CE 1.5 contact hours

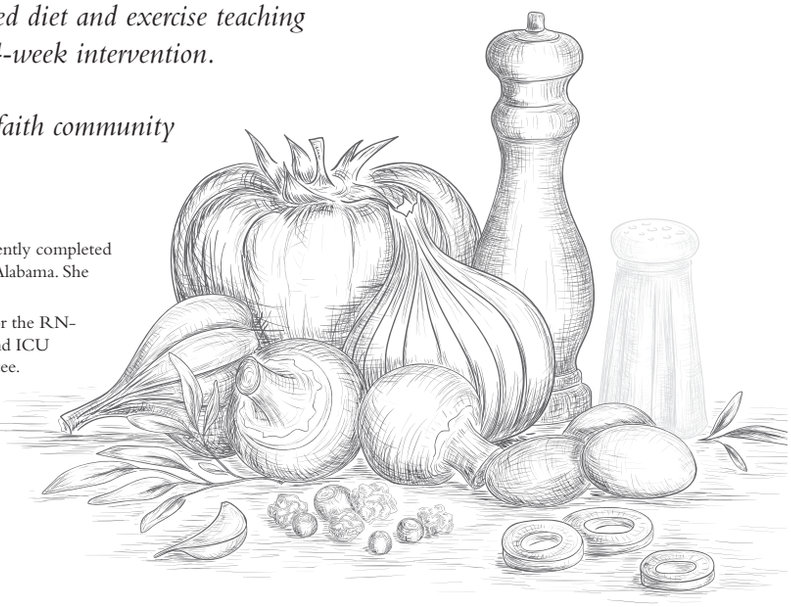
HYPERTENSION in the FAITH COMMUNITY

A Four-Week, Nurse Led, Diet / Exercise Intervention

By Saphie S. Bangurah, Shellye A. Vardaman, and Kelli K. Cleveland

ABSTRACT: *Inadequate blood pressure (BP) control in hypertension carries a major financial and public health burden. This study examined the efficacy of behavioral and lifestyle changes on BP control among African American adults, aged 55 years and older in a faith-based setting. The study was supported by clergy who helped to engage participants in interventions. Nurse-led diet and exercise teaching with BP monitoring led to lower BP readings over a 4-week intervention.*

KEY WORDS: *African Americans, blood pressure, faith community nursing, hypertension*



Saphie S. Bangurah, DNP, APRN, is a certified family nurse practitioner and recently completed requirements for the Doctor of Nursing Practice program at Troy University, Troy, Alabama. She enjoys working with indigent populations.

Shellye A. Vardaman, PhD, RN-BC, CNE, is an associate professor/coordinator for the RN-BSN/MSN program at Troy University. Her practice focuses on medical/surgical and ICU populations. She serves on the Sigma Theta Tau International Governance Committee.

Kelli K. Cleveland, DNP, RN, FNP-BC, is an associate professor teaching in the BSN program at Troy University. She maintains clinical practice as a family nurse practitioner.

The authors declare no conflict of interest.

Accepted by peer-review 9/29/16.

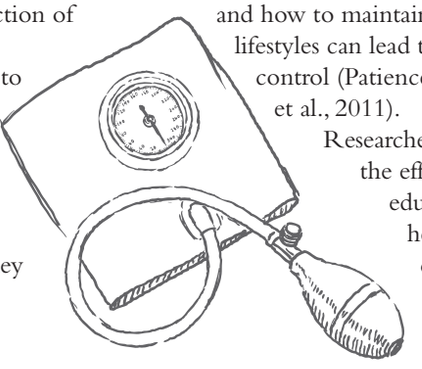
DOI:10.1097/CNJ.0000000000000420

Approximately 30% of adults in the United States are affected by hypertension (HTN), and the risk increases with age (American Heart Association [AHA], 2016). The estimated cost of HTN for year 2010 in the U.S. was $76.6 billion in healthcare services, medications, and missed days of work (American Society of Hypertension, 2017). Among those affected by HTN, approximately 66% are unaware of their condition. Blood pressure (BP) is measured in millimeters of mercury (mm Hg) and a systolic BP equal to or above 140 mm Hg and/or diastolic BP equal to or above 90 mm Hg measured over several days is criteria for the diagnosis of HTN (World Health Organization, 2013). Despite the health benefits from adequate HTN control, only about 50% of patients have optimal BP control. Reasons for inadequate BP control include poor lifestyle choices, such as diet, sedentary behaviors, obesity, and patient noncompliance. African Americans in the U.S. are disproportionately affected by HTN, which places them at increased risk for cardiovascular mortality. A 31.8% prevalence of HTN exists among African Americans compared with 23.3% for Whites. Complications from uncontrolled HTN account for the highest mortality discrepancy rates between African Americans and Whites (Schoenthaler et al., 2011). Lack of self-care behaviors may be involved in creating this disparity (Warren-Findlow, Seymour, & Brunner Huber, 2012).

