.051)	—	1.02 (1.01–1.03)
No physical activity (ref.)	—	—	—	—	—	—
Activity <3 days/week	—	-3.021 (0.206)	—	-1.935 (0.224)	—	1.04 (0.88–1.23)
Activity ≤3 days/week	—	-2.744 (0.149)	—	-2.222 (0.080)	—	1.04 (0.91–1.19)
Never a smoker (ref.)	—	—	—	—	—	—
Former smoker	—	-2.754 (0.276)	—	-0.661 (0.695)	—	1.02 (0.89–1.18)
Current smoker	—	-1.660 (0.407)	—	-0.107 (0.936)	—	0.98 (0.85–1.13)
Intercept	119.983 (0.000)	113.110 (0.000)	89.207 (0.000)	86.353 (0.000)	0.32 (0.15–0.66)	0.18 (0.08–0.39)

Bold print denotes $p < 0.05$

^a $n = 548$

^bModel includes standardized community problem score, and binary indicators for community social cohesion, having a community leader available, and having at least one community resource observed on the participant's block, age, sex, In-income, marital status, length of community residence, and in blood pressure level models, whether taking antihypertensive medication

^cModel additionally includes BMI, physical activity frequency and smoking status

TABLE 3 Associations between community characteristics and blood pressure levels and prevalent hypertension, before and after control for potentially mediating variables, among 777 African-American participants, Exploring Health Disparities in Integrated Communities

	Systolic blood pressure β (<i>p</i> value)		Diastolic blood pressure β (<i>p</i> value)		Hypertension PR (95 % CI)	
	Model 1 ^a	Model 2 ^b	Model 1 ^a	Model 2 ^b	Model 1 ^a	Model 2 ^b
Community problem score	0.520 (0.443)	0.487 (0.467)	0.249 (0.591)	0.228 (0.619)	1.00 (0.96–1.04)	1.00 (0.96–1.04)
Community social cohesion	4.905 (0.009)	4.955 (0.007)	3.379 (0.008)	3.403 (0.007)	1.04 (0.93–1.16)	1.04 (0.93–1.15)
Community leader available	–2.052 (0.276)	–2.037 (0.274)	–0.614 (0.632)	–0.514 (0.686)	0.99 (0.89–1.10)	0.99 (0.89–1.11)
≥1 Observed community resource	–1.811 (0.215)	–1.593 (0.269)	–1.150 (0.248)	–1.018 (0.301)	0.99 (0.91–1.08)	0.99 (0.90–1.08)
Age	0.211 (0.002)	0.241 (0.001)	0.120 (0.010)	0.137 (0.004)	1.01 (1.01–1.01)	1.01 (1.01–1.01)
Male	7.076 (0.000)	8.257 (0.000)	3.264 (0.001)	3.878 (0.000)	1.10 (1.01–1.20)	1.13 (1.03–1.23)
<i>In</i> household income	–0.376 (0.551)	–0.385 (0.540)	–0.214 (0.618)	–0.165 (0.701)	0.99 (0.96–1.02)	0.99 (0.96–1.02)
Married (ref.)	–	–	–	–	–	–
Divorced/separated	5.034 (0.038)	4.306 (0.073)	3.748 (0.024)	3.164 (0.054)	1.11 (0.98–1.26)	1.08 (0.96–1.23)
Never married	2.134 (0.328)	2.280 (0.290)	2.640 (0.076)	2.644 (0.072)	0.99 (0.87–1.13)	1.00 (0.88–1.13)
Community residence (months)	0.003 (0.602)	0.001 (0.829)	0.002 (0.555)	0.001 (0.805)	1.00 (1.00–1.00)	1.00 (1.00–1.00)
Taking HTN medication	13.449 (0.000)	12.375 (0.000)	7.830 (0.000)	7.264 (0.000)	–	–
BMI	–	0.468 (0.000)	–	0.281 (0.000)	–	1.01 (1.01–1.02)
No physical activity (ref.)	–	–	–	–	–	–
Activity <3 days/week	–3.244 (0.148)	–	–	–2.230 (0.145)	0.98 (0.87–1.11)	0.98 (0.87–1.11)
Activity ≤3 days/week	–2.549 (0.191)	–	–	–2.049 (0.124)	0.96 (0.86–1.07)	0.96 (0.86–1.07)
Never a smoker (ref.)	–	–	–	–	–	–
Former smoker	–5.921 (0.035)	–	–	–4.248 (0.027)	1.03 (0.89–1.19)	1.03 (0.89–1.19)
Current smoker	0.146 (0.927)	–	–	0.859 (0.430)	1.10 (0.99–1.22)	1.10 (0.99–1.22)
Intercept	121.256 (0.000)	109.532 (0.000)	88.968 (0.000)	81.607 (0.000)	0.49 (0.34–0.69)	0.32 (0.21–0.49)

Bold print denotes *p*<0.05

^aModel includes standardized community problem score, and binary indicators for community social cohesion, having a community leader available, and having at least one community resource observed on the participant's block, age, sex, *In*-income, marital status, length of community residence, and in blood pressure level models, whether taking antihypertensive medication

^bModel additionally includes BMI, physical activity frequency and smoking status

5 mmHg lower systolic and diastolic blood pressure compared with never smoking but there were no associations for physical activity. Sensitivity analyses, described in the “Methods” section, did not alter inferences for whites or African Americans (results not shown).

