Prevalence, Awareness, Treatment, and Control of Hypertension in the Jackson Heart Study

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Abstract—African Americans have higher reported hypertension prevalence and lower control rates than other ethnic groups in the United States. Hypertension prevalence, awareness, treatment, and control (outcomes) and potentially associated demographic, lifestyle, comorbidity, and health care access factors were examined in 5249 adult participants (3362 women and 1887 men) aged 21 to 94 years enrolled in the Jackson Heart Study. Hypertension prevalence (62.9%), awareness (87.3%), treatment (83.2%), and control (66.4%) were high. Control declined with advancing age; estimates for all of the outcomes were higher for women compared with men. Lower socioeconomic status was associated with prevalence and control. Smoking was negatively associated with awareness and treatment, particularly among men. Comorbidities (diabetes, chronic kidney disease, and cardiovascular disease), likely driven by the high rates of obesity, correlated with hypertension prevalence, awareness, treatment, and control. Lack of health insurance was marginally associated with poorer control, whereas use of preventive care was positively associated with prevalence, awareness, and treatment, particularly among men. In comparisons with the 1994–2004 National Health and Nutrition Examination Survey data adjusted to Jackson Heart Study sex, age, and socioeconomic status distribution, control rates among Jackson Heart Study participants appeared to be higher than in their national counterparts and similar to that of whites. These results suggest that public health efforts to increase awareness and treatment among African Americans have been relatively effective. The Jackson Heart Study data indicate that better control rates can be achieved in this high-risk population. **(*Hypertension*. 2008;51:650-656.)**

Key Words: hypertension ■ detection and control ■ population ■ epidemiology ■ blood pressure ■ ethnicity

Hypertension is likely the single most important modifiable risk factor for cardiovascular disease (CVD), yet blood pressure (BP) control (<140/90 mm Hg) is reported in just over one third of all hypertensive participants, with widening disparities among treated African Americans.[1–5] Few studies have examined the levels of awareness, treatment, and control of hypertension among an all-African American population. The Jackson Heart Study (JHS), a community-based CVD study in an African-American cohort, offers a rich data source for extensive examination of factors contributing to these levels. Prevalence of hypertension, awareness of BP elevation, treatment with antihypertensive medications, and rate of BP control were described for the JHS cohort as a whole. Differences among subgroups classified by prevalence, awareness, treatment, and control levels were examined in relation to important demographic and health status characteristics. Findings were compared with those from National Health and Nutrition Examination Survey (NHANES) 1999–2004 sex, age, and education/income (socioeconomic status) adjusted for JHS parameters (JHS-NHANES) and the baseline examination of the all–African-American participants from the Jackson site of the Atherosclerosis Risk in Communities (ARIC) Study.[6]

Methods

The JHS is a single-site cohort study of CVD in African Americans residing in the Jackson metropolitan statistical area. From September 2000 to March 2004, 5302 participants were recruited and examined, including ≈50% (1626) of the living ARIC cohort.[7,8] The original JHS recruitment limited the age range to 35 to 84 and permitted relatives <35 years and >84 years to participate to increase the power of the family component.[9] The final age range was 21 to 94 years. The study was approved by the institutional review boards of the participating institutions: the University of Mississippi Medical Center, Jackson State University, and Tougaloo College. All of the participants provided informed consent.

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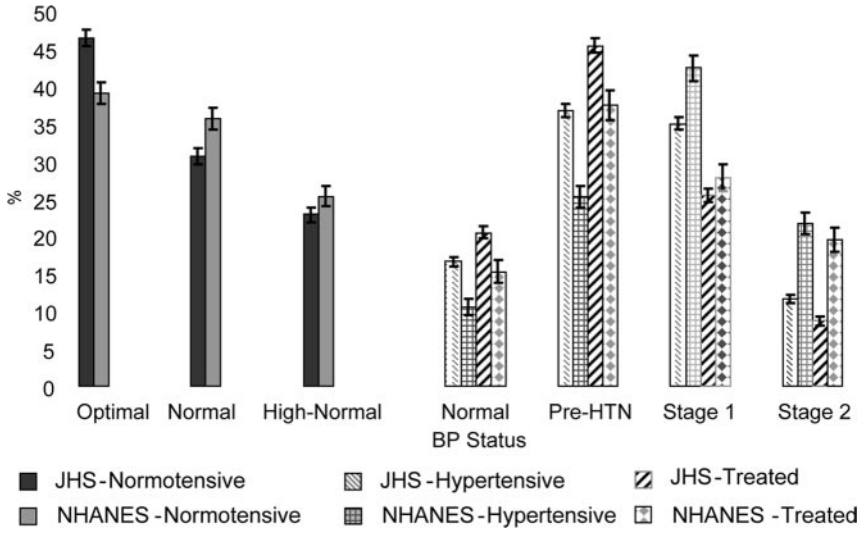

Figure 1. Blood pressure distribution in JHS and NHANES African Americans. Error bars represent binomial SE.