Underutilization of evidence-based approaches in the management of HTN has been identified as a risk factor for uncontrolled HTN among clients (Fitzgerald, 2011). Uncontrolled HTN in adulthood is a leading cause of disability and death globally (Bromfield & Muntner, 2013). Despite widespread awareness among clinicians of primary and secondary measures, such as lifestyle risk reduction interventions that help to improve BP control, the application of these strategies into clinical practice is far from optimal (Stuart-Shor, Berra, Kamau, & Kumanyika, 2012). Implementing a behavioral change intervention that documents the effectiveness of lifestyle modifications on lowering BP will have a positive impact on nursing practice. Achieving optimal BP control among client populations will improve health outcomes and lower public health spending on HTN-related comorbidities.

INTERVENTIONS TO IMPROVE HYPERTENSION

The purpose of this study was to examine the efficacy of behavioral and lifestyle interventions (sodium restriction and increased physical activity) on HTN control. The goal was to help clinicians recognize those at risk for developing complications from HTN and improve BP control. Through the identification and selection of appropriate tools and interventions that aim to improve BP control, clinicians can reduce mortality that may stem from HTN. By engaging people in a location they frequent, such as a church, and with the assistance of people whom they trust (their clergy), participants are more likely to inquire about interventions that aim to increase health behaviors.



Extensive searches in PubMed, CINAHL Plus, Cochrane Library, and ProQuest academic databases yielded many significant studies and Evidence-Based Practice guidelines for the management of HTN. Inclusion criteria for articles were adults age 55 years and older, diagnosed with HTN, or taking oral antihypertensive medications. Peer-reviewed population studies consistent with current guidelines were included in the literature review. The search was in English only.

Evidence validates effectiveness of the U.S. National Institutes of Health *Dietary Approaches to Stop Hypertension* (DASH) meal plan in reducing systolic and diastolic BP (National Heart, Lung, and Blood Institute [NHLBI], 2015). The DASH plan is a calorie-reduced, sodium-reduced diet that emphasizes portion control and includes foods containing calcium, magnesium, and potassium, which have been shown to reduce BP (Lennon et al., 2017). The diet proposes healthy portions of meals that contain whole grain carbohydrates, starches, fruits and vegetables, nuts and seeds, and small servings of low-fat dairy and meats. Following the DASH diet has been shown to reduce systolic BP by an average of 3 mm Hg and diastolic BP by approximately 2 mm Hg (Patience, 2013). Education on topics such as antihypertensive medications, the DASH meal plan, reading food labels including sodium content, serving sizes and portion control, shopping for and planning meals, healthy eating while away from home, stress management techniques, and how to maintain ongoing healthy lifestyles can lead to greater BP control (Patience; Schoenthaler et al., 2011).

Researchers have explored the effectiveness of education and healthy lifestyle changes (such as diet and exercise) on BP control. In one study, approximately 94% of subjects reported increased knowledge of effects of lifestyle changes on BP control; 40% reported increased daily physical activity; 40% decreased sodium intake and ate more fruits and vegetables; and 93% showed marked improvement in BP levels (Rigsby, 2011). Participants involved in aerobics, strength, flexibility and balance training attained a statistically significant reduction of both systolic and diastolic BP readings (De Moraes et al., 2012). These findings correlate with previous literature and are significant to clinical practice.

Literature reviews have identified the efficacy of team-based approaches in the management of HTN (Carter, Bosworth, & Green, 2012). Compared to usual care by independent practitioners, studies involving collaboration between pharmacy/physician, and nurse/pharmacy/physician cohorts were found to be more sustaining and

efficacious in lowering BP among individuals affected by HTN. Nurse interventions included education on HTN risk factors, complications, use of BP monitoring devices, and monitoring for medication side effects. Additional effective interventions included weekly or monthly telephone contact with subjects, appointment and medication refill reminders, and reinforcement of lifestyle changes.

