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Family History of Stroke Among African Americans and Its Association With Risk Factors, Knowledge, Perceptions, and Exercise

Dawn M. Aycock, PhD, RN, ANP-BC,

Assistant Professor, Byrdine F. Lewis School of Nursing and Health Professions, Georgia State University, Atlanta

Kenya D. Kirkendoll, MSN, MPH, RN,

PhD Student, School of Nursing, The University of Alabama at Birmingham

Kisha C. Coleman, MSN, RN, CPHM,

DNP Student, School of Nursing, The University of Alabama at Birmingham

Patricia C. Clark, PhD, RN., FAHA, FAAN,

Professor, Byrdine F. Lewis School of Nursing and Health Professions, Georgia State University, Atlanta

Karen C. Albright, DO, MPH, and

Postdoctoral Fellow, Health Services and Outcomes Research Center for Outcome and Effectiveness Research and Education, The University of Alabama at Birmingham

Anne W. Alexandrov, PhD, RN, CCRN, ANVP-BC, FAAN

Assistant Dean for Program Evaluation and Professor, School of Nursing, The University of Alabama at Birmingham

Abstract

Background—African Americans are at greater risk for stroke than whites are; however, it is unclear what role family history of stroke (FHS) plays in the adoption of healthier lifestyles among African Americans.

Objective—The aim of this study was to compare modifiable risk factors, knowledge of stroke risk factors, perceived threat of stroke, perceived control of stroke, and exercise behaviors and intentions in African Americans with a FHS and those without a FHS.

Methods—A cross-sectional study was conducted with rural African Americans aged 19 to 54 years participating in a mobile health clinic. Participants' stroke knowledge, perceptions of risk, exercise history and intent, physiologic data, and health history were collected.

Results—Participants (N = 66) had a mean (SD) age of 43.3 (9.4) years and were mostly women, high school graduates, and unemployed. Participants with a FHS (n = 33) did not differ on average

number of risk factors from those without a FHS. However, participants with a FHS were more likely to report a history of hypertension than were those without. There were no significant differences between groups in stroke knowledge, perceived threat and perceived control, or recent exercise performance, although participants with a FHS had significantly lower future intentions to exercise than did those without a FHS.

Conclusions—Family history of stroke was common in this sample; however, it did not translate into better understanding of stroke or better exercise behaviors and intentions. More can be done to identify African Americans with a FHS, especially those with multiple risk factors, to educate them about the significance of FHS while promoting lifestyle change and self-management.

Keywords

African American; exercise; family history; risk assessment; stroke

Individuals with a first-degree family history of stroke are twice as likely as those without a family history to experience a stroke. A sibling history of stroke also may increase the likelihood of having a more severe stroke.⁴ Family history may increase risk for stroke due to genetic factors, culture, and/or shared environment. That is, family members may have a genetic tendency toward hypertension, diabetes, and obesity and common social behaviors that may influence dietary habits, activity levels, and use of cigarettes and alcohol.

Although understanding one's family history of stroke is important for everyone, African Americans may have the most to gain because African Americans tend to have stroke at an earlier age, are twice as likely to have a first-ever stroke, and have higher death rates after stroke compared with whites.^{5,6} A family history of stroke has been reported in 36% to 47% of African Americans with stroke,⁷⁻⁹ and researchers have found that having a parent or sibling who had a stroke at a younger age (<60 years) increases the risk of having a young-onset stroke.^{9,10} Stroke is increasing among younger adults,¹¹ underscoring the need to identify primary prevention strategies to reach this population.