Study design details have been reported elsewhere.[7–13] Trained interviewers asked participants standard questions assessing a variety of factors, including sociodemographic, lifestyle/risk factor, history of health care provider–diagnosed cardiovascular conditions, and health care access. Based on the physical activity questions, 4 index scores (active living, work, sport, and home and family life) were obtained with values for each ranging from 1 to 5. The total physical activity score was calculated as the sum of the 4 individual index scores. Medications taken in the past 2 weeks were brought to the clinic and transcribed verbatim with subsequent medication coding by a pharmacist using the Medispan dictionary and classified into categories according to the Therapeutic Classification System.[14] Participants were asked to indicate if any of the medications taken in the past 2 weeks were for certain specific conditions.

Anthropometric and seated BP measurements and urine and blood samples were obtained early in clinic examination after an overnight fast. BP was measured by trained staff after a 5-minute rest in the right arm of seated participants whose back and arm were supported using an appropriately sized cuff and a Hawksley random-0 sphygmomanometer (Hawksley and Sons Ltd). The average of 2 measures taken 1 minute apart was recorded. Quality control was assured by technician recertification, procedural checklists, and data review.[15,16]

Presence of CVD was defined by ECG-determined myocardial infarction or self-reported history of heart attack, stroke, angioplasty, or revascularization procedures. The presence of type 2 diabetes mellitus (diabetes) was determined by a measured fasting glucose of ≥126 mg/dL or the use of hypoglycemic medications (self-reported or actual). The presence of chronic kidney disease (CKD) was defined as reduced glomerular filtration rate of <60 mL/min per 1.73 m^2 using the Modification of Diet in Renal Disease formula [GFR=186.0×(serum creatinine)$^{-1.154}$×age$^{-0.203}$×(0.742 if female)×(1.21 if black)] or the presence of albuminuria.

"Normotension" was defined as BP of <140/90 mm Hg and not taking antihypertensive medication. "Hypertension" was defined as systolic BP (SBP) ≥140 mm Hg, diastolic BP ≥90 mm Hg, or being on antihypertensive medications (actual or self-reported) regardless of BP measurements. These BP categories were further classified in keeping with Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure (JNC) guidelines as "normal" (<120/80 mm Hg), "prehypertension" (120/80 to 139/89 mm Hg), stage 1 (140 to 59/90 to 99 mm Hg), and stage 2 (≥160/100 mm Hg) hypertension.[17]

Hypertensive participants were further classified into subgroups based on awareness, treatment, and control. "Hypertension awareness" was defined by a "yes" response to the items: "Has your health care provider ever told you that you have hypertension?" or "Were any of the medications you took in the past 2 weeks for high blood pressure?" "Hypertension treatment" was defined as currently taking 1 of 7 classes of antihypertensive medications. Hypertension was considered a new diagnosis for unaware and untreated participants with SBP ≥140 mm Hg or diastolic BP ≥90 mm Hg. Overall "hypertension control" was defined as BP <140/90 mm Hg. For comparison purposes, hypertension prevalence, awareness, and treatment definitions were modified to approximate those of NHANES[5] and ARIC,[6] respectively.

Statistical Analysis

Excluding participants without BP measurement or medication information (n=41) or restricted consent (n=12), a total of 5249 participants (3330 women and 1919 men; 1586 ARIC participants) were included in these analyses. Associations were assessed using only those participants within the 35- to 84-year age range (1811 men and 3175 women) to reflect the target cohort.