Factors such as environment, ancestry, access to care, and lifestyle patterns predispose some racial ethnic groups such as African Americans and Hispanics to disproportionate levels of chronic diseases. Culturally appropriate cognitive and behavioral counseling, direct advice from healthcare providers, and culturally sensitive education programs have been shown to have a significant impact on health behaviors among client populations (Gross, Anderson, Busby, Frith, & Panco, 2013; Rebholz et al., 2012; Stuart-Shor et al., 2012). Highly efficacious interventions include goal-setting, self-monitoring, feedback, positive reinforcement, incentives, modeling, problem-solving, relapse prevention, and motivational interviewing techniques (Stuart-Shor et al.). Culturally sensitive education included instructions on HTN and medication adherence, reading food labels, importance of increased physical activity, and need to decrease dietary sodium intake (Gross et al.; Rebholz et al.).

Literature supports the role of lifestyle and behavioral changes at reducing morbidity and mortality from HTN. As primary care providers at the forefront of healthcare delivery, Advanced Practice Registered Nurses (APRNs) are positioned to transfer evidence-based knowledge into the clinical setting, with the aim of improving patient outcomes. APRNs should routinely screen patients who are at risk for developing HTN, institute primary and secondary HTN prevention measures, and at the time of diagnosis emphasize the importance of lifestyle modifications that help to achieve optimal BP control (Fitzgerald, 2011). Evidence-based interventions that help to improve BP control include lifestyle changes such as reduction of dietary sodium intake, increased physical activity, maintaining a normal weight, and limiting alcohol consumption (Chummun, 2011).

Despite the health benefits from adequate HTN control, only about 50% of patients have optimal blood pressure control.

Faith-based organizations are ideal settings to reach at-risk African Americans (Baruth, Wilcox, & Condrasky, 2011; Bopp, Baruth, Peterson, & Webb, 2013). Nearly 40% of Americans attend church at least weekly, with higher attendance rates noted in the southern states and among minority populations. Research has found a link between pastoral endorsement and the success of health promotion interventions (Bopp et al.; Harmon, Blake, Armstead, & Hébert, 2013). Pastoral leaders are noted to be fundamental to health-related changes (Bopp et al.). However, the exact role that pastoral support plays has been difficult to measure (Baruth, Wilcox, & Saunders, 2013). Previous research illustrates both improved diet and physical activity behavioral changes among African American congregants, when associated with a supportive church environment (Baruth et al., 2011; Bopp et al.).

EXPLORING DIET AND EXERCISE IN A FAITH COMMUNITY

The setting for this study was a church congregation in rural northwest Georgia that serves predominantly African Americans. The congregation is the largest and oldest ethnic minority church in the area, with a family orientation and routine gatherings involving meal sharing. These characteristics made an ideal setting to evaluate the effectiveness of diet and exercise on BP control. The study duration of one month aimed to reduce burden on the participants; the church is in a low socioeconomic area with limited public transportation. The sample consisted of adults age 55 and older, diagnosed with, or taking oral medications for HTN. Participants were recruited on a voluntary basis and were required to read and write English at the fifth-grade level. Anticipated sample size was 30, but only 16 subjects agreed to participate. A letter of support was received from the pastor, the "gatekeeper" or "shepherd" for the "flock" of congregants (Baruth et al., 2013; Harmon et al., 2013). Participants were recruited through church announcements by the pastor and researchers, word of mouth, and flyer distribution. The flyer was posted in various locations throughout the church building, given to the congregation (hand delivered and mailed inside the monthly church bulletin), and placed in community service areas, such as local grocery stores, hair and nail salons, laundromats, and restaurants.

This pre- and postintervention study lasted 4 weeks and was implemented after obtaining approval from the university Institutional Review Board.

Three variables were measured: BP readings, dietary sodium intake behaviors, and physical activity levels. The intervention consisted of three face-to-face meetings that occurred at Week 1, Week 2, and Week 4. At the initial meeting, participants reviewed the goals and objectives of the study, signed informed consents, completed preintervention surveys, and had their BP measurements taken. They received packets containing brochures and educational material developed by the AHA and the NHLBI about HTN control. The brochures outlined effects of diet, sodium restriction, and physical activity on improving BP levels (see Web Resources). Next, the participants were counseled on health risks related to uncontrolled HTN and were urged to make lifestyle and behavioral changes that improve BP levels. They were counseled on how to read food labels, select foods that are low in sodium (avoid fast & prepackaged foods), avoid shaking extra salt on food, select fresh instead of canned foods, appropriate spices and seasonings for meal preparation. They also were counseled on physical activities that help improve BP control. The first meeting lasted approximately two hours.

