

Heart of Hypertension Project: Development of a Community-Based Prevention Program for Young African American Men

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Abstract:

Background: Early-onset hypertension (HTN) is a major contributor to shortened life expectancy of African American men. Lifestyle changes are known to reduce blood pressure (BP); however, interventions tailored for young African American men have not been developed.

Objectives: With a community partner, we developed and assessed a HTN education and lifestyle intervention for young African American men.

Methods: A preliminary plan was presented to experts and to 18- to 22-year-old African American men, and revised based on their feedback. The revised plan (health screening and 6-week intervention) was tested with the focal group.

Lessons Learned: Participants were enthusiastic about the program and suggested improvements included increasing individualized guidance, building on relationships, and defining the Heart of Hypertension community.

Conclusions: The Heart of Hypertension Project holds promise for HTN prevention among young African American men. The next steps are to incorporate feedback from participants into the approach and evaluate the effectiveness of the intervention on lifestyle change and BP in young African American men with pre-HTN.

Keyword: Community-based participatory research | health disparities | health promotion | cardiovascular diseases

Article:

By 1984, the Bogalusa Study had determined that early signs of HTN began in childhood and pre-HTN was more common among African American youth than White youth.¹ In addition, pre-HTN predicts future HTN, and further, disease processes associated with HTN, such as

target organ damage, are already present.^{2,3} Early onset of HTN in a more advanced state thus contributes to the cardiovascular disease disparities experienced by African Americans.^{4,5} In the CARDIA Study, for example, HTN before the age of 35 was a predictor of heart failure before the age of 50, and all 27 cases of heart failure found in the sample of 5,000 young adults were African Americans.⁶ Rates of pre-HTN are similar for normal weight and overweight young African American males; thus regardless of their weight status, these men are already vulnerable to the effects of elevated BP.⁷⁻⁹ Yet this group consider themselves to be "young invincibles"; they seek medical attention only for emergencies and believe that they are not at risk for poor health.¹⁰⁻¹²

Reaching young African American men to help them address their personal risk of HTN and adopt prevention strategies is central to reducing health disparities.^{13,14} However, research has shown that although dietary change and increased physical activity can lower BP among African Americans, interventions tailored to the lives of young African American men are needed.¹⁵⁻¹⁷ In particular, community partners who offer activities and social support to young African American men are needed, and these partners and the men themselves must be involved in the development process to ensure that programs are relevant and sustainable.

To address these issues, we developed and performed initial testing of an innovative intervention, the Heart of Hypertension Project, a community-based effort to create a HTN prevention program for young African American men.

Methods

Development Phase

The Planning Team.

The planning team included the executive director and staff of Hayes-Taylor Memorial YMCA (HT) in Greensboro, North Carolina, a city classified by the U.S. 2010 Census as an urban area in which 41% (of 270,000) are African Americans. Approximately 73% of those living in the neighborhood surrounding HT are African Americans. HT currently has 500 adult male members, and of these 25% are between 19 and 30 years of age. HT has a wide range of fitness facilities (gym, indoor track, cardio and weight training rooms, group exercise area, and swimming pool). HT has had a long commitment to the well-being of the African American community and a tradition of providing exercise and social support to young men. The planning team also included a researcher who had studied the HTN beliefs and lifestyle of young African American men, a clinical social worker who had worked with at-risk adolescents and young adults in a wide range of settings, and researchers in community/sport development and cardiovascular fitness. Research assistants had expertise in nutrition and kinesiology. The relationship between the research team and HT was established through past projects that involved the recruitment of young African American men for formative research for this present project¹⁸ as well as participation in HT's annual community health screening events for men.

Proposed Intervention Contents.

The planning team developed a proposed intervention based on work done to develop an HIV prevention program for young African American men.¹⁹ Our planned intervention began with a community health screening to identify individuals who had elevated BP and would benefit from a BP intervention. Young men between 18 and 22 years were to come to the HT to have their BP, height, and weight measured, and provide a blood sample for a rapid cholesterol and diabetes check (Alere Cholestech LDX System, Waltham, MA). Participants would receive their results and information about cardiovascular health, and those identified as pre-hypertensive would be invited to participate in a 6-week intervention at HT.

The intervention would include baseline and post-intervention assessments of eating patterns,¹⁸ self-reported physical activity,²⁰ HTN awareness, BP, height, and weight. Weekly sessions would include exercise, HTN and healthy lifestyle education, and a meal designed to meet dietary guidance for BP control. In addition, an individual coaching session for dietary change would be scheduled.

Revision of the Intervention Plan.