Participant characteristics were summarized using means and SDs or counts and percentages as appropriate. The proportions of participants with hypertension, aware of their condition, receiving treatment, or with controlled BP were determined for selected sociodemographic, lifestyle/risk factor, comorbidity, and health care access factors. Associations between each status (hypertension, awareness, treatment, and control) and each participant baseline parameter were assessed using logistic regression models including age and sex as independent variables in addition to the parameter of interest. Odds ratios (OR) and 95% CIs were estimated from stepwise multivariable regression analyses using the 5% significance level for parameter selection. Analyses were conducted using SAS Version 9.1 (SAS Institute, Inc). For comparison purposes, NHANES data released since 1999 were aggregated into a combined data set (1999–2004), and estimates were adjusted to the JHS sex, age, education, and income distribution (JHS-NHANES) using SUDAAN (RTI International) to account for the complex sampling design.

Results

Mean SBP and diastolic BP levels were higher among men than women and increased with age for both sexes (please see the online data supplement available at http://hyper.ahajournals.org). Women reported lower household incomes and fewer were married; had less physical activity, smoking, and heavy drinking; sought preventive care more often; and had higher rates of obesity, diabetes, and CKD compared with men, whereas men had higher prevalence of CVD.

Figure 1 depicts the distribution of BP according to the JNC6[18] classification system for normotensive participants and the JNC7[17] for hypertensive participants for both JHS and JHS-NHANES. One third of JHS hypertensive participants

Table 1. Hypertension Prevalence, Awareness, Treatment, and Control by Demographic and Baseline Characteristics, Overall JHS Cohort

Category*	% JHS	N	Prevalence, n (%)	Awareness, n (%)	Treatment, n (%)	Control, n (%)
Overall		5249	3302 (62.9)	2843 (87.3)	2645 (83.2)	1753 (66.4)
Age, y			<0.0001	<0.0001	<0.0001	0.0057
21 to 34	4.7	248	35 (14.1)	20 (64.5)	19 (57.4)	15 (78.9)
35 to 49	30.8	1609	676 (42.0)	521 (79.2)	460 (69.7)	311 (67.9)
50 to 64	39.9	2098	1499 (71.4)	1314 (88.8)	1235 (86.1)	844 (68.5)
≥65	24.6	1294	1092 (84.4)	988 (90.9)	931 (90.2)	583 (62.7)
Sex			<0.0001	<0.0001	<0.0001	0.0457
Female	63.4	3330	2148 (64.5)	1916 (89.8)	1820 (86.1)	1259 (69.3)
Male	36.6	1919	1154 (60.1)	927 (82.6)	825 (73.8)	494 (60.0)
Education			0.0019	0.8974	0.0532	0.2310
Less than HS	18.4	964	761 (78.9)	680 (89.9)	615 (86.1)	395 (64.3)
HS/GED	20.2	1054	704 (66.8)	609 (87.8)	564 (82)	367 (65.3)
More than HS and less than college	28.9	1510	856 (56.7)	712 (85.1)	661 (82)	433 (65.7)
College or more	32.5	1701	970 (57.0)	833 (86.9)	795 (82)	553 (69.6)
Income level			<0.0001	0.6514	0.3521	0.0097
Poor	15.7	695	468 (67.3)	417 (89.7)	376 (86.1)	234 (62.7)
Lower-middle	25.2	1117	761 (68.1)	673 (89.5)	617 (86.1)	395 (64.0)
Upper-middle	29.6	1314	805 (61.3)	674 (85.4)	639 (82)	446 (70.0)
Affluent	29.5	1309	744 (56.8)	631 (86.1)	599 (82)	424 (70.8)
Marital status			0.0195	0.6633	0.2074	0.0823
Single	45.4	2373	1522 (64.1)	1334 (88.6)	1235 (82)	813 (66.0)
Married	54.6	2859	1770 (61.9)	1501 (86.2)	1401 (82)	935 (66.8)
Current smoking			0.6290	0.0018	<0.0001	0.3114
No	86.8	4527	2872 (63.4)	2510 (88.3)	2362 (86.1)	1575 (66.8)
Yes	13.2	684	413 (60.4)	319 (80.4)	269 (69.7)	170 (63.7)
Heavy drinker			0.7052	0.7685	0.2228	0.8265
No	97.1	5007	3161 (63.1)	2730 (87.5)	2551 (82)	1693 (66.4)
Yes	2.9	151	78 (51.7)	61 (83.6)	47 (65.6)	29 (63.0)
BMI, kg/m^2			<0.0001	<0.0001	<0.0001	0.3733
<25	14.5	761	372 (48.9)	286 (78.6)	255 (69.7)	154 (60.6)
25 to 29	32.2	1687	1005 (59.6)	852 (86.1)	800 (82)	520 (65.0)
≥30	53.3	2794	1919 (68.7)	1699 (89.7)	1585 (86.1)	1077 (68.1)
High cholesterol			<0.0001	<0.0001	<0.0001	0.0705
Absent	67.0	3233	1837 (56.8)	1532 (84.6)	1418 (77.9)	928 (65.7)
Present	33.0	1580	1150 (72.8)	1032 (90.8)	972 (86.1)	665 (68.4)
Type 2 diabetes			<0.0001	<0.0001	<0.0001	0.0686
Absent	81.2	4184	2395 (57.2)	1995 (84.5)	1842 (77.9)	1200 (65.3)
Present	18.8	965	838 (86.8)	790 (95.0)	761 (94.3)	523 (68.9)
CKD			<0.0001	0.0002	<0.0002	<0.0001
Absent	80.0	2730	1556 (57.0)	1305 (85.4)	1219 (82)	864 (71.0)
Present	20.0	678	593 (87.5)	549 (93.2)	525 (90.2)	295 (56.4)
CVD			<0.0001	<0.0001	<0.0001	0.7293
Absent	89.6	4647	2778 (59.8)	2351 (86.0)	2191 (82)	1462 (66.9)
Present	10.4	542	486 (89.7)	456 (94.0)	422 (94.3)	268 (63.5)
Insurance			0.8836	0.7954	0.0258	0.0585
Uninsured	13.4	693	383 (55.3)	314 (84.6)	275 (73.8)	174 (63.5)
Insured	86.6	4531	2908 (64.2)	2521 (87.7)	2362 (86.1)	1576 (66.8)