The second meeting (Week 2) lasted 45 minutes and consisted of BP measurements and reinforcement of education and counseling. Participants returned for the final meeting (Week 4) to recheck BP measurements, complete postintervention surveys, and give program feedback and evaluation. All meetings were attended by the group of participants. Having the group together for all interventional sessions provided social support from group members.

The Hill-Bone Compliance to High Blood Pressure Therapy Scale (Hill-Bone Scale), a validated tool, was used to conduct pre- and postintervention surveys to measure sodium intake behaviors. The Hill-Bone Scale is available for use in the public domain and is an effective tool in behavioral modification interventions that aim to improve BP control (Krousel-Wood et al., 2013). The 14-item questionnaire of the scale is comprehensible at the fifth-grade reading level, can be self-administered or completed by an interviewer in about 5 minutes, making it a practical tool in a busy primary care setting (Kim, Hill, Bone, & Levine, 2000). Each item on the questionnaire has a maximum of 4 points and responses range from 1 to 4 on a Likert scale format: 4 = all the time, 3 = most of the time, 2 = some of the time, and 1 = none of the time. Scores range from 14, the minimum; to 56, the maximum. High compliance scores predict lower levels of BP measurement, whereas the opposite is true for lower scores (Kim et al.). The tool measures three areas of behavioral dimensions that impact HTN control: dietary sodium intake, keeping appointments, and medication-taking behaviors. Only the sodium intake component was used for this study to measure eating salty food, adding or shaking extra seasonings on food before eating it, and eating at fast food restaurants.

The Paffenbarger Physical Activity Questionnaire (PPAQ) was used to measure participants' pre- and postintervention physical activity levels to determine the effect of physical exercise on BP control. The PPAQ was designed to measure total amount of energy expenditure, based on specific physical activities and has been efficacious in measuring clients' physical exercise behaviors (Rebholz et al., 2012). The tool consists of eight questions. Questions 1 to 3 measure walking distance, velocity, pace (whether pace is casual, strolling, brisk, or average), and use of stairs. Question 4 is related to participation in sports or recreational activities. Questions 5 and 6 examine feelings of fatigue related to the physical activity. In Question 7, respondents are asked to rate their level of exertion following physical activity.

TABLE 1. Frequencies of Pre-, Mid-, and Postintervention BP Readings ($N = 16$)

	PREINTERVENTION		MID		POSTINTERVENTION	
	n	%	*n*	%	*n*	%
< 140/90	8	50	13	81.3	16	100*
> 140/90	8	50	3	18.8	0	0

*Although a positive change, not statistically significant

TABLE 2. Changes in Eating Salty Food, Shake Salt, and Eating Fast Food Pre- and Postintervention (Hill-Bone Scale, $N = 16$)

	EAT SALTY FOOD				SHAKE SALT				EAT FAST FOOD			
Frequency	Pre-intervention		Post-intervention		Pre-intervention		Post-intervention		Pre-intervention		Post-intervention	
	n	%	*n*	%	*n*	%	*n*	%	*n*	%	*n*	%
None of the time	2	(12.5)	8	(50.0)	2	(12.5)	16	(100)	0		2	(12.6)
Some of the time	8	(50.0)	8	(50.0)	8	(50)	0		12	(75.0)	14	(87.5)
Most of the time	3	(18.8)	0		3	(18.8)	0		3	(18.8)	0	
All of the time	3	(18.8)	0		3	(18.8)	0		1	(6.3)	0	
TOTAL	**16**	**(100)**	**16**	**(100)**	**16**	**(100)**	**16**		**16**	**(100)**	**16**	**(100)**
Chi Square:	$X^2 = 8.500$, $df = 3$, $p < .05$*				*not significant*				$X^2 = 9.905$, $df = 2$, $p < .05$*			

*Indicates statistical significance

TABLE 3. *Changes in Blocks Walked and Walking Pace from the PPAQ Scale Pre- and Postintervention (N = 16)*