A proposed intervention was presented to outside advisors and young African American men and then modified based on their feedback and tested with the target population. Advisors with expertise in DASH diet interventions with high-risk groups, expertise in eating patterns and cardiovascular fitness of African American youth, and experience in conducting health screenings and teaching life skills to underserved youth reviewed the proposed intervention. Suggested revisions included asking participants to refrain from eating before screening and providing screening results in both written and verbal form, clarifying medical terms. To provide participants with feedback about their fitness levels, it was recommended that we include a submaximal fitness assessment to predict their maximal aerobic capacity via moderate exercise intensity.²¹ Further recommendations included obtaining input from participants about the selection of fitness activities and offering shared meals and group exercise to enhance social support.

Twelve African American men aged 18 to 22 years then participated in two focus groups to assess the intervention. The groups ($n = 7$ and $n = 5$) were recruited using street outreach and marketing at HT and nearby NC A&T State University and the University of North Carolina at Greensboro. They were asked about the health screening plan, the intervention design, the project name, and logo design. Sessions were audio-taped and transcribed by a research assistant and reviewed by the team. All procedures were approved by the institutional review board of the university, and informed consent was obtained before the discussion. Participants received a \$25 gift card.

Focus group participants reiterated the experts' advice to make health screening feedback easy to understand and suggested color graphics to illustrate results rather than relying on confusing numerical values. Participants felt that the logo should represent placing value on heart health through African American men working together and showed men of all sizes; they created the name, "Heart of Hypertension Project" and its acronym "H²O" (Figure 1). Suggestions for the intervention included providing tips on shopping and ways to track food choices and exposing

participants to sports and conditioning other than basketball (martial arts, cycling, conditioning, kick boxing, water aerobics, and dance). Further, the men suggested that we avoid a classroom atmosphere and encourage group interaction.

The recommendations were used to modify the health screening and intervention. We requested a 3-hour fast before the screening and offered dinner afterward, and we designed a color-coded graphic for participants' screening results to categorize a measure as either desirable (green), at risk (yellow), or high (red). A submaximal fitness assessment using a walking protocol was added to the intervention.²¹ Physical activity sessions would include circuit training, cardio drills, agility exercises, and power yoga, and dietary guidance would be given to men individually before or after a meal. The meal would include researchers, HT staff, and participants; information about HTN and health-related topics would be presented at this time. Revised graphics and the name, Heart of Hypertension Project or H²O Project, were used on all printed materials and the T-shirts provided to the research team and participants.

Pilot Testing

Setting.

Health Screening and pilot testing were conducted at the HT facility. Areas that were used included a large hallway (not a thoroughfare for members or staff) for the health screening, fitness areas except the swimming pool for exercise, a large commercial kitchen for meal preparation, and a teen center for dining and health education activities. The board room and small offices were used for pre- and postintervention assessments and discussions. As members, intervention participants had access to these facilities 7 days a week.

Health Screening

Recruitment.

Participants for health screening were recruited by HT and research staff through direct contact or flyers. The study was approved by the university institutional review board; all participants gave informed consent before data collection. Twenty-six men participated in the health screening, and more than half participated in response to text messages sent by day 1 or 2 participants.



Figure 1. Graphics Designed for the Heart of Hypertension Project, a Community-Based Hypertension Prevention Intervention for Young African American Men

Table 1. Enrollment Characteristics for Heart of Hypertension Project Participants

Characteristic	Health Screening (n = 26)	Pilot Intervention (n = 5)
African American (self-reported)	26 (100%)	5 (100%)
Age, years (range)	20.4 (18–22)	20.0 (18–22)
Current educational status, % (n)		
Enrolled in high school	11.5 (3)	20 (1)
Completed high school	3.8 (1)	-
Enrolled in college	76.9 (20)	80 (4)
College graduate	7.7 (2)	-
Currently working, % (n)		
	46.1 (12)	-
Health statistics, (range)		
Systolic BP, mmHg	129.7 (114-163)	130.4 (127-135)
Diastolic BP, mmHg	77.6 (64-102)	79.4 (74-83)
Resting heart rate, BPM	79.5 (59-114)	92.6 (77-114)
Body mass index, kg/m ²	25.6 (19-39)	22.8 (19-27)

Cigarette smoking status, % (n)		
Former smoker	54 (14)	60 (3)
Current smoker	23 (6)	20 (1)
Past or present health conditions, % (n)		
Asthma	23.1 (6)	20.0 (1)
Allergies	7.7 (2)	20.0 (1)
None	73.1 (19)	60 (3)
Feels at risk for HTN, % (n)		
	31 (8)	40 (2)
Aware of relative diagnosed with HTN, % (n)		
Mother	38.4 (10)	60.0 (3)
Father	23.1 (6)	-
Grandparent	56.9 (15)	40.0 (2)
Aunt/uncle	65.4 (17)	40.0 (2)
Other family member	7.7 (2)	-
Sibling	3.8 (1)	20 (1)
None	15.4 (4)	-

BP, blood pressure; BPM, beats per minute; HTN, hypertension.