Family history is not a new concept in stroke prevention; however, there is limited evidence of the influence of family history on stroke prevention. In a recent review of the cardiovascular literature, researchers concluded that a family history of cardiovascular disease was associated with increased perceived cardiovascular risk but not with health-related behavior change.¹² There were no studies in the review that focused on African Americans; therefore, we reviewed the literature on family history, perceived risk, and behavior change in other diseases common among African Americans and found mixed results.¹³⁻¹⁶ African American men with a family history of prostate cancer did not perceive their risk as higher than those without a family history of prostate cancer but were more likely to have a recent prostate-specific antigen test.¹³ African Americans with a family history of end-stage renal disease did not perceive themselves as more vulnerable for kidney disease¹⁴; however, African American women with a family history of heart disease had accurate estimations of their personal cardiac risk¹⁵ and African Americans with a family history of diabetes were more aware of risk factors and more likely to consume 5 or more servings of fruits and vegetables per day and be screened for diabetes.¹⁶ Understanding whether a family history of stroke contributes to an individual's knowledge, perceptions, and

behaviors may have implications for stroke prevention programs targeting African Americans. Therefore, this study explored differences in modifiable risk factors, knowledge of stroke risk factors, perceived threat of stroke, perceived control of stroke, and exercise behaviors and intentions in African Americans with a family history of stroke and those without a family history of stroke.

Methods

A cross-sectional, comparative design was used with a nonrandom sample of participants recruited from a free mobile health clinic that traveled to 4 counties in the Black Belt region of rural Alabama. The Black Belt region, named for its rich black topsoil and agricultural history, is part of the Stroke Belt and known for having high rates of poverty, unemployment, and poor access to healthcare.¹⁷ When individuals checked into the mobile health clinic, they received a recruitment flyer and/or were asked by a researcher about their interest in participating in a study. For those interested, the researcher explained the study, determined study eligibility, and obtained informed consent. Eligibility criteria included individuals aged 19 to 54 years who self-identified as African American or black, were current residents of rural Alabama, and were able to read and write English or understand survey questions read to them. Because some questions related to exercise, participants also could not have any physical impairment that prohibited them from exercising. There were 208 clinical participants screened for inclusion in the study, of whom 135 (65%) did not meet age requirements and 1 did not self-identify as African American/ black. Of the 72 eligible clinical participants, 6 (3%) declined participation, with reasons of not interested (2), lack of time (3), or not feeling well (1). A total of 66 participants were enrolled, a 92% recruitment rate. The study received approval from a university institutional review board. Data were collected using in-person administration of questionnaires and clinic chart review.

Instruments

A researcher-developed demographic form was used to collect participant characteristics, and a stroke risk assessment form was created to calculate stroke risk scores. The assessment form was adapted from the American Stroke Association's stroke risk assessment form¹⁸ and included health, social, and family histories associated with stroke risk and biophysiological health measures. Stroke risk scores were calculated using the National Stroke Association's Stroke Risk Scorecard¹⁹ as a guide. Scores could range from 0 to 8 and included the following factors: history of hypertension, high cholesterol, diabetes, atrial fibrillation, cigarette smoking, inadequate exercise, family history of stroke, and body mass index (BMI) greater than 30 kg/m² (participants' heights and weights were obtained by researchers using a standardized scale and stadiometer, and BMIs were calculated using the National Heart, Lung, and Blood Institutes BMI calculator).²⁰ For this study, we used the American Stroke Association's²¹ indication of family history of stroke, which includes a parent, grandparent, or sibling who experienced a stroke.

Knowledge of stroke risk factors was assessed using a 13-item risk factor knowledge survey developed using elements from previous surveys of stroke knowledge^{22,23} that were also consistent with the stroke risk factors identified by the American Stroke Association.²¹ The

survey was also reviewed for content validity by an expert in acute stroke management and an expert in measurement. Participants were asked whether they regarded each item as a risk factor for stroke, with possible answers of yes, no, and don't know. Eleven of the 13 items were established risk factors (high cholesterol, cigarette smoking, family history of stroke, high blood pressure, diabetes, African American/black race, physical inactivity, heavy alcohol use, overweight/obesity, poor diet, and atrial fibrillation), whereas the others were not (poor eyesight and arthritis). The knowledge score was derived by summing the number of correct responses. A response of "don't know" was considered incorrect. Scores could range from 0 to 13, with higher scores indicating greater stroke risk factor knowledge. Internal consistency reliability in this study was 0.70.