	BLOCKS WALKED					WALKING PACE			
Distance	**Preintervention**		**Postintervention**		**Speed**	**Preintervention**		**Postintervention**	
	n	**%**	***n***	**%**		***n***	**%**	***n***	**%**
None	5	(31.3)	0		Casual or < 2 mph	6	(37.5)	0	
6 blocks or ½ mile	5	(31.3)	5	(31.3)	Average or 2–3 mph	4	(5.0)	5	(31.3)
12 blocks or 1 mile	6	(37.5)	11	(68.8)	Fairly brisk or 3–4 mph	6	(37.5)	11	(68.8)
TOTAL	**16**	**(100)**	**16**	**(100)**	**TOTAL**	**16**	**(100)**	**16**	**(100)**
Chi Square:	*not significant*					$X^2 = 12.121$, $df = 2$, $p < .05$*			

*Indicates statistical significance

TABLE 4. *Changes in Sports/Recreational Activity Pre- and Postintervention (N = 16)*

	SPORTS/RECREATIONAL ACTIVITIES			
Frequency	**Preintervention**		**Postintervention**	
	n	**%**	***n***	**%**
None	10	(62.5)	0	
30 Minutes	0		10	(62.5)
45 Minutes	6	(37.5)	6	(37.5)
TOTAL	**16**	**(100)**	**16**	**(100)**
Chi Square:	$X^2 = 16.500$, $df = 1$, $p < .05$*			

*Indicates statistical significance


Shutterstock

Question 8 measures the number of hours spent doing vigorous activities within a 24-hour period (Rebholz et al.). The PPAQ is available for public use and does not require permission to access (Rubenstein et al., 2011).

FINDINGS

Data were compiled and analyzed using SPSS version 23.0. Most participants ($N = 16$) were female ($n = 12$, 75%; male $n = 4$, 25%) and between 55 and 65 years of age ($n = 10$, 62.5%; age 65–75, $n = 6$, 37.5%). The study sample consisted exclusively of African Americans.

Frequencies of BP readings >140/90 and <140/90 preintervention, 2 weeks (mid), and 4 weeks postintervention (Table 1). BP readings reduced by more than 10 mm Hg postintervention among 50% of participants ($n = 8$), and all participants attained BP readings <140/90 postintervention.

Frequencies of pre- and postintervention *eating salty food*, *shake salt*, and *eating fast food* variables were tabulated from the Hill-Bone Scale. *Eating salty foods* and *eating fast food* decreased significantly pre- to postintervention (Table 2). Preintervention *shaking salt* on food "some" or "all" of the time ($n = 14$, 87.6%) improved postintervention to "none" of the time (100%, $n = 16$).

Results from the PPAQ found that participation in weekly physical activity improved from "no" preintervention ($n = 11$, 68.8%) to "yes" ($n = 16$, 100%) postintervention (not statistically significant). *Level of exertion* improved from weak (43.8%, $n = 7$) pre- to moderate postintervention (75%, $n = 12$). *Type of activity* also improved from light activity pre- (56.3%, $n = 9$) to moderate activity postintervention (68.8%, $n = 11$). No statistical significance was found in *weekly activity*, *level of exertion*, and *type of activity*.

Frequencies of physical activity per day with selected pre- and postintervention categorical variables were calculated. Self-reported *number of blocks walked per day* improved from zero (no walking) (31.1%, $n = 5$) to all participants walking postintervention. The *number of flights of stairs walked per day* did not change significantly postintervention. *Usual pace of walking* improved from casual (37.5%, $n = 6$) to all participants reporting average or fairly brisk walking postintervention (Table 3).

Frequencies of *sports/recreational activity*, *weekly activity*, *level of exertion*, and *type of activity* were noted. Self-reported *sports/recreational activity per day* improved from zero to 30 minutes per day (Table 4).

Inferential statistics were conducted using chi square (X^2) to examine for differences pre- and postintervention. It was hypothesized that implementing behavioral and lifestyle changes would lead to decreased BP. We anticipated that participants would: 1) show a decrease in systolic and diastolic BP and 2) report an increase in lifestyle behaviors that improve BP control. There were statistically significant differences among some variables and outcomes, despite the small sample size. A significant difference was found in pre- and postintervention *eating salty foods* and *eating fast foods* (Table 2); along with *walking pace* (Table 3) and *sports/recreational activity per day* (Table 4).