(*Continued*)

Table 1. Continued

Category*	% JHS	N	Prevalence, n (%)	Awareness, n (%)	Treatment, n (%)	Control, n (%)
Preventive care			<0.0001	<0.0001	<0.0001	0.1953
No	27.6	1439	690 (47.9)	496 (74.9)	415 (61.5)	264 (63.9)
Yes	72.4	3784	2598 (68.7)	2339 (90.6)	2220 (90.2)	1484 (66.9)
Physical activity			0.0013	0.3685	0.6010	0.6379
Total score <8.4	50.9	2518	1780 (70.7)	1570 (89.2)	1465 (86.1)	957 (65.5)
Total score ≥8.4	49.1	2439	1328 (54.4)	1108 (84.8)	1026 (82)	689 (67.2)

HS indicates high school; GED, General Educational Development; and BMI, body mass index.
*Age was unadjusted; gender was age-adjusted; all of the other categories were adjusted for age and gender.

were classified as JNC7 stage 1, and the majority of those treated with medications achieved an acceptable but not optimal control level. Previously unknown hypertension was identified in 6% of the cohort, 80% of whom fell within the JNC7 stage 1 designation (data not shown).

Of the 5249 participants, 62.9% were classified as having hypertension (Table 1). As expected, women and persons aged ≥65 years were more likely to have hypertension. Participants with lower income and education, less physical activity, obesity, hypercholesterolemia, diabetes, or CKD were more likely to be hypertensive. There was an indication that younger males (21 to 35 years of age) had a higher prevalence than females (data not shown). In stepwise multivariable regression analysis, the presence of obesity, diabetes, CVD, or CKD, as well as increasing age, was independently associated with hypertension for both men and women (Table 2). The odds of having insurance for women and of obtaining preventive care for both sexes were higher among those with hypertension. These associations likely reflect the higher opportunity for hypertension detection among insured and those obtaining preventive care, as well as the increased likelihood that people with the condition would seek insurance coverage and preventive care.

Of the 3255 hypertensive JHS participants, a high proportion (87.3%) was aware of their hypertension diagnosis (Table 1). Awareness significantly increased with age, female sex, presence of any major comorbidity, and obtaining preventive care. Sex-specific multivariable analysis results are shown in Table 2. Independent correlates of awareness included obesity, diabetes, increasing age, and use of preventive care for both sexes and the presence of hypercholesterolemia for women.

Of the 3180 participants with hypertension and actual medication status, 2645 (83.2%) were treated (Table 1). Treatment was generally high across all of the age, sex, education, and income groups, but women and older individuals, as well as those insured, obtaining preventive care, or with any major comorbidity were significantly more likely to receive hypertension treatment, as expected. Obesity, diabetes, increasing age, and obtaining preventive care were independently associated with hypertension treatment for both sexes in multivariable regression analysis, whereas CVD and hypercholesterolemia were associated with treatment in men (Table 3).