The 4-item perceived control subscale of the Risk Perception Survey-Developing Diabetes²⁴ was adapted for stroke and used to measure participants' perceptions of their control over the risks of having a stroke. For each item, the term *get/getting diabetes* was replaced with *have/having a stroke*. Responses ranged from 1 (strongly agree) to 4 (strongly disagree), with higher scores indicating greater perceived control over risk of a stroke. Content validity of the original scale was established by a panel of experts in diabetes and risk perception,²⁴ and the adapted scale was reviewed for content validity by an expert in acute stroke management and an expert in measurement. Internal consistency reliability in this study was 0.63.

The Champion Health Belief Model Scale,²⁵ adapted for stroke, was used to measure perceived threat of stroke (ie, perceived susceptibility and perceived seriousness of stroke). The susceptibility and seriousness items were adapted for stroke by changing the original stem of each question from "breast cancer" to "future stroke." Scores could range from 1 to 5, with higher scores indicating greater perceived threat of experiencing a stroke. Reliability and validity of the original scale and its subscales have been established,²⁵ and the adapted scale was reviewed for content validity by an expert in acute stroke management and an expert in measurement. Internal consistency reliability in this study was 0.89. To further explore participants' beliefs about what was contributing to their chance of having a future stroke, they were also asked what was putting them at no, low, moderate, or high risk of stroke.

The modified Godin Leisure-Time Exercise Questionnaire, a valid and reliable, widely used measure of physical activity, was used to assess participants' typical exercise behaviors.²⁶ Participants were asked to indicate the frequency and average duration (in minutes) of mild, moderate, and strenuous exercise with the question "During a typical 7-day period in the past month, how many times on the average and how many minutes per day did you do the following kinds of exercise?" Examples of the activities were provided for each intensity level. Exercise minutes were calculated as the moderate minutes plus 2 times the vigorous minutes; mild minutes were not included. These minutes were then transformed into 3 categories: no exercise (0 minutes), insufficient exercise (1–149 minutes), and exercise within or above the guidelines for stroke prevention (>150 minutes).²⁷

The 2-item 6-month intention to exercise subscale from the Cerebrovascular Attitudes and Beliefs Scale-Revised was used to measure participants' future interest in or goal of

initiating or maintaining regular exercise.^{28,29} Responses for the items ranged from 1 (strongly disagree) to 5 (strongly agree), and higher scores indicated stronger intentions to engage in regular exercise in the next 6 months. Internal consistency reliability in this study was 0.81.

Statistical Analysis

Data were analyzed using SPSS version 18.0. Independent-sample *t* test and χ^2 analysis were used to examine differences between participants with and without a family history of stroke for all variables. Nonparametric equivalents were used when data were not normally distributed. Because this was an exploratory analysis, no adjustments were made for multiple comparisons. The α level was set at .05.

Results

Of the 66 participants enrolled in the study, half reported a family history of stroke, either a parent (58%), grandparent (33%), or sibling (9%). Overall, participants ranged in age from 19 to 54 years, with a mean (SD) of 43.3 (9.4) years. Most were women (71%), with at least 12 years of school (89%) and unemployed (62%). Participants had a mean (SD) of 2.48 (1.44) modifiable risk factors of a possible of 7. Common risk factors were inadequate exercise (76%), obesity (59%), history of hypertension (53%), and cigarette smoking (38%). As shown in Table 1, there were no significant differences in demographics or risk factors between participants with and participants without a family history of stroke except for work status and history of hypertension. A higher proportion of participants with a family history of stroke were unemployed/not working and a higher proportion reported a history of hypertension. Mean blood pressure readings did not differ by family history of stroke, but additional analysis revealed that of 11 participants with a family history of stroke who did not report a history of hypertension, 9 (82%) had blood pressure readings indicating prehypertension.³⁰

There were also no significant differences between the groups in knowledge of stroke risk factors (Table 2); however, a higher proportion of participants with a family history of stroke (82%) identified family history as a risk factor compared with those without a family history (58%, $P < .05$). A family history of stroke was 1 of the most common factors participants noted as contributing to their risk of future stroke; the other was hypertension. However, participants' perceptions of the threat of future stroke and control of stroke risk factors did not differ by family history of stroke (Table 2). In general, all participants had limited knowledge of stroke risk factors and perceived a low threat of future stroke, and they tended to agree, although not strongly, that they could control their risk of a stroke. Most participants (80%) reported engaging in some form of mild (58%), moderate (24%), or strenuous exercise (12%) within the month preceding data collection, but only 24% met the recommended activity levels for reducing stroke risk. No differences in exercise performance were found between the groups, although participants with a family history of stroke had significantly lower intentions to exercise within the next 6 months than did those without a family history (Table 2).

