

Evaluating the Impact of a Hypertension Program for African Americans

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Although hypertension affects all racial and ethnic groups, its prevalence is highest in the African-American community. The goal of Healthy People 2010 is to reduce hypertension among African Americans from 40% to 16%.¹ Although current levels remain high, culturally sensitive, community-based clinical projects might be helpful in addressing this problem. The goal of this study was to assess whether a community-based clinic's program was effective in improving blood pressure control among a sample of 134 African-American adults. The program design involved health education and physical fitness classes offered over a nine-month period, with blood pressure checks being conducted pre- and postphases to determine whether the program was effective in controlling high blood pressure. Health questionnaires were also administered pre- and posttest to assess whether health behaviors and perceived health status were influenced by the project. Two-thirds (70%) of the sample had high blood pressure at baseline and 43% at program conclusion. This was a statistically significant difference ($p=0.003$). Overall self-reported health survey results indicated improved health behaviors and health status changes. Findings suggest that culturally sensitive, community-based clinic programs that incorporate both health education and physical fitness might be effective in reducing hypertension among African Americans.

Key words: African Americans ■ hypertension ■ intervention

African Americans are more prone to suffer from hypertension than any other ethnic group in the United States. Although highly preventable, hypertension continues to devastate the African-American community. A goal of Healthy People 2010 is to reduce the proportion of African-American adults with hypertension from 40% to 16%.¹ In comparison, hypertension levels among Caucasians is 21% and was 29% among Hispanic adults.¹ If the goal is to reduce hypertension among African Americans by 2010, increased attention and preventative programs are needed to reduce the prevalence among this population.

The 7th Report of the Joint National Committee on Prevention, Detection, Evaluation and Treatment of High Blood Pressure² classifies normal blood pressure, measured in millimeters of mercury (mmHg), as <120 mmHG for systolic and <80 for diastolic blood pressure levels (<120/80). Prehypertension is classified as blood pressure levels ranging from 120–139/80–89. Of more concern is stage-1 hypertension, defined as 140–159/90–99, and stage-2 hypertension, which is $\geq 160/\geq 100$.² African Americans are disproportionately affected by the last two stages.³

Another goal of Healthy People 2010 is to get high blood pressure under control among African Americans, increasing from 19% to 50%.¹ Recent statistics show that only 25% of African Americans have their blood pressure under control, compared to 34% of whites.³ While progress is being made, effective interventions are needed to further improve these rates.

A number of factors contribute to the high prevalence of hypertension in the African-American population. They include poor nutrition, physical inactivity and obesity. African Americans primarily base their food choices on tradition, affordability and convenience, rather than on nutritional facts.^{4,6} Generally, African Americans' dietary habits consist of foods high in fats, calories and sodium compared to other groups, and their diets consists of fewer servings of fruits and vegetables.⁶ Approximately 76% of African Americans do not consume the recommended servings of fruit per day, and less than half (42%) eat the

© 2006. From University of Kansas School of Medicine-Wichita (Paschal, assistant professor of preventive medicine and public health), Wichita State University (Lewis, associate professor of psychology), Center for Health & Wellness Inc. (Martin, cofounder and former CEO; Shipp, project coordinator) and Unified School District 259 (Simpson, educator), Wichita, KS. Send correspondence and reprint requests for *J Natl Med Assoc*. 2006;98:607–615 to: Dr. Angelia M. Paschal, Department of Preventive Medicine and Public Health, University of Kansas School of Medicine-Wichita, 1010 N. Kansas, Wichita, KS 67214-3199; phone: (316) 293-2627; fax: (316) 293-2695; e-mail: apaschal@kumc.edu

recommended daily servings of vegetables;⁷ these figures compare to approximately 59% of the rest of the population that consume ≥ 3 servings of fruits and vegetables each day.⁸ It has been suggested that the benefits of dietary interventions may be more pronounced in an African-American population.⁵

Additionally, physical inactivity also produces an increased risk for hypertension,^{9,10} and African Americans have been shown to have poor fitness habits in comparison with whites.^{9,11} Between 51–75% of African Americans are physically inactive^{6,10} compared to 37% of whites.¹¹ Yet, the costs of diet, exercise and nutrition programs are often prohibitive for many African Americans,¹² who are disproportionately poor;¹³ thus, access to affordable prevention measures is oftentimes a barrier.