Smoking was associated with decreased awareness and treatment in men. Because smoking rates were higher among men, this finding is consistent with reports that smokers are less likely to use health services[19] and, therefore, may be less likely to be aware of and treated for their condition.

Among the 2640 JHS participants whose hypertension was treated with medications, 66.4% (n=1753) were controlled (Table 1). BP control was achieved in just over half (53%) of all the JHS hypertensive participants, regardless of treatment status. Women and more affluent individuals were more

Table 2. Multivariable Predictors of Hypertension Prevalence and Awareness by Sex, JHS Baseline Exam

	Prevalence, OR (95% CI)		Awareness, OR (95% CI)	
Category	Women	Men	Women	Men
Weight (Ref=normal)	*	†	†	*
Overweight	1.58 (1.04 to 2.40)	1.30 (0.84 to 1.99)	1.96 (0.97 to 3.96)	1.77 (0.87 to 3.58)
Obese	2.51 (1.69 to 3.73)	1.98 (1.27 to 3.08)	2.33 (1.22 to 4.47)	3.82 (1.79 to 8.11)
Type 2 diabetes (Ref=absent)	3.29 (2.11 to 5.12)*	3.11 (1.55 to 6.22)‡	2.31 (1.16 to 4.61)†	2.82 (1.10 to 7.20)†
CVD (Ref=absent)	2.84 (1.53 to 5.25)*	3.57 (1.68 to 7.57)*		
Hypercholesterolemia (Ref=absent)			1.69 (1.03 to 2.78)†	
CKD (Ref=absent)	3.29 (2.15 to 5.05)*	3.93 (2.12 to 7.27)*		
Insured (Ref=no)	1.62 (1.10 to 2.37)†			
Preventive care (Ref=no)	1.63 (1.22 to 2.18)*	1.90 (1.38 to 2.62)*	1.77 (1.06 to 2.94)	4.32 (2.55 to 7.34)*
Current smoker (Ref=no)				0.29 (0.15 to 0.54)*
Age	1.07 (1.05 to 1.08)*	1.05 (1.04 to 1.07)*	1.03 (1.00 to 1.05)†	1.05 (1.02 to 1.07)*

Ref indicates reference.
*$P<0.001$, †$P<0.05$, ‡$P<0.01$.

Table 3. Multivariable Predictors of Hypertension Treatment and Control by Sex, JHS Baseline Exam

	Treatment, OR (95% CI)		Control, OR (95% CI)	
Category	Women	Men	Women	Men
Weight (Ref=normal)	*	†		
Overweight	3.22 (1.65 to 6.27)	1.59 (0.78 to 3.24)		
Obese	3.53 (1.93 to 6.46)	2.76 (1.32 to 5.79)		
Type 2 diabetes (Ref=absent)	3.13 (1.53 to 6.41)†	4.42 (1.68 to 11.6)†	1.65 (1.14 to 2.37)†	
CVD (Ref=absent)		2.60 (1.04 to 6.50)‡		
Hypercholesterolemia (Ref=absent)		1.80 (1.04 to 3.13)‡		
CKD (Ref=absent)			0.49 (0.35 to 0.69)*	0.57 (0.36 to 0.92)‡
Preventive care (Ref=no)	3.19 (2.03 to 5.01)*	5.36 (3.21 to 8.95)*		
Current smoker (Ref=no)		0.21 (0.11 to 0.39)*		
Age	1.04 (1.02 to 1.06)†	1.05 (1.02 to 1.07)*	0.97 (0.96 to 0.99)*	1.02 (1.00 to 1.04)‡

Ref indicates reference.
*$P<0.001$, †$P<0.01$, ‡$P<0.05$.

likely to reach BP control levels compared with men and less affluent participants, respectively, whereas diabetic participants, hypercholesterolemic participants, and insured participants had marginally better BP control than their counterparts. Control rates at <140/90 mm Hg were significantly higher among women with diabetes and lower among those with prevalent CKD for both men and women as confirmed in sex-specific multivariable adjusted analysis (Table 3). The rates decreased with age among women, whereas patterns were inconsistent among men. Among diabetic participants and those with CKD, the more stringent JNC7-suggested BP control of <130/80 mm Hg was observed in 38.5% and 31.4%, respectively (please see the data supplement).