Discussion

A family history of stroke was common in this cohort of at-risk, young to middle-aged rural African Americans. Most participants, particularly those with a family history of stroke, correctly identified family history as a risk factor for stroke. This finding is similar to other studies in which 64% to 82% of respondents have identified family history as a risk factor for stroke.^{31,32} However, in this study, a family history of stroke and recognition that family history increases risk did not translate into better understanding of stroke or better exercise behaviors and intentions.

Those with a family history were no more knowledgeable about stroke risk factors than those without a family history. Groups had similar perceptions of the threat of future stroke and their personal control of stroke risk despite the fact that participants with a family history of stroke tended to have more risk factors. These findings suggest that individuals with a family history of stroke may not fully understand its significance, especially when combined with risk factors such as obesity, hypertension, and inadequate exercise. A family history of stroke did not contribute to higher exercise performance; indeed, participants with a family history had lower future intentions to exercise than did those without a family history. This finding differs from the findings of other studies that persons with a family history of disease had preventive health behaviors and intentions similar or superior to those without a family history.^{13,16,33} Several factors may explain the lack of future intentions to exercise regularly among those with a family history of stroke. These individuals may not fully appreciate the benefits of exercise for stroke prevention. Also, other family factors such as timing, cause, severity, and consequences of a family member's stroke³⁴ may influence decisions to initiate or continue healthy behaviors, but these were not examined in this study. Another explanation is fatalism or believing that a disease is inevitable regardless of what a person does. Fatalism has been used by other researchers to explain a lack of engagement in healthy behaviors.^{16,34} Consistent with these findings, additional analysis in our study sample indicated that lower perceived control of stroke was associated with lower future intentions to exercise. Finally, most participants in this study were women, and there is evidence that African American women report lower levels of physical exercise than do other groups.³⁵ To this end, African American women continue to be an important group to target for exercise interventions, and this study emphasizes the need to address African American women with a family history of stroke. More research is needed to understand intentions to exercise to reduce stroke risk with regard to potential barriers faced by this group.

More participants with a family history of stroke were not working. The interpretation of this finding is not clear, yet the rural areas where recruitment took place are known for having high rates of unemployment. Not surprising, individuals with a family history of stroke were more likely to have a personal history of hypertension than were those without a family history. Similarly, Hart et al³⁶ found that persons with a parental history of stroke had significantly higher mean blood pressure readings than did those without a parental history, and they concluded that checking blood pressures in offspring of patients with stroke has potential value in identifying people likely to benefit from primary prevention. This recommendation was pertinent in this study, as 9 participants with a family history of stroke

and no previous diagnosis of hypertension had blood pressure readings indicating prehypertension.

The limitations of this study should be considered when evaluating the findings. A cross-sectional design was used, so causal relationships could not be established. Also, generalizability is limited by the small sample, nonrandom sampling, and the fact that all participants were rural African Americans and mostly women. Our small sample size may have limited our ability to detect existing differences between groups. Finally, the reliability of the perceived control subscale was slightly below acceptable standards, and revision of this scale may be warranted. Despite the limitations, the study contributes to our understanding of stroke risk, including family history among a vulnerable population, who are disproportionately affected by stroke and underrepresented in research.

Conclusion

Although family history of stroke cannot be changed, several other risk factors observed in this sample are modifiable. There were no statistically significant group differences in the number of risk factors and health measures, but there may be some clinical importance in noting that participants with a family history of stroke had a higher mean number of risk factors, BMI, non-fasting blood glucose, and systolic blood pressure than did those without a family history.