The current study is a community-based clinic program that used a culturally sensitive approach in efforts to better control high blood pressure among African Americans. Many existing hypertension and high blood pressure reduction programs do not consider culture and might be less functional for many African Americans. Culturally appropriate interventions could be helpful in promoting healthier lifestyles among African Americans and other minorities and could be viable solutions to reducing health disparities.¹⁴ Hypertension and blood pressure reduction programs have used limited approaches in addressing cultural relevancy. Among them, peer leadership in the form of patients on advisory boards or of peers trained to be educators were present.^{15,16} Levine et al.¹⁵ used a strategy in which they educated indigenous community members to function as health workers. In another example, Gerber & Stewart¹⁶ involved members of the community in developing their project and located their study within the target community.

Funded by the Sunflower Foundation: Healthcare for Kansans (Topeka, KS), the current project was implemented by the Center for Health & Wellness Inc., a primary healthcare facility in Wichita, KS. The clinic provided formal education about hypertension to participants in the Activities-for-Life program and, in efforts to reduce associated risk factors, participants were required to participate in physical fitness classes and other prevention and wellness classes for nine months.

METHODS

The objective of this study was to control blood pressure levels among African Americans participating in a culturally sensitive nutrition education and physical fitness project. Blood pressure change was the primary outcome measure. Secondary outcomes included changes in fruit and vegetable intake, physical fitness activities and overall self-reported health status.

Participants and Setting

The participants were recruited from an urban low-income area referred to as the northeast area of Wichita. Wichita has the largest population in the state, with a population of nearly 449,166.¹³ Inner northeast Wichita is about 6.2 square miles in size and has a population of approximately 55,000. The majority of the population of this area is African-American, who make up approximately 94% of the neighborhoods.¹⁷ The other 6% includes Caucasians, Hispanics and Asian Americans. The clinic recruited 134 African Americans from this area.

Participants were between 20–74 years of age and 41–50 years of age was the modal category, with 31% of the participants being in this category. Thirty percent (n=40) of the participants were men. Most of the participants were employed or self-employed (55%); however, 15% were unemployed, not including retired individuals or students. Approximately 55% had household incomes of \leq \$30,000. The highest level of education for the majority of participants was high school (65%). Eighty-three percent (83%) had some type of medical or health insurance, which also included governmental forms of insurance (e.g., Medicaid and Medicare) and private insurance. Finally, 43% of the sample was married or lived with a partner.

Procedures

A variety of methods were used to recruit participants, including media releases to the city's news stations, urban radio announcements, radio talk shows, outreach referrals to churches predominantly attended by African Americans, individual referrals and distribution of a program brochure. The program was advertised and promoted as a health education program that would focus on nutrition and other health issues. It was not promoted as a high blood pressure or hypertensive program. In addition, the program advertised that each participant would receive \$150 over the course of the nine-month program.

Upon recruitment, potential participants were told that the nine-month long program would emphasize lifestyle changes that would improve their long-term health. Once participants signed up for the project, they participated in an orientation. They were required to complete consent forms and a behavioral contract stipulating their intent to attend health education classes and to attend ≥ 2 physical fitness classes provided by the center every week. Attendance was tracked by the program coordinator, a clinic employee. Immediately after program orientation, the participants were administered a health survey. Initial blood pressure checks were also carried out the following week at the center.

Participants were expected to attend all of the health education classes, which included informa-

tion on hypertension, nutrition and general health information. Anger management and parenting classes were also offered, as these factors have been associated with stress. Certain levels of stress have been linked to elevated blood pressure.^{18,19} The health classes were offered several times during the first three months, and participants were expected to attend one of each during that time. Several make-up classes were offered to accommodate the participants' schedules, and the majority of the classes were provided during the late evenings.

Physical fitness classes continued each week until the end of the project, with participants expecting to attend ≥ 2 exercise classes each week. One exercise class was for women and the other was for men only. These classes were offered during the evening hours three times during the week and then on Saturdays. Classes consisted of aerobics, walking and general calisthenics. Tracking of the participants continued throughout the program, with the project coordinator attempting to contact participants who discontinued coming to their weekly physical fitness classes. Participants were also encouraged to exercise outside of the classes. Refer to Table 1 for the program's activities and timeline.