Awareness and treatment were higher among younger participants, whereas control, as expected, was lower in those >65 years of age, perhaps reflecting the increasing difficulty of controlling BP in the elderly (eg, increased SBP and lower diastolic BP often requiring higher treatment intensity with associated issues of tolerability and cost). The overall BP distribution among the JHS cohort compared favorably with that of JHS-NHANES African Americans (Figure 1). Hypertension prevalence and awareness estimates were similar, whereas treatment and control rates among those treated appeared to be higher in the JHS (Figure 2). All of the estimates were higher among JHS participants aged 45 to 64 years compared with those of ARIC baseline (Figure 3).

Discussion

JHS hypertension prevalence and awareness were high and similar to those reported by other national studies,[2,3,5] as well as the JHS age-, sex-, and socioeconomic status–adjusted NHANES 1999–2004 estimates for African Americans. Treatment and control rates have improved nationally since NHANES III, with higher treatment but lower control reported among non-Hispanic blacks compared with whites.[1,5] These same trends were corroborated by findings of the REasons for Geographic And Racial Differences in Stroke study (REGARDS) and the Multi-ethnic Epidemiological Study of Atherosclerosis, and treatment rates in the JHS exceeded those of JHS-NHANES African Americans (83.1% versus 74.8%). The control rates in the JHS appeared higher for African Americans and comparable to those of whites in the above-mentioned studies. For example, control rates for JHS using definitions comparable to NHANES were 66%, nearly identical to that for JHS-NHANES whites (Figure 2). Although these comparisons were crude and not adjusted for risk factors or study design differences,[5] our findings emphasize those of the REGARDS, where better treatment and control were suggested in the "stroke belt" compared with other parts of the country. This indicates that higher rates of control can be achieved in this already aware ethnic group.

These results suggest that public health efforts to increase awareness and treatment among African Americans have been relatively effective, particularly in the South, where, in Jackson, participation in observational studies such as the ARIC study may have influenced higher control rates. Many

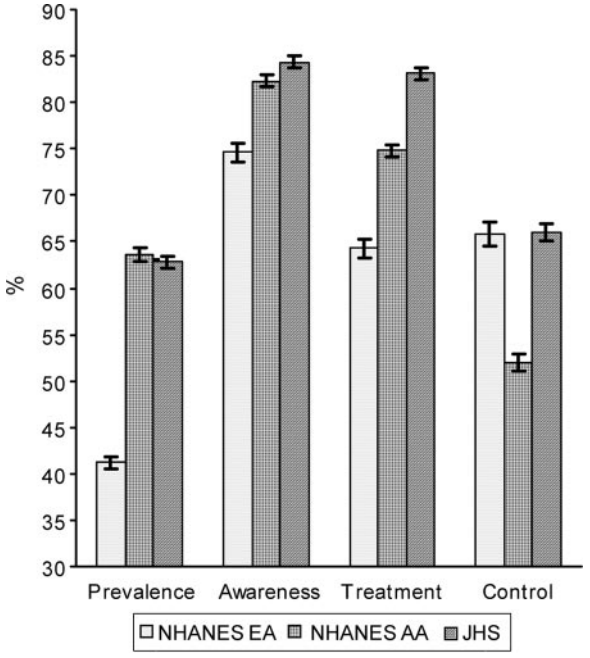

Figure 2. Hypertension status in JHS and NHANES. Error bars represent binomial SE.

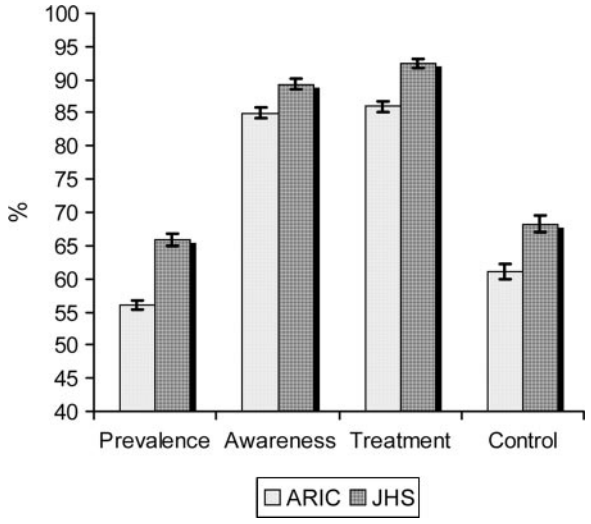

Figure 3. Hypertension status in JHS and ARIC (age 45 to 64 years): ARIC, 1988, and JHS, 2002. Error bars represent binomial SE.