Procedures.

Health screenings were conducted over 3 consecutive weekday evenings. After providing informed consent, participants (1) were administered a questionnaire (age, education, work status, the last meal eaten, and health information [insurance status, recent health care experiences, and past and present health conditions or concerns]), (2) had height, weight, and BP measured, (3) provided a blood sample for rapid cholesterol and diabetes assessment, and (4) received results and provided feedback on the screening. Participants whose lipids and blood glucose values exceeded normal limits and those whose systolic BP (SBP) was above 140 mmHg or diastolic BP (DBP) over 90 mmHg were encouraged to contact their physician or one of two community health clinics. Participants received a \$25 gift card and were offered dinner.

Intervention

Health screening participants classified as pre-hypertensive (SBP > 120 and < 140 and/or DBP > 80 and < 90 mmHg) and without other risk factors were asked if they would like to be contacted to learn more about the intervention. One of the 26 participants was classified as HTN (SBP \geq 140 and/or DBP \geq 90 mmHg) and three had normal BP readings (SBP \leq 120 and DBP \leq 80 mmHg). Twenty-two were classified as pre-hypertensive. Five of these were excluded from the intervention because of elevated total cholesterol, high-density lipoprotein cholesterol, low-density lipoprotein cholesterol, triglyceride, or blood glucose readings. Of the remaining 17, 8 agreed to be contacted about the intervention and 5 agreed to participate. Table 1 summarizes the characteristics of the health screening participants and five men who enrolled in the intervention. The two groups were similar except that intervention participants did not have jobs (one began working part time during the intervention) and on average they had higher resting heart rates and lower body mass index.

The 6-week program included four weekly group sessions, pre- and postintervention assessments, and a postintervention focus group. Sessions took place at HT on Wednesday evenings except for the individual submaximal testing, which was conducted at the university. Participants received a 3-month YMCA membership, a \$50 gift card for completion of the assessments and intervention, and a \$25 gift card for attending the focus group. Table 2 provides an overview of the each week of the intervention.

Led by African American instructors, exercise sessions included circuit training, cardio drills, agility exercises, and introductory power yoga. Dinners followed DASH guidelines, and participants received recipes and related information and a short food preparation demonstration. Dinners were served buffet style, and a brief presentation and discussion followed; topics included HTN risk factors and consequences, DASH dietary guidelines, cardiovascular fitness and sub-max testing results, and holistic approaches to health (relaxation techniques, yoga, and stress reduction). Participants received a study binder with intervention handouts, recipes, and other related materials. During weeks 3 and 4, individual dietary guidance sessions were added because it was not possible to schedule these before or after the group sessions. The HT staff worked with the research team to prepare for each session; HT trainers provided additional support during the fitness activities, and their staff served as a point of contact for participants.

Evaluation

During the pre-intervention assessment, participants completed a HTN knowledge questionnaire, a submaximal assessment, and a physical activity questionnaire.²⁰ The dietary assessment used a structured interview called the Meal Pattern Timeline.¹⁸ Participants' meal patterns were reviewed, specific meals or food choices were identified, and alternative foods that adhered more closely to the DASH diet were discussed.

The postintervention assessment included a retest of HTN knowledge, the physical activity questionnaire, Meal Pattern Timeline, and BP measurements along with a brief, audio-recorded, one-on-one interview in which participants were asked to reflect on their personal experiences. The audio-taped focus group gave participants an opportunity to provide feedback on the intervention and offer suggestions on how it could be improved; a group dinner followed.