Culturally Sensitive Components

In order to reduce disparities in health, culturally sensitive programs in the African-American community are needed.¹⁴ Thus, culturally sensitive components were an important aspect of this program and were included whenever possible. First, the program was based at the Center for Health & Wellness, a primary healthcare facility, which was in the heart of the northeast community and was easily accessible to the participants. Access is an important issue, and access to healthcare has been found to affect the rate of blood pressure control, with individuals having limited access having higher rates.²⁰ Improving access to effective healthcare is an important strategy to use in designing culturally sensitive health interventions.²¹

Next, the health education and physical fitness classes were provided by African-Americans health professionals from the clinic and volunteer African-American nurses. Previous studies have found race concordant services to be associated with higher

patient satisfaction.²² Moreover, course materials were taught in a demonstrative, interactive format, which has been found to be effective with African Americans.^{23,24} African-American literature and reading materials were used when possible, and African-American cultural artwork, and other props (including paintings and pictures) were displayed around the clinic. Finally, the participants' ideas and suggestions for the program and its improvement were implemented when possible. For example, participants requested gender-specific physical fitness classes, which were granted. In another example, their request to have nutrition and physical fitness classes offered on Saturdays was also accommodated at the clinic. The community's involvement is an important cultural competency technique according to Brach and Fraser.¹⁴

Data Collection

Data were obtained from initial, six-month and nine-month follow-up blood pressure checks that participants were required to complete during the program. Using a Colin Press Mate (model BP-8800; Colin Medical Instruments Corp., Antonio, TX) automated cuff-inflation instrument, blood pressure levels were measured twice for each participant while in the sitting position and after ≥ 5 minutes of rest, with the mean being recorded for the two values. The clinic calibrates the Colin Press Mate instrument twice a year to maintain a ± 1 mmHG of the calibration standard. In determining blood pressure values, participants' diabetic, renal insufficiency and other health statuses were not taken into account for this study. Thus, high blood pressure was simply defined as a systolic blood pressure of ≥ 140 mmHg or a diastolic blood pressure of ≥ 90 mmHg. Blood pressures of $\leq 140/90$ mmHg were considered controlled.

In addition, a health survey was administered pre- and posttest. The survey consisted of 63 questions and comprised constructs from the following three sources: questions from a piloted health survey used in a community-based prevention intervention program that provided formal education about health and nutrition; questions from a piloted health survey used to assess African-American church attendees' attitudes and beliefs about health and destiny; and questions from a standard SF-8 Health Sur-

Table 1. Procedures and timeline

Preprogram Activities	Months 1-3	Months 4-9	End of Program
Orientation	Health education classes	Physical fitness classes	Posthealth surveys
Consent forms	Physical fitness classes	A single health education booster session at six months	Postblood pressure screenings
Behavioral contracts			
Health surveys			
Blood pressure screenings			

vey form that is valid and frequently used in clinical health settings (1999–2001 version, QualityMetric Inc.). Items on the current survey included basic demographic questions, items targeting the respon-

dent’s health status, specific health behavior questions, and health attitude and belief inquiries.

Data Analysis

Statistical analyses were performed using SPSS version 11.5. Simple frequencies and means were used to summarize the data collected from the health surveys, including the demographic characteristics of the sample and the health behavior and attitude questions. The data were also analyzed by gender. Selected items from the developed survey were analyzed for the purposes of this study. Blood pressure checks were analyzed for the 55% (N=74) that remained at the end of the nine-month period, with gender differences being compared. Comparisons were also made between the remaining participants and those that dropped from the study. Data collected from baseline health screenings and six- and nine-month follow-up blood pressure checks were expressed as mean ± standard deviations and as percentages. A paired t test was performed to determine if the means from pre- and posttest for blood pressure levels were significant. An alpha level of 0.05 was predetermined to reveal significance.

RESULTS

At the six-month point in the program, 94 participants (70%) of the 134 participants remained in the program. However, the nine-month long program retained 74 participants (55%) at its conclusion; 35% (n=26) of the remaining participants were male. At the end of the program, 61–70 years of age was the modal category, followed by the 41–50-year-old age group. Refer to Table 2 for baseline characteristics of the participants.

Blood Pressure Screening Results

According to the initial screening results, high blood pressure was prevalent among this sample, with more than two-thirds (70%) being diagnosed with this condition. The postblood pressure check results showed a marked improvement at the end of the nine-month program, with 43% presenting with high blood pressure at the program’s conclusion. This was a 39% decrease and a statistically significant difference (p=0.003) between baseline and nine-month results. The decrease was higher for women when evaluating the results by gender (Table 3). Sixty-eight percent (68%) of the women were diagnosed with high blood pressure at the beginning of the program, while 37% had high blood pressure at follow-up. This was a 44% decrease for female participants and a statistically significant difference (p=0.017) between baseline and end-of-program results. Male participants experienced a 30% decrease, which was also statistically significant (p=0.029). However, these improvements were significant only for systolic blood pressure levels, not dias-