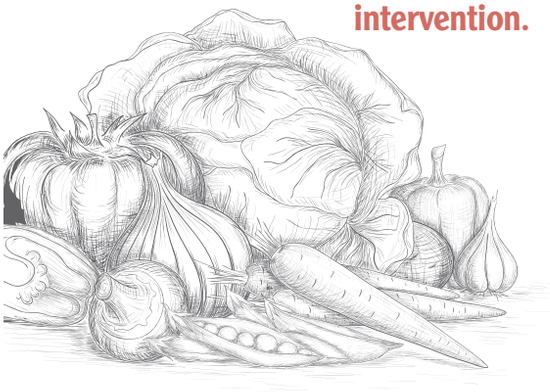
DISCUSSION

This study examined the effectiveness of behavioral and lifestyle interventions on improving BP control. Evidence-based educational materials developed by the AHA and NHLBI were used to educate and counsel participants on strategies that help to lower BP. The postintervention assessment showed a reduction in BP readings to <140/90 mm Hg among all participants. Although there was a reduction in BP, this change was not statistically significant. There was a significant decrease in dietary sodium consumption postintervention and a moderate increase in physical activity levels among participants. Findings from the study are consistent with the literature that behavioral and lifestyle interventions help to improve BP control (Rigsby, 2011).

Through completion of an evaluation form and verbal communication, participants expressed satisfaction with the study interventions. They reported increased knowledge about HTN management, proposed that other churches could benefit from the study, and that they were going to make healthy changes by limiting the amount of salt used to prepare their monthly breakfast meal at the church, based on knowledge gained from the study.

This study shows potential for replication. With commitment from the church leadership, the congregation could *buy-in* to the importance of the intervention (Baruth et al., 2013). Other studies have utilized African American churches as the setting for health promotion and disease prevention studies (Parrill & Kennedy, 2011; Washington, Weed, & Vardaman, 2015). Although the entire congregation was invited to participate, those who chose to participate may influence others in the congregation to make behavioral and lifestyle changes, even though not participating in the study.

All participants attained BP readings <140/90 post-intervention.



A limitation of the study was the small sample size ($N = 16$). Participation was voluntary, and subjects were reluctant to commit to a even a 4-week study. Employment status, transportation issues, and family obligations (such as babysitting grandchildren & doing house chores) were cited as barriers to participating in the study. The attrition rate was zero. The sample consisted primarily of African American females; hence, gender, racial bias, and lack of cultural diversity limit generalizability. Several subjects reported that due to low income or scarce resources, they could not adhere to the dietary restrictions or engage in routine physical exercise. Data were self-reported, and participant bias threatens external validity findings. If other data had been collected, it may have provided more insight into behavioral change processes. Additionally, only nominal BP data (>140/90 or <140/90) were collected.

RECOMMENDATIONS FOR PRACTICE

Literature is conclusive about the efficacy of education, counseling, and lifestyle modifications on lowering BP among client populations. Nurses play a vital role in helping individuals reach their BP goals and should be cognizant of behavioral change interventions that can be implemented at the point-of-care. Primary prevention identifies individuals at risk for developing HTN. Nurses need to reach patients in places where they feel comfortable, not always relying on the patient to seek care. Engagement in faith-based communities allows discussion of health needs that many times does not garner the needed time and attention in clinics or hospitals. Nurses and healthcare providers should conduct health risk assessments upon initial patient contact and again at regular intervals to identify behaviors that contribute to poor BP control (Fitzgerald, 2011). Tools such as the Hill-Bone Compliance Scale and the PPAQ are important in helping clinicians develop individual treatment plans that target those at risk for complications from HTN. *World Hypertension Day* (AHA, 2017) is an event that nurses may promote among faith-based organizations to encourage awareness and health assessments. Nurses should look toward faith-based organizations as a viable setting to conduct health promotion interventions.

Web Resources

- What Is High Blood Pressure?—http://bit.ly/1czk1B8
- Your Guide to Lowering Blood Pressure—http://bit.ly/2ibGRsF
- DASH Eating Plan—http://bit.ly/1htCe9l

With HTN noted as a major contributing factor for morbidity and mortality in the African American population, it is imperative that providers reach those at greatest risk. This study supports that collaboration between the clinical and faith-based communities can help to reach high-risk populations and successfully implement behavioral and lifestyle modifications. Providers may need to step outside of the normal healthcare setting. By engaging at-risk populations in their environments, such as churches, and collaborating with respected community leaders, such as pastors, healthcare providers can increase awareness, promote healthier behaviors, and make changes in the lives of those with greatest need.