The high stroke risk in this sample was attributable mostly to modifiable factors, such as hypertension and obesity, which have been cited as contributors to stroke in young adults¹¹ and in African Americans.^{5,6} To improve these modifiable factors, rural, young to middle-aged African Americans, especially those with multiple risk factors, may need help in understanding their personal risk of stroke.

More needs to be done in healthcare settings and the community to identify individuals with a family history of stroke and educate them about the significance of this risk factor. Providers in a variety of settings can use teachable moments to address the significance of family history. Kip et al³⁷ suggest that emphasizing family history when the event occurs may influence preventive health behaviors, at least in the short term. Other opportunities for accessing and educating family members of stroke survivors are found at rehabilitation sites and in stroke support groups. Additional strategies may include expanding services in underserved areas through initiatives such as the mobile health clinic, rigorous blood pressure management programs, and teaching techniques for increasing exercise frequency and intensity. Finally, research is needed to determine whether educational interventions can improve knowledge and understanding of stroke among African Americans with a family history of stroke and positively influence healthy behaviors.

References

1. Choi JC, Lee JS, Kang SY, Kang JH, Bae JM. Family history and risk for ischemic stroke: sibling history is more strongly correlated with disease than parental history. *J Neurol Sci.* 2009; 284:29–32. [PubMed: 19375086]
2. Lisabeth LD, Peyser PA, Long JC, Majerisk JJ, Smith MA. Stroke among siblings in bi-ethnic community. *Neuroepidemiology.* 2008; 31:33–38.

3. Kim H, Friedlander Y, Longstreth WT, Edwards KL, Schwartz SM, Siscovick DS. Family history as a risk factor for stroke in young women. *Am J Prev Med.* 2004; 27:391–396. [PubMed: 15556739]
4. Meschia J, Case L, Worrall B, et al. Family history of stroke and severity of neurologic deficit after stroke. *Neurology.* 2006; 67:1396–1402. [PubMed: 17060565]
5. African Americans and Stroke. National Stroke Association; 2013. <http://www.stroke.org/site/PageServer?pagename=aamer> [Accessed April 4, 2013]
6. Cruz-Flores S, Rabinstein A, Biller J, et al. Racial-ethnic disparities in stroke care: the American experience: a statement for healthcare professionals from the American Heart Association/American Stroke Association. *Stroke.* 2011; 42:2091–2116. [PubMed: 21617147]
7. MacClellan LH, Mitchell BD, Cole JW, et al. Familial aggregation of ischemic stroke in young women: the Stroke Prevention in Young Women Study. *Genet Epidemiol.* 2006; 30:602–608. [PubMed: 16868965]
8. Waddy SP, Cotsonis G, Lynn MJ, et al. Racial differences in vascular risk factors and outcomes of patients with intracranial atherosclerotic arterial stenosis. *Stroke.* 2009; 40:719–725. [PubMed: 18832745]
9. Worrall B, Johnston K, Kongable G, Hung E, Richardson D, Gorelick P. Stroke risk factor profiles in African American women: an interim report from the African-American Antiplatelet Stroke Prevention Study. *Stroke.* 2002; 33:913–919. [PubMed: 11935036]
10. Schulz UG, Flossmann E, Rothwell PM. Heritability of ischemic stroke in relation to age, vascular risk factors, and subtypes of incident stroke in population-based studies. *Stroke.* 2004; 35:819–824. [PubMed: 15001788]
11. George MG, Tong X, Kuklina EV, Labarthe DR. Trends in stroke hospitalizations and associated risk factors among children and young adults, 1995–2008. *Ann Neurol.* 2011; 70:713–721. [PubMed: 21898534]
12. Imes, CC., Lewis, FM. [Accessed May 13, 2013] Family history of cardiovascular disease, perceived cardiovascular disease risk, and health-related behavior: a review of the literature [published online ahead of print January 14, 2013]. *J Cardiovasc Nurs.* <http://www.ncbi.nlm.nih.gov/pubmed/23321782>
13. Bloom JR, Stewart SL, Oakley-Girvans I, Banks PJ, Chang S. Family history, perceived risk, and prostate cancer screening among African American men. *Cancer Epidemiol Biomarkers Prev.* 2006; 15:2167–2173. [PubMed: 17119042]
14. Jurkowitz C, Hylton TN, McClellan WM. Prevalence of family history of kidney disease and perception of risk for kidney disease: a population-based study. *Am J Kidney Dis.* 2005; 46:11–17. [PubMed: 15983952]
15. DeSalvo K, Gregg J, Kleinpeter M, Pedersen B, Stepter A, Peabody J. Cardiac risk underestimation in urban black women. *J General Intern Med.* 2005; 20:1127–1131.
16. Baptiste-Roberts K, Gary TL, Beckles G, et al. Family history of diabetes, awareness of risk factors, and health behaviors among African Americans. *Am J Public Health.* 2008; 97:907–912.
17. Auburn University. [Accessed April 17, 2013] Bridging the divide: Auburn University's outreach to Alabama's Black Belt. <http://www.auburn.edu/outreach/publications/bridgingthedivide.pdf>
18. Thompson Health. [Accessed April 3, 2013] American Stroke Association Stroke Risk Assessment Form. 2003. http://www.thompsonhealth.com/Portals/0/_Health%20Information%20&%20Education/stroke_risk.pdf
19. Stroke.org. [Accessed April 3, 2013] National Stroke Association Stroke Risk Scorecard. http://www.stroke.org/site/DocServer/scorecard_risk.pdf?docID=601
20. National Heart, Lung, and Blood Institute. [Accessed April 3, 2013] Calculate your body mass index. 2012. <http://www.nhlbiupport.com/bmi/>
21. American Stroke Association. [Accessed April 4, 2013] About stroke understanding risk: stroke risk factors. http://www.strokeassociation.org/STROKEORG/AboutStroke/UnderstandingRisk/Understanding-Risk_UCM_308539_SubHomePage.jsp
22. Dearborn JL, McCullough LD. Perception of risk and knowledge of risk factors in women at high risk for stroke. *Stroke.* 2009; 40:1181–1186. [PubMed: 19211481]