Table 2. Baseline characteristics of participants

N=134	
Demographics	
Sex	
Female	70% (n=94)
Male	30% (n=40)
Age	
20–30	7%
31–40	15%
41–50	20%
51–60	31%
61–70	23%
≥71	4%
Marital Status	
Married or living with partner	43%
Not currently married	57%
Annual Household Income	
<\$10,000	15%
\$10,000–20,000	18%
\$21,000–30,000	22%
\$31,000–40,000	11%
\$41,000–50,000	14%
≥\$51,000	12%
Did not specify	8%
Employment Status	
Employed or self-employed	55%
Unemployed	15%
Retired	28%
Student	2%
Insurance Status	
Yes	83%
No	17%
Formal Education	
<12th grade	5%
High-school diploma	65%
Some college	27%
College degree	3%
Health Characteristics	
Blood pressure checked in past two years	95%
Prior diagnosis of hypertension	56%
Taking medication for hypertension	35%
Uncontrolled hypertension (SBP ≥140 mmHg or DBP ≥90 mmHg)	70%
Average systolic blood pressure	155.2 ± 20.1
Average diastolic blood pressure	85.7 ± 10.5
Body mass index (mean ± SD)	30.2 ± 4.1
High blood sugar (+200 mg/dl)	10%
High cholesterol (+240 mg/dL)	13%

tolic blood pressure levels (Table 3). In comparing blood pressure levels between the remaining participants with participants that did not complete the program, no statistical difference in mean blood pressure levels was found at baseline. However, there was a statistical difference ($p=0.045$) at the six-month follow-up between these two groups, with the group dropping out of the program showing a higher systolic blood pressure mean at 148.2 ± 5.8 compared to the remaining members with 136.8 ± 6.58 .

Self-Report Indicators

Blood pressure. A health survey administered at the beginning of the program indicated that approximately 95% of the sample had their blood pressure checked within the past two years before participating in the program. Overall, 56% ($n=75$) of the participants were previously diagnosed with hypertension by a physician or healthcare professional. Self-reported hypertension was at 55% for female participants and 59% for male participants.

Physical activity. Seventy-four of the 134 participants (or 55%) completed the posttest health surveys at the end of the nine-month program. Thirty-five of the participants (47%) were male. Pretest, the self-report data indicated that inactivity or lack of exercise was a major problem with this sample. While pretest results showed that 58% of the participants exercised <3 per week for ≥ 20 minutes, this figure improved with 48% of the sample reporting this at posttest (Table 4).

Eating patterns. Eating habits also improved at posttest; 55% of the sample reported that they ate <2 servings of fruit per day, with this figure being

improved by being reduced to 30% posttest. Similar results were indicated for vegetable consumption. Approximately 48% reported that they ate one or zero servings of vegetables per day pretest; this figure was improved posttest, with 22% reporting that they ate just one or zero servings of vegetables per day.

Overall health status. When asked to rate their overall physical health (on a Likert scale consisting of the following responses: excellent, good, average, fair, poor), just 17% of the sample indicated that their health was good to excellent pretest. This figure improved by increasing to 74% posttest (Table 4).

DISCUSSION

The goal of this study was to assess whether the Activities-for-Life program improved blood pressure control among African Americans residing in an inner-city urban area documented to have an extremely high incidence of chronic diseases and other detrimental factors.¹⁷ Reduced blood pressure levels were a successful health status indicator produced by the program. Results showed a 39% decrease in the overall sample between initial and follow-up screening, which was a statistically significant improvement. At follow-up, 43% of the total sample had high blood pressure levels when checked, with 37% of the women and 52% of the male participants with high blood pressure levels, respectively. Although these outcomes are impressive, these follow-up figures are still higher than the national percentage of 40% for African Americans with hypertension and are significantly higher than the goals set by Healthy People 2010 to reach 16% reporting hypertension.¹ Nonetheless, follow-up

Table 3. Outcome data for blood pressure

	Baseline	Six Months	Nine Months	Difference (Baseline and Nine Months)
Retention	N=134 70%=F(n=94) 30%=M(n=40)	N=94 67%=F(n=63) 33%=M(n=31)	N=74 59%=F (n=44) 41%=M (n=30)	55% 47%=F 75%=M
Uncontrolled high blood pressure SBP ≥ 140 mmHg or DBP ≥ 90 mmHg	70% (n=52) 68%=F(n=30) 74%=M (n=22)	51% (n=38) 42%=F(n=18) 68%=M (n=20)	43% (n=32) 37% =F(n=16) 52%=M(n=16)	27% 31%=F 22%=M
Mean systolic blood pressure values \pm standard deviation	155.2 \pm 8.61 158.7=F 152.3=M	136.8 \pm 6.58 132.2=F 139.4=M	135.7 \pm 6.46 136.5=F 130.5=M	20.5* 22.2=F* 21.8=M*
Mean diastolic blood pressure values \pm standard deviation	87.6 \pm 3.02 89.3=F 82.6=M	82.1 \pm 2.83 85.1=F 80.2=M	82.3 \pm 2.87 84.4=F 80.8=M	5.3 4.9=F 1.8=M