American Heart Association. (2016). *What is high blood pressure?* Retrieved from http://www.heart.org/idc/groups/heart-public/@wcm/@hcm/documents/downloadable/ucm_300310.pdf

American Heart Association. (2017). *Millions check blood pressure for World Hypertension Day.* Retrieved from http://news.heart.org/millions-check-blood-pressure-for-world-hypertension-day/

American Society of Hypertension. (2017). *ASH Foundation overview.* Retrieved from http://www.ash-us.org/ASH-Foundation-Overview.aspx

Baruth, M., Wilcox, S., & Condrasky, M. D. (2011). Perceived environmental church support is associated with dietary practices among African-American adults. *Journal of American Dietetic Association, 111*(6), 889–893. doi:10.1016/j.jada.2011.03.014

Baruth, M., Wilcox, S., & Saunders, R. P. (2013). The role of pastor support in a faith-based health promotion intervention. *Family and Community Health, 36*(3), 204–214. doi:10.1097/FCH.0b013e31828e6733

Bopp, M., Baruth, M., Peterson, J. A., & Webb, B. L. (2013). Leading their flocks to health? Clergy health and the role of clergy in faith-based health promotion interventions. *Family and Community Health, 36*(3), 182–192. doi:10.1097/FCH.0b013e31828e671c

Bromfield, S., & Muntner, P. (2013). High blood pressure: The leading global burden of disease risk factor and the need for worldwide prevention programs. *Current Hypertension Reports, 15*(3), 134–136. doi:10.1007/s11906-013-0340-9

Carter, B. L., Bosworth, H. B., & Green, B. B. (2012). The hypertension team: The role of the pharmacist, nurse, and teamwork in hypertension therapy. *Journal of Clinical Hypertension*, *14*(1), 51–65. doi:10.1111/j.1751-7176.2011.00542.x

Chummun, H. (2011). The management of hypertension: The impact of nurse-led clinics. *Nurse Prescribing*, *9*(2), 68–74. doi:10.12968/npre.2011.9.2.68

De Moraes, W. M., Souza, P. R., Pinheiro, M. H., Irigoyen, M. C., Medeiros, A., & Koike, M. K. (2012). Exercise training program based on minimum weekly frequencies: Effects on blood pressure and physical fitness in elderly hypertensive patients. *Brazilian Journal of Physical Therapy*, *16*(2), 114–121. doi:10.1590/S1413-35552012005000013

Fitzgerald, M. A. (2011). Hypertension treatment update: Focus on direct renin inhibition. *Journal of the American Academy of Nurse Practitioners*, *23*(5), 239–248. doi:10.1111/j.1745-7599.2010.00589.x

Gross, B., Anderson, E. F., Busby, S., Frith, K. H., & Panco, C. E. (2013). Using culturally sensitive education to improve adherence with anti-hypertensive regimen. *Journal of Cultural Diversity*, *20*(2), 75–79.

Harmon, B. E., Blake, C. E., Armstead, C. A., & Hébert, J. R. (2013). Intersection of identities: Food, role, and the African-American pastor. *Appetite, 67*, 44–52. doi:10.1016/j.appet.2013.03.007

Kim, M. T., Hill, M. N., Bone, L. R., & Levine, D. M. (2000). Development and testing of the Hill-Bone Compliance to High Blood Pressure Therapy Scale. *Progress in Cardiovascular Nursing*, *15*(3), 90–96. doi:10.1111/j.1751-7117.2000.tb00211.x

Krousel-Wood, M., Joyce, C., Holt, E. W., Levitan, E. B., Dornelles, A., Webber, L. S., & Muntner, P. (2013). Development and evaluation of a self-report tool to predict low pharmacy refill adherence in elderly patients with uncontrolled hypertension. *Pharmacotherapy*, *33*(8), 798–811. doi:10.1002/phar.1275

Lennon, S. L., DellaValle, D. M., Rodder, S. G., Prest, M., Sinley, R. C., Hoy, M. K., & Papoutsakis, C. (2017). 2015 evidence analysis library evidence-based nutrition practice guideline for the management of hypertension in adults. *Journal of the Academy of Nutrition and Dietetics.* Advance online publication. doi:10.1016/j.jand.2017.04.008.