CONCLUSIONS

This study is unique in that it examines associations between community characteristics and blood pressure in a racially integrated community. We had hypothesized that results would be similar to those obtained in largely segregated communities, though associations may differ by race. In this low-income and racially integrated community, proximity to community resources was associated with lower blood pressure levels and a lower likelihood of hypertension in whites. However, contrary to the hypothesis, greater perceived community problems were associated with lower systolic and diastolic blood pressure among whites. Also, perceived community social cohesion was associated with higher systolic and diastolic blood pressure in African Americans. Associations in this study persisted after adjusting for potentially mediating behavior-related factors, including physical activity, smoking and BMI.

A key finding from this study was that the directions of associations between perceived community characteristics and blood pressure levels differed in this study, compared with prior work. Prior studies used similar scales for community problems, and found it to be associated with higher blood pressure, as reviewed earlier, and other adverse physiologic outcomes such as obesity²⁰ and cancer.¹¹ Likewise, neighborhood social cohesion has not only been associated with lower rates of hypertension in studies reviewed earlier, but also with other beneficial health consequences, such as lower stroke rates.²⁴

There are at least three plausible reasons for obtaining results that oppose prior findings. Community social cohesion was measured with only one question, which may have induced bias or error and is inadequate to detect non-linear associations with blood pressure levels. However, the results in this study were noted for both systolic and diastolic blood pressure levels and unanticipated results were also obtained for community problems, which had more reliable measurement.

Alternatively, these associations may be due to the use of individual-level variables to describe community characteristics. All but one of the studies reviewed earlier⁸ analyzed neighborhood-level variables, and associations may differ for individual-level variables.²⁵ This may be due to a community-level contextual effect that is distinct from individual-level effects.²⁶ Alternatively, prior studies may be capturing heterogeneity in community-level characteristics that has been induced by social inequity caused by residential racial segregation, and this may have confounded associations between community characteristics and blood pressure. While it would be ideal to address potential confounding at the neighborhood-level, the present study cannot address community-level effects and future studies will be impeded by the extremely small numbers of racially integrated communities in the USA.¹⁶

A third possible reason for these results is that they are attributable to unique features of this low-income, urban environment. In addition to being a racially integrated community, the EHDIC-SWB study setting is unique in two key ways. First, the majority of both whites and African Americans in EHDIC-SWB have hypertension, and rates of hypertension are twice those of the US population.²⁷ In

fact, prior EHDIC analyses found minimal racial disparities in hypertension, obesity and diabetes, and those findings are largely attributable to relatively high disease prevalence in whites.^{28–30} Secondly, income, which is a consistent predictor of hypertension elsewhere,^{27,31} was not associated with blood pressure levels or with risk of hypertension in this sample. This is likely because the community mean income is near the poverty threshold and there is little variability in income, so poverty exposure is homogeneous within the sample.³² Future EHDIC locations are planned in racially integrated, but higher income communities. Comparison of these results with those obtained from future locations may yield insight into whether these associations are attributable to racial integration or to low income community composition.

In this low-income environment, hypertension and its risk factors, such as smoking and being overweight, are common. As reviewed elsewhere,^{33,34} there are numerous shared environmental factors that contribute to hypertensive risk in such communities, including poor air quality, housing quality and street conditions. It is plausible that individuals who report social cohesion are more integrated into the community and have greater exposure to shared adverse environmental conditions, which may influence the association between social cohesion and blood pressure. In this study, individuals who reported social cohesion also tended to report fewer community problems, which may explain why greater perceived problems were associated with lower blood pressure levels. An alternative explanation for the results for neighborhood problems in whites is that the association is confounded by some other factor. For example, individuals with greater access to resources outside the community may have lower blood pressure, but may also perceive greater community problems, than their neighbors, because they compare their community with a more affluent one. This could also explain why the association is noted in whites, but not African Americans, since discrimination may preclude African Americans from accessing resources out of the community.

This study also found limited evidence to suggest that the effect of community characteristics on blood pressure differs by race and previously published analyses of these data found that social cohesion was associated with better mental health outcomes in whites, but not African Americans.²³ In this study, patterns of associations differed by race, although in non-stratified analyses, race only interacted with community problems. Notably, and contrary to our hypothesis, this study found no racial differences in perceived community problems or perceived community social cohesion, suggesting similar exposure to community characteristics by race. The racial differences found here may be due to a differential confounding effect of residing in a racially integrated community, since integration likely differs in its health effects.^{13,22} Alternatively, whites and African Americans may have different experiences, even if they reside within the same place, and one community characteristic may be more relevant for physical health of one group compared to the other. Combined with racial differences in behavioral risk factors noted in this sample, these results suggest that, even in communities with minimal hypertensive disparities, there are likely still differences in hypertensive risk factors across racial groups.

This study is limited by cross-sectional data, precluding causal inferences. Also, use of only one question to assess community social cohesion and reporting a community leader may induce bias or error. Since this study examined individual-level perceptions in a low-income and racially-integrated setting, inferences should not be drawn for community-level effects and results may differ in other settings.

However, the EHDIC-SWB study provides a unique opportunity to assess community characteristics in a low income and racially integrated setting, which has been a neglected factor in the neighborhood effects literature.

In conclusion, these results contribute to the literature by demonstrating associations between community characteristics and blood pressure in a racially integrated and low-income setting. Directions of associations between perceived community characteristics and blood pressure levels differ from prior studies, and this may be due to unique features of this setting. These results provide insight into factors that may contribute to hypertensive disparities.

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