F: female; M: male; With the exception of the retention data, "F" and "M" figures are within group (by gender) results; With the exception of the retention data, baseline, six-month and nine-month data are provided for the remaining 74 participants only; * Differences between pre- and postblood pressure check were significant at the 0.05 alpha level

results are lower than the telephone survey findings for African Americans living in Kansas with hypertension (34%)²⁵ yet still higher than the general population of Kansas with hypertension at 21%.²⁶

Health survey results collected at the beginning of the program indicated that approximately 56% of the participants reported being previously diagnosed with hypertension, this figure showing that the majority of the patients with high blood pressure were aware of their condition. A study by Wang and Wang²⁷ showed that just one-third of adults were aware that they had high blood pressure. While the statistics in this study were better, unfortunately, initial data indicated that none of these participants (n=0) had their blood pressure under control; their levels were all elevated at the time of the project. The project helped increase this from 0% at initial screening to 27% at the end of the project. This is a significant improvement. Healthy People 2010's goal is to have the proportion of African Americans with controlled hypertension increase from 19% to 50%.¹

Additionally, approximately 95% of the sample had their blood pressure measured within the past two years. This is consistent with the goal of Healthy People 2010, which is to raise the proportion of African-American adults who have had their blood pressure measured in the past two years from 92% to 95%.¹

Finally, the study also increased the self-reports of participants eating more fruits and vegetables, which is extremely important in reducing fat intake among African Americans.

Contributions

These findings support the literature that states the unsettling rates of hypertension or high blood pressure in this population, particularly among low-

income urban African Americans. The program was also instrumental in equipping the participants with the knowledge and skills to assist them in adopting a healthier lifestyle that also resulted in measurable outcomes for the program. While hypertensive programs that provide awareness and screening are helpful in promoting health, this project illustrates that interventions are needed that include a combination of nutrition/health education and physical fitness.

An important contribution this study provides to the literature on hypertension is the health information given about African-American men participating in a community-based clinic health intervention program.²⁸ Representative samples of African-American men are conspicuously missing in similar programs.²⁸⁻³⁰ With African-American men having the lowest life expectancy at birth compared to African-American women and white men and women,³¹ it is critical that efforts be made to include them in health studies that might potentially improve their health.

Few prior studies utilized stipends or financial incentives, so this program may have been more successful in recruiting male participants because it was able to provide cash incentives. Although financial incentives are not practical considerations for most programs, meaningful incentives might be a way to get a cross-section of the African-American population to participate.^{32,33} Effective incentives could be instrumental in recruiting low-income minority participants who are oftentimes short on extra time for program commitment and limited in resources.

The literature on community-based clinics that address hypertension and improve blood pressure control are limited.^{15,16,34,35} The present study expands on that literature in that it included a physical fitness component to complement the health education

Table 4. Outcome data for selected survey items

	Baseline	Six Months	Nine Months	Difference (Baseline and Nine Months)
Exercise <3 times per week for ≥20 minutes	58%=All	53%=All	48%=All	10%=All
	57%=F	70%=F	61%=F	4%=F
	60%=M	27%=M	30%=M	30%=M
On an average day, eat <2 servings of vegetables per day	48%=All	25%=All	22%=All	26%=All
	48%=F	20%=F	16%=F	32%=F
	50%=M	33%=M	30%=M	20%=M
On an average day, eat <2 servings of fruit per day	55%=All	33%=All	30%=All	25%=All
	41%=F	32%=F	34%=F	7%=F
	77%=M	33%=M	23%=M	54%=M
Overall physical health is good to excellent	17%=All	63%=All	74%=All	57%=All
	18%=F	57%=F	73%=F	55%=F
	17%=M	72%=M	75%=M	58%=M

Baseline, six-month and nine-month data are provided for the remaining 74 participants only

classes offered by the project. Also, the program was culturally sensitive, and program duration was longer than most similar projects,²⁸ thereby providing more follow-up information (this was a nine-month program). Finally, in addition to measuring blood pressure, this program also builds on the current literature by examining self-reported behaviors such as eating habits (consumption of fruits and vegetables), physical activity, other health behaviors and factors associated with hypertension.