National Heart, Lung, and Blood Institute. (2015). *Description of the DASH Eating Plan*. Retrieved from https://www.nhlbi.nih.gov/health/health-topics/topics/dash/

Parrill, R., & Kennedy, B. R. (2011). Partnerships for health in the African American community: Moving toward community-based participatory research. *Journal of Cultural Diversity, 18*(4), 150–154.

Patience, S. (2013). Understanding the relationship between salt intake and hypertension. *Nursing Standard*, *27*(18), 45–47. doi:10.7748/ns2013.01.27.18.45.c9487

Rebholz, C. M., Gu, D., Chen, J., Huang, J. F., Cao, J., Chen, J. C., …, He, J. (2012). Physical activity reduces salt sensitivity of blood pressure: The Genetic Epidemiology Network of Salt Sensitivity Study. *American Journal of Epidemiology*, *176*(Suppl. 7), S106–S113. doi:10.1093/aje/kws266

Rigsby, B. D. (2011). Hypertension improvement through healthy lifestyle modifications. *The Association of Black Nursing Faculty Journal*, *22*(2), 41–43.

Rubenstein, J. H., Morgenstern, H., Kellenberg, J., Kalish, T., Donovan, J., Inadomi, J., …, Schoenfeld, P. (2011). Validation of a new physical activity questionnaire for a sedentary population. *Digestive Diseases and Sciences*, *56*(9), 2678–2687. doi:10.1007/s10620-011-1641-y

Schoenthaler, A., Luerassi, L., Teresi, J. A., Silver, S., Kong, J., Odedosu, T., …, Ogedegbe, G. (2011). A practice-based trial of blood pressure control in African Americans: Study protocol for a randomized controlled trial. *Trials Journal, 12*(265), 1–12. doi:10.1186/1745-6215-12-265

Stuart-Shor, E. M., Berra, K. A., Kamau, M. W., & Kumanyika, S. K. (2012). Behavioral strategies for cardiovascular risk reduction in diverse and underserved racial/ethnic groups. *Circulation*, *125*(1), 171–184. doi:10.1161/CIRCULATIONAHA.110.968495

Warren-Findlow, J., Seymour, R. B., & Brunner Huber, L. R. (2012). The association between self-efficacy and hypertension self-care activities among African American adults. *Journal of Community Health, 37*(1), 15–24. doi:10.1007/s10900-011-9410-6

Washington, E., Weed, L. D., & Vardaman, S. A. (2015). Using the internet to increase physical activity in a faith community. *Journal of Christian Nursing, 32*(3), 168–173. doi:10.1097/CNJ.0000000000000180

World Health Organization. (2013). *A global brief on hypertension: Silent killer, global public health crisis.* Retrieved from http://apps.who.int/iris/bitstream/10665/79059/1/ WHO_DCO_WHD_2013.2_eng.pdf?ua=1

Instructions for Taking the CE Test Online

- Read the article. The test for this CE activity can be taken online at www.NursingCenter.com/CE/CNJ. Find the test under the article title. Tests can no longer be mailed or faxed. You will need to create a username and password and log in to your free personal CE Planner account before taking online tests. Your planner will keep track of all your Lippincott Professional Development online CE activities for you.
- There is only one correct answer for each question. A passing score for this test is 17 correct answers. If you pass, you can print your certificate of earned contact hours and access the answer key. If you fail, you have the option of taking the test again at no additional cost.
- This CE test also is available for viewing at www.journalofchristiannursing.com in the table of contents for this issue under CE Test Preview
- Visit www.nursingcenter.com for other CE activities and your personalized CE planner tool.
- For questions, contact Lippincott Professional Development: 1-800-787-8985.

Registration Deadline: December 31, 2019

Disclosure Statement: The authors and planners have disclosed that they have no financial relationships related to this article.

Provider Accreditation:

Lippincott Professional Development will award 1.5 contact hours for this continuing nursing education activity.

Lippincott Professional Development is accredited as a provider of continuing nursing education by the American Nurses Credentialing Center's Commission on Accreditation.

This activity is also provider-approved by the California Board of Registered Nursing, Provider Number CEP 11749 for 1.5 contact hours. Lippincott Professional Development is also an approved provider of continuing nursing education by the District of Columbia, Georgia, and Florida, CE Broker #50-1223.

Payment and Discounts:

- The registration fee for this test is $17.95 for nonmembers, $12.95 for NCF members.

CE For additional continuing education articles related to faith community nursing, go to NursingCenter.com/CE and search "faith community nursing."