Table 2. Activity Schedule for the Heart of Hypertension Project Pilot Intervention

Week 1	
Pre-Intervention Assessment	H ² O Orientation, Hypertension Knowledge, Meal Timeline, Diet Feedback and Goal Setting, and Submaximal Treadmill Test
Week 2	
Fitness Activity	Circuit Training
Healthy Eating Menu	Whole Wheat Pasta and Meat Sauce, Broccoli and Carrot with Italian Seasoning, Salad with Oil & Vinegar

	Dressing, Strawberries and “Cream” (non-fat whipped topping)
Health Education Lesson	Why Me? Hypertension and African American Men: Risk and Prevention
Week 3*	
Fitness Activity	Cardio Drills
Healthy Eating Menu	Hummus with Pita Chips, Italian Sausage and Veggie Pizza, Salad with Oil & Vinegar Dressing, and Strawberries, Yogurt, and Almonds
Health Education Lesson	How Eating Can Help Lower Blood Pressure: Principles of the DASH Diet□
Week 4*	
Fitness Activity	Agility Exercises
Healthy Eating Menu	Chicken, Onion and Cheese Sandwich, Pan Roasted Potatoes, Spinach Salad with Italian Dressing, Coleslaw, Chickpea Salad, Blueberry Yogurt Parfait
Health Education Lesson	How Fit is Fit? What It Means to Have a Strong Heart
Week 5	
Fitness Activity	Power Yoga
Healthy Eating Menu	Vegetarian Black Bean Chili, Salad with Italian Dressing, Broccoli with Garlic and Olive Oil, Cornbread, Assorted Fresh Melon
Health Education Lesson	Stress and Your Health
Week 6	
Post-Intervention Assessment	Hypertension Knowledge Questionnaire, Meal Pattern and Food Choice Assessment, Individual and Group Feedback

*Participants attended an individual dietary guidance session in either Week 3 or 4

Lessons Learned and Recommendations

The Heart of Hypertension Project is a community-based intervention designed to help young African American men become more aware of their health and learn how they could prevent or delay HTN. Lessons learned from our experiences in piloting the intervention can be grouped into three themes: The desire for individualized guidance, the importance of relationships, and the need to define the H2O Community.

Individual Guidance

Feedback from the health screening and intervention indicated that participants appreciated the research team's friendliness and professionalism and as a result they were more open to receiving

guidance. Intervention participants indicated that this was an important reason why we had 80% attendance at group sessions and 100% attendance at the postintervention assessments and submaximal testing. The focus groups recommended that our screening feedback include graphical representation of results accompanied by clear written and verbal explanations. This was well-received by screening participants, so much so that they felt comfortable afterward encouraging their friends to sign up for the health screening.

Although opportunities to provide individual guidance for dietary change were limited, everyone made at least one change, for example, regularly having breakfast, carrying fresh fruit for a snack, making low-fat salad dressing, and avoiding fast foods. Participants recommended placing more emphasis on personalized dietary goals, food preparation, and developing individual strategies for dealing with cost and lack of access to healthy foods. They varied in cardiovascular fitness and recognized that strategies to improve their fitness would vary as well; they recommended personal training rather than group exercise sessions to help participants individualize fitness activities.

In the future, we plan to include four dietary guidance sessions to help participants identify small, achievable goals that can be built on throughout the intervention.^{18,22} Likewise, we will individualize fitness guidance to increase exercise intensity and frequency. Recognizing individual differences in daily schedules, we will conduct health screenings and group sessions on weekend and weekday evenings so that men who are working, attending school, or caring for their families have options.

The Importance of Relationships

Through text messages, Health Screening participants brought their friends into the program within moments of participating. Intervention participants talked with family and friends about HTN and encouraged them to take better care of themselves. We followed our focus group participants' advice to maintain an informal atmosphere to promote interaction during group dinners and health education discussion. This was when research staff and participants discussed differing approaches to exercise and diet and their shared insights about a wide range of topics related to health, education, work, and personal responsibility. In the future, we will continue to create opportunities for these interactions and encourage participants to recruit others into the program and discuss what they have learned with family and friends.

Defining the H²O Community

The H²O Project became a community represented by distinctive graphics illustrating how African American men can work together to improve their health. These graphics are an example of how our approach was strengthened by the input of the community. Our future efforts will include participants' ideas on how to strengthen the H²O "community," including inviting outside speakers to provide different perspectives on the material and promoting nontraditional forms of exercise by including more yoga or similar practices which offer a new challenge and relief from mental and physical stress. We will incorporate their desire to have hands-on activities to teach how to purchase, cook, and order healthy foods, and finally, extend the program to 12 weeks

because participants said that by the time they began to incorporate the lessons into their daily lives, H²O was over.

Conclusions

The Heart of Hypertension Project demonstrated that young African American men want to learn about their health and those issues that disproportionately affect them. We located the program in a place where men could be reached, find social support, and contribute to the design of their own program to address these issues.²³ Although further development and testing are needed, the Heart of Hypertension has the potential to offer African American men a way to shape their own path to a healthier lifestyle and reduce their cardiovascular disease risk.

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