Although the nine-month long project did not retain its entire sample (55% remained, or n=74) the majority received formal education about hypertension and other related health topics, and they participated in physical fitness activities. By increasing the number of African Americans formally educated about hypertension and its associated risk factors (e.g., poor nutrition, physical inactivity and about the perils of obesity), programs modeled after the current one might help reduce the risks associated with hypertension. This program has shown success in controlling high blood pressure.

Limitations

A number of limitations of this study are noted. First, it is difficult to generalize these results to all African Americans living in Kansas. Even in Wichita, African Americans are not a monolithic group, and different subgroups and cultures exist within the African-American community. However, given the demographics regarding income, age and marital status, there appears to be a cross-section of African Americans who participated. Thus, we may be able to draw conclusions about the role of incentives, having gender-specific fitness classes and access to preventive interventions.

Second, the results could have been affected by the sample composition, which consisted of a larger percentage of women than men, thus skewing the results. However, whenever possible, the data were analyzed by gender, and the results supported the literature regarding hypertension and its associated health problems in this population.

Third, although eight of the men dropped out of the study, 76% of the men were retained. This success indicates that African-American men will participate in health interventions and not necessarily wait until they are diagnosed with a chronic illness. Although the culturally sensitive components of this study were not tested, there are suggestions that this approach might help in recruiting and retaining participants. This study is encouraging as it has implications for getting African Americans, particularly African-American men, to participate in research studies.

Limitations also exist in terms of retention. Approximately 55% of the total sample remained at the end of the nine-month program. However, 70% remained ear-

lier at six months, which might mean shorter programs should be considered. While 76% of all male participants were retained at nine months, just 55% of the women remained. Overall, the remaining participants were older, with 61–70 years of age being the modal category. Additional analysis is needed to determine why attrition was greater for women and for younger age groups. Increased sample sizes and comparison groups might be helpful in this regard.

Baseline results indicated no statistical difference in mean blood pressure levels between participants that were retained in the study and those that dropped out of the project. However, six-month follow-up results indicated a statistical difference in mean systolic blood pressure between those that remained until the end of the study and those that dropped from the program. Yet this difference might have occurred for a number of reasons. For instance, participants not experiencing lowered blood pressure levels might not have felt the program was working and dropped from the program as a result. Had these individuals remained in the program, the final outcomes might be different. Additionally, remaining participants might have been more committed to attending the physical fitness classes or have been more attentive to their diets. Because such factors were not well tracked in the study, the explanation for this difference is inconclusive.

In addition, potential confounders such as change in body weight, medication usage and actual physical activity minutes were not adequately tracked in this study; this is a limitation. Although such information was recorded at the onset of the study, future studies should ensure that such factors are considered in follow-up analyses.

Further, this study lacked a control or comparison group. Thus, it is difficult to ascertain with complete certainty that similar results would not have been found with a different group of African Americans. The only eligibility criteria that were used in the present study were African-American and adult status. A comparison group would have allowed the researchers to control for the threats to internal validity.

Finally, self-selection bias might have contributed to the disproportionate number of participants with hypertension. Results indicated that although 70% presented with this condition, approximately 56% had already been diagnosed with this condition. However, it should be noted that the program was not promoted as a high blood pressure or hypertension program, and was marketed as a health program that might bring about lifestyle changes.

Future Research

Because the African-American population is so diverse, future studies should focus on collecting

community- and region-specific data, and should emphasize the need for hypertension prevention and intervention through culturally sensitive community-based clinic programs. Moreover, future intervention programs that are similar to the current one should probably recruit larger samples and make greater efforts to recruit male participants. Meaningful incentives may help in this regard as supported in this and other studies.^{32,33} In addition, future studies might examine if similar interventions such as this one might impact cholesterol levels, blood sugar levels and antihypertensive medications. Finally, studies that include a comparison group would be helpful in determining whether the culturally sensitive components of this project, including the incentives, were as influential as the results of this study suggest.

CONCLUSION

Given the nationwide thrust to eliminate health disparities, programs such as this demonstrate the importance of offering health promotion programs in the African-American community and implementing such programs in inner-city and rural areas. Again, while hypertensive and high blood pressure programs that provide awareness and screening are helpful, this project illustrates that interventions are needed that include a combination of nutrition/health education and physical fitness. Further, in order to change the health behaviors of minority populations, health disparities will not likely be reduced and the goals of Healthy People 2010 not reached until we implement effective, evidence-based culturally sensitive programs for minority populations and evaluate preventive intervention programs. Also, concerted efforts should be made to reach African-American men. Community-based clinic programs can help lead these efforts by increasing access to and the use of health and wellness services and by proactively recruiting uninsured and underserved African Americans.