23. Kleindorfer D, Miller R, Sailor-Smith S, Moomaw C, Khoury J, Frankel M. The challenges of community-based research: the Beauty Shop Stroke Education Project. *Stroke*. 2008; 39:2331–2335. [PubMed: 18566304]
24. Walker EA, Mertz CK, Kalten M, Flynn J. Risk perception for developing diabetes: comparative risk judgments of physicians. *Diabetes Care*. 2003; 26:2543–2548. [PubMed: 12941716]
25. Champion VL. Instrument development for health belief model constructs. *Adv Nurs Sci*. 1984; 6:73–85.
26. Godin G, Shephard RJ. A simple method to measure exercise behavior in the community. *Can J Appl Sport Sci*. 1985; 10:141–146. [PubMed: 4053261]
27. Trinh L, Plotnikoff R, Rhodes R, North S, Courneya K. Associations between physical activity and quality of life in a population-based sample of kidney cancer survivors. *Cancer Epidemiol Biomarkers Prev*. 2011; 20:859–868. [PubMed: 21467240]
28. Sullivan KA, White KM, Young R, Chang A, Roos C, Scott C. Predictors of intention to reduce stroke risk among people at risk of stroke: an application of an extended health belief model. *Rehabil Psychol*. 2008; 53:505–512.
29. Sullivan KA, White KM, Young R, Scott C. Predicting behavior to reduce stroke risk in at-risk populations: the role of beliefs. *Int J Ther Rehabil*. 2009; 16:488–496.
30. National Heart Lung and Blood Institute. [Accessed April 16, 2013] The seventh report of the Joint National Committee on Prevention, Detection, Evaluation and Treatment of High Blood Pressure. <http://www.nhlbi.nih.gov/guidelines/hypertension/jnc7full.pdf>
31. Sallar AM, Williams PB, Omishakin AM, Lloyd DP. Stroke prevention: awareness of risk factors for stroke among African American residents in the Mississippi delta region. *J Natl Med Assoc*. 2010; 102:84–94. [PubMed: 20191920]
32. Wiley JZ, Williams O, Boden-Albala B. Stroke literacy in Central Harlem: a high risk stroke population. *Neurology*. 2009; 73:1950–1956. [PubMed: 19890071]
33. Omolafe A, Mouttapa M, McMahan S, Tanjasri S. We are family: family history of diabetes among African Americans and its association to perceived severity, knowledge of risk factors, and physical activity levels. *Calif J Health Promot*. 2010; 8:88–97.
34. Walter FM, Emery J. Perceptions of family history across common diseases: a qualitative study in primary care. *Fam Pract Advance Access*. 2006; 23:472–480.
35. U.S. Department of Health and Human Services. [Accessed May 13, 2013] 2008 Physical Activity Guidelines for Americans. [health.gov](http://www.health.gov/paguidelines/pdf/paguide.pdf). Oct. 2008 <http://www.health.gov/paguidelines/pdf/paguide.pdf>
36. Hart ND, Cupples ME, Wiggam MI, Patterson CC, Yarnell JW. The stroke offspring study: is parental stroke history of value in targeted risk factor screening. *Prim Health Care Res Dev*. 2011; 12:21–28. [PubMed: 21426612]
37. Kip KE, McCreath HE, Roseman JM, Hulley SB, Schreiner PJ. Absence of risk factor change in young adults after family heart attack or stroke: the CARDIA study. *Am J Prev Med*. 2002; 22:258–266. [PubMed: 11988382]