JHS participants (n=1626) benefited from long-term participation in the ARIC study, where they received information regarding their examination results and referrals to local health care providers if abnormalities were found. Also, the study community has been exposed to increased public education, with community outreach being an explicit goal of the JHS.

When comparing JHS participants of the same age as ARIC participants examined in 1987–1989, increased prevalence, awareness, treatment, and control mirrored national trends. However, the crude ≈7% increase in treatment and control over the past 13 years in Jackson-area African Americans was less than might be hoped for in this population who reside in an area with multiple health care facilities, including proximity to a major medical center with a long history of conducting clinical trials in hypertension.[20] The significant national increase in obesity since the ARIC baseline examination may have countermanded the positive health policy efforts.[21]

Importantly, BPs, even among those controlled, exceeded the level defined as optimal (<120/80 mm Hg) by the JNC7. The nontrivial increased risk of CVD for African Americans in the JNC7 prehypertension range was recently highlighted in an analysis of ARIC data.[22] A 3.29 relative risk of incident CVD was found for prehypertensive African Americans, most of whom were from Jackson, exceeding previous reports of a doubling of risk.[23] Relative risk was also increased by 4.1 for diabetic participants, 3.56 for obesity, and 1.90 and 1.85, respectively, for CKD and elevated low density lipoproteins. Given the high rates of these comorbidities in African Americans and in the JHS, proactive efforts at prevention are indicated, as are clinical studies to document the impact of maintaining BP in the optimal (<120/80 mm Hg) range on reducing overall CVD disparities in this high-risk ethnic group.

Ways of further enhancing effective control are needed to close the health disparity gap for African Americans. Our findings emphasize those of other recent reports,[24–27] substantiating the need for ethnic-specific public health strategies.[17,28] Age-specific JHS data demonstrated lower levels of control among men and those aged ≥60 years and poorer control among hypertensive participants with diabetes or CKD. Targeting the elderly, men, and low socioeconomic groups with aggressive BP control programs is an obvious high priority that could contribute to reducing CVD even among the oldest old.[29–31] Given the increasing prevalence of multiple metabolic CVD risk factors,[32] efforts to target all of the parameters as part of a comprehensive awareness and treatment effort could improve control of BP.

Failure to achieve BP control in African Americans has been attributed to issues of health care access, specifically, lack of insurance,[27,33,34] although recent national evidence shows no racial differences in insurance status and control rates.[1] In the JHS, a cohort with relatively high access to health care, not having insurance showed a marginally significant trend ($P=0.058$) toward poorer BP control. Another indicator of access, receiving preventive care, was important in improving detection, awareness, and treatment of hypertension but not control. Together with better control for the affluent JHS participants, these results point to the need for more comprehensive health care programs that assist patients to obtain health care and high-cost medications.

These findings should be interpreted in light of several limitations and strengths. The JHS was designed to study the risk factors for and progression of heart disease in a large sample of southern African Americans and was not designed to be nationally representative; results may not be generalizable to all African Americans. However, many of our findings were similar to those of studies based on large representative national samples. Our sample appears more educated than participants in other multiethnic studies of heart disease and, thus, may be more comparable to similar white populations. For example, in addition to having similar control rates, JHS African-American hypertensive participants exceeded national awareness and treatment rates for their white NHANES counterparts in age-, sex-, and socioeconomic status–adjusted analyses by 13.2% and 16.6%, respectively (Figure 2), despite a prevalence rate that was 22.6% higher. Like NHANES and other observational studies, BP measurements were taken at 1 point in time differing from standard diagnostic guidelines and, thus, may overestimate prevalence in those identified as having previously unknown hypertension. Furthermore, our definition of treatment differed from that of most studies using medication self-report. By coding actual medications using a well-accepted classification system with adjudication, as needed, by a trained pharmacist, our measure is more robust.

Perspectives

A fall in SBP of 10 to 20 mm Hg, sustained for 5 years, can reduce the risk of myocardial infarction by ≈25% and the risk of stroke by ≈40%.[35] Despite high prevalence, the JHS and other similar studies[2] confirm that educational efforts have succeeded in increasing the levels of awareness and treatment among southern African Americans. By focusing future public health efforts on improving BP control using ethnic-specific approaches,[28,36] there is a high potential for reducing

cardiovascular health disparities. The JHS provides observational data to suggest achieving optimal control is possible.

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Disclosures

None.

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