REFERENCES

1. U.S. Department of Health and Human Services. Healthy People 2010: understanding and improving health. Washington, DC: U.S. Government Printing Office; 2000.
2. U.S. Department of Health & Human Services, National Institutes of Health, National Heart, Lung, and Blood Institute, National High Blood Pressure Education Program. JNC 7 Express: The Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure. Bethesda, MD; December 2003.
3. Douglas JG. Clinical guidelines for the treatment of hypertension in African Americans. *Am J Cardiovasc Drugs*. 2005;5:1-6.
4. Carter-Edwards L, Bynoe MJ, Svetkey LP. Knowledge of diet and blood pressure among African Americans: Use of focus groups for questionnaire development. *Ethnicity Dis*. 1998;8:184-197.
5. Kumanyika SK, Odoms A. Nutrition. In: Braithwaite RL, Taylor SE, eds. Health Issues in the Black Community. San Francisco: Jossey-Bass Publishers; 2001:419-447.
6. James DCS. Factors influencing food choices, dietary intake, and nutrition-related attitudes among African Americans: application of a culturally sensitive model. *Ethn Health*. 2004;9:349-367.

7. Harris E, Bronner Y. Food Counts in the African American Community: Chartbook 2001. Baltimore: Morgan State University; 2001:8-61.
8. Centers for Disease Control and Prevention. Behavioral Risk Factor Surveillance System (BRFSS). Nutrition & Physical Activity. 2002: Online: <http://apps.nccd.cdc.gov/5ADaySurveillance>.
9. Bassett DR Jr, Fitzhugh EC, Crespo CJ, et al. Physical activity and ethnic differences in hypertension prevalence in the United States. *Prev Med*. 2002;34:179-186.
10. Young DR, Aickin M, Brantley P, et al. Physical activity, cardiorespiratory fitness, and their relationship to cardiovascular risk factors in African Americans and non-African Americans with above-optimal blood pressure. *J Community Health*. 2005;30:107-124.
11. Schoenborn CA, Adams PF, Barnes PM, et al. Health Behaviors of Adults: United States, 1999-2001. National Center for Health Statistics. Vital Health Stat 10 (219). Hyattsville, MD: U.S. Department of Health & Human Services; 2004.
12. Hargreaves MK, Schlundt DG, Buchowski MS. Contextual factors influencing the eating behaviors. *Ethn Health*. 2002;7:133-147.
13. U.S. Census. Department of Commerce, Bureau of the Census. State Data Center Census; 2000. www.census.gov.
14. Brach C, Fraser I. Can cultural competency reduce racial and ethnic health disparities? A review and conceptual model. *Med Care Res Rev*. 2000;57:181-217.
15. Levine DM, Bone LR, Hill MN, et al. The effectiveness of a community/academic health center partnership in decreasing the level of blood pressure in an urban African American population. *Ethn Dis*. 2003;13: 354-361.
16. Gerber JC, Stewart DL. Prevention and control of hypertension and diabetes in an underserved population through community outreach and disease management: a plan of action. *J Assoc Acad Minor Phys*. 1998;9:48-52.
17. Wichita-Sedgwick County Department of Community Health, University of Kansas School of Medicine/Department of Preventive Medicine, Wichita State University. Community Health Assessment Project (CHAP). Wichita, KS: University of Kansas School of Medicine; 1997.
18. Esch T, Stefano GB, Fricchione GL, et al. Stress in cardiovascular diseases. *Med Sci Monit*. 2002;8:RA93-RA101.
19. Greiner BA, Krause N, Ragland D, et al. Occupational stressors and hypertension: a multi-method study using observer-based job analysis and self-reports in urban transit operators. *Soc Sci Med*. 2004;59:1081-1094.
20. Rehman SU, Hutchison FN, Hendrix K, et al. Ethnic differences in blood pressure control among men at Veterans Affairs clinics and other health care sites. *Arch Intern Med*. 2005;165:1041-1047.
21. Cooper LA, Hill MN, Powe, NR. Designing and evaluating interventions to eliminate racial and ethnic disparities in health care. *J Gen Intern Med*. 2002;17:477-486.
22. Cooper LA, Roter DL, Johnson RL, et al. Patient-centered communication, ratings of care, and concordance of patient and physician race. *Ann Intern Med*. 2003;139:906-915.
23. Baranowski T, Simons-Morton B, Hooks P, et al. A center-based program for exercise change among Black-American families. *Health Educ Q*. 1990; 17:179-196.
24. Karanja N, Stevens VJ, Hollis JF, et al. Steps to soulful living (STEPS): a weight loss program for African-American women. *Ethn Dis*. 2002;12:363-371.
25. Perry M, Potts SR. Health Risk Behaviors of African-American Kansans 1995. Topeka, KS: Kansas Department of Health and Environment, Bureau for Disease Prevention and Health Promotion; 1997:30-31,40-41.
26. Centers for Disease Control and Prevention. Behavioral Risk Factor Surveillance System (BRFSS). State Publications Printable Results; 2002. www2.cdc.gov.
27. Wang Y, Wang QJ. The prevalence of prehypertension and hypertension among U.S. adults according to the new joint national committee guidelines: new challenges of the old problem. *Arch Intern Med*. 2004;164: 2126-2134.
28. Paschal AM, Lewis RK, Martin A, et al. Baseline assessment of the health status and health behaviors of African Americans participating in the Activities-for-Live program: a community-based health intervention program. *J Community Health*. 2004;29:305-318.
29. Nine SL, Lakies CL, Jarrett HK et al. Community-based chronic disease management program for African Americans. *Outcomes Manag*. 2003;7: 106-112.
30. Appel LJ, Champagne CM, Harsha DW, et al. Effects of comprehensive