What's New and Important

- African Americans with a family history of stroke may be more susceptible to hypertension and other traditional stroke risk factors.
- Having a family history of stroke may not translate into better understanding of stroke or health behaviors.
- Understanding what barriers hinder exercise behaviors and intentions for stroke prevention can contribute to ways to facilitate exercise participation among high-risk African Americans.

TABLE 1

Differences in Sample Characteristics and Risk Factors by Family History of Stroke (n = 66)

Characteristic	Family History of Stroke		
	Yes (n = 33)	No (n = 33)	P
Age, mean (SD), y	43.8 (9.3)	42.9 (9.7)	.679
Years of school, mean (SD)	12.6 (2.0)	13.1 (1.7)	.313
Female, n (%)	27 (82)	20 (61)	.057
Not working, n (%)	26 (79)	15 (46)	.005
Has health insurance, n (%)	20 (61)	16 (49)	.323
Modifiable risk factors, mean (SD)	2.8 (1.4)	2.2 (1.5)	.089
Body mass index, mean (SD), kg/m ²	34.7 (9.9)	30.6 (8.8)	.085
High cholesterol, n (%)	9 (27)	9 (27)	1.000
Cigarette smokers, n (%)	13 (39)	12 (36)	.800
History of diabetes, n (%)	9 (27)	4 (12)	.122
Nonfasting blood glucose, mean (SD), mg/dL	126.7 (54.9)	106.6 (39.3)	.105
History of hypertension, n (%)	22 (67)	13 (39)	.026
Systolic blood pressure, mean (SD), mm Hg	138.6 (18.3)	132.3 (18.9)	.174
Diastolic blood pressure, mean (SD), mm Hg	86.1 (11.1)	82.3 (13.9)	.218

TABLE 2

Differences in Outcome Variables by Family History of Stroke (n = 66)

Variable	Yes (n = 33)	No (n = 33)	P
Knowledge of stroke risk factors, mean (SD)	9.03 (2.77)	8.30 (2.79)	.210
Perceived control of stroke, mean (SD)	2.90 (.65)	2.91 (.59)	.931
Perceived threat of stroke, mean (SD)	2.95 (.84)	2.88 (0.68)	.636
Future intentions to exercise, ^a mean (SD)	3.35 (1.23)	3.98 (0.83)	.046
Exercise performance, n (%)			
No exercise	16 (49)	15 (46)	
Insufficient exercise	11 (33)	8 (24)	.471
Exercise within/above guidelines	6 (18)	10 (63)	

^aMann Whitney *U* test (95% confidence interval, 0.12–1.15).