lifestyle modification on blood pressure control: main results of the PREMIER clinical trial. *JAMA*. 2003;289:2083-2093.

31. U.S. Department of Health and Human Services. National Center for Health Statistics (NCHS). Health, United States, 2004: With Chartbook on Trends in the Health of Americans. Washington, DC: U.S. Government Printing Office; 2004.

32. Fitzgibbon ML, Stolley MR, Kirschenbaum DS. An obesity prevention pilot program for African-American mothers and daughters. *J Nutr Educ*. 1995; 27:93-99.

33. Guyll M, Spoth R, Redmond C. The effects of incentives and research requirements on participation rates for a community-based preventive intervention research study. *J Prim Prev*. 2003;24:25-41.

34. Hill MN, Han HR, Dennison CR, et al. Hypertension care and control in underserved urban African American men: behavioral and physiologic outcomes at 36 months. *Am J Hypertens*. 2003;16:906-913.

35. Ward HJ, Morisky DE, Lees NB, et al. A clinic and community-based approach to hypertension control for an underserved minority population: design and methods. *Am J Hypertens*. 2000;13:177-183. ■

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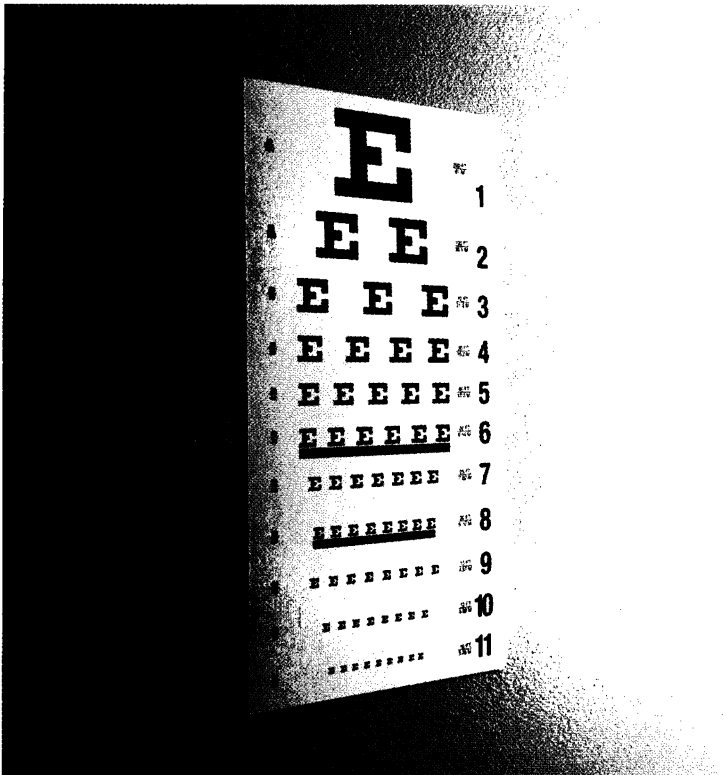
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