



Development and Implementation of a Culturally Tailored, Community-Based Intervention to Raise Awareness of Brain Health Among African Americans

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Abstract

African Americans bear a disproportionate burden of age-related cognitive impairment in the United States compared to Whites or Hispanics. African Americans experience greater prevalence, higher risk, and lower rates of treatment and diagnosis for dementia. In response to these health disparities the Alzheimer's Association developed and implemented the Healthy Brain Initiative (HBI) demonstration project, the first community-level intervention to help reduce health disparities related to cognitive impairment among African Americans. The HBI promotes awareness of brain health, understanding of the heart-brain connection, and seeks to increase African American baby boomers engagement in health-protective behaviors to promote brain and overall health. The intervention was developed and implemented following engagement of local chapters and expert advisors, extensive formative evaluation to test intervention concepts, messages and materials, research on theoretical approaches and intervention strategies, and development of the HBI program theory or logic model. The core elements of the intervention included development of strategic partnerships, conduct of knowledge and awareness building educational workshops, community events and use of local media to promote the intervention and recruit participants.

Keywords

Brain health; African American; baby boomer; Alzheimer's disease; community engagement; community health; cognitive impairment; health disparities; urban health; community-based organizations

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ABSTRACT

African Americans bear a disproportionate burden of age-related cognitive impairment in the United States compared to Whites or Hispanics. African Americans experience greater prevalence, higher risk, and lower rates of treatment and diagnosis for dementia. In response to these health disparities the Alzheimer's Association developed and implemented the Healthy Brain Initiative (HBI) demonstration project, the first community-level intervention to help reduce health disparities related to cognitive impairment among African Americans. The HBI promotes awareness of brain health, understanding of the heart-brain connection, and seeks to increase African American baby boomers engagement in health-protective behaviors to promote brain and overall health. The intervention was developed and implemented following engagement of local chapters and expert advisors, extensive formative evaluation to test intervention concepts, messages and materials, research on theoretical approaches and intervention strategies, and development of the HBI program theory or logic model. The core elements of the intervention included development of strategic partnerships, conduct of knowledge and awareness building educational workshops, community events and use of local media to promote the intervention and recruit participants.

Keywords: Brain health; African American; baby boomer; Alzheimer's disease; community engagement; community health; cognitive impairment; health disparities; urban health; community-based organizations

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INTRODUCTION

Cognitive impairment affects between one-fifth and one-quarter of all older adults (Plassman et al., 2008; Ganguli et al., 2010; Katz et al., 2011; Rocca et al., 2011; Ward, Arrighi, Michels, & Cedarbaum, 2012). Age is the greatest known risk factor for cognitive impairment; as the population ages, prevalence is likely to increase significantly (Alzheimer's Association, 2010). For example, the number of people aged 65 and older with Alzheimer's disease is estimated to increase from 4.7 million in 2010 to 13.8 million by 2050 (Hebert, Weuve, Scherr, & Evans, 2013). In the coming decades, the public health impact of cognitive impairment will have significant social and economic implications for the United States. Cognitive impairment increases the costs of caring for older adults, both in health care settings and in the community. Currently, older Americans represent approximately 12% of the population, but individuals aged 65 and older with Alzheimer's and other dementias incurred costs for care that were almost three times higher than average Medicare payments for other Medicare beneficiaries, due to disproportionate numbers of physician office visits (26%) and medical emergencies (40%) (Bynum, 2009).

In the United States, the prevalence of cognitive impairment and Alzheimer's disease is higher among African Americans than among Caucasians. Current studies indicate that African Americans may have prevalence rates for cognitive impairment ranging from 14% to 100% higher than Caucasian Americans (Katz et al., 2011; Rocca et al., 2011; Alzheimer's Association, 2010; Sheffield & Peek, 2011). This population is growing relative to other groups: the proportion of African Americans among individuals over 65 is projected to rise from 8.3% in 2010 to 11.2% (9.9 million individuals) by 2050 (Administration on Aging, 2008). Higher rates of cognitive impairment among African Americans may be partially explained by non-modifiable factors such as race, age, gender, and years of education (Lee et al., 2012; Artero et al., 2008; Whitfield, Kiddoe, Gamaldo, Anel, & Edwards, 2009; Sharp & Gatz, 2011); however, modifiable factors, such as behavioral factors, may also play a role in the incidence of cognitive impairment in this population (as well as in other populations) (Rocca et al., 2011; Alzheimer's Association, 2010; Plassman, Williams, Burke, Holsinger, & Benjamin, 2010).

Although the causes of cognitive impairment are not fully understood, research has shown a strong association between vascular disease and cognitive impairment such as Alzheimer's disease, and a link between other conditions, such as obesity and diabetes, to cognitive health (Gustafson, Rothenberg, Blennow, Steen, & Skoog, 2003; Kuller et al., 2005; Luchsinger, Reitz, Patel, Tang, Manly, & Mayeux, 2007; Kennelly, Lawlor, & Kenny, 2009; Arvanitakis, Bennett, Wilson, & Barnes, 2010). Much research has been devoted to examining the relationship between physical activity, nutrition, and cognitive impairment. Evidence continues to accumulate indicating that physical activity and good nutritional practices may act as protective factors for maintaining cognitive health in older adults, along with effective treatment of hypertension and diabetes and other modifiable factors (Rocca et al., 2011). However, studies show that African American cultural norms do not always support healthy eating and physical activity (Hargreaves, Schlundt, & Buchowski, 2002; Whitt, Kumanyika, & Bellamy, 2003; Bramble, Cornelius, & Simpson, 2009; Robinson & Wicks, 2010), which may contribute to greater risk for vascular disease and cognitive impairment. Also, African Americans may not equate physical activity and healthy nutritional habits with healthy aging (Corwin, Laditka, Laditka, Wilcox, & Liu, 2009; Laditka et al., 2009; Wilcox et al., 2009).

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In response to these health disparities the Alzheimer's Association developed and implemented the Healthy Brain Initiative (HBI) demonstration project, the first community-level intervention to help reduce health disparities related to cognitive impairment among African Americans (referred to throughout this paper as either the HBI or the intervention). The intervention seeks to increase knowledge and awareness of brain health and the heart-brain connection, and increase African American baby boomers engagement in health-protective behaviors, such as physical activity, to promote brain and overall health.

Developing the HBI

In summer 2005, the Alzheimer's Association received funding through a 5-year collaborative agreement with the Health Care and Aging Studies Branch at the National Center for Chronic Disease Prevention and Health Promotion of the Centers for Disease Control and Prevention (CDC) to develop and implement the first single-focused effort on brain health promotion. The overall goal of the national-level initiative was to change knowledge, attitudes, and behavioral intentions regarding brain health and to promote brain-healthy lifestyle choices (Centers for Disease Control and Prevention [CDC] & the Alzheimer's Association, 2007). The national initiative supported three primary impact activities designed to achieve this long-term goal:

Impact Activity 1—A national action plan for public health strategies related to brain health promotion titled *The Healthy Brain Initiative: A National Public Health Road Map to Maintaining Cognitive Health* (CDC & the Alzheimer's Association, 2007).

Impact Activity 2—Community-based brain health interventions focused on promotion and disease prevention programs, including culturally appropriate programs to reach underserved communities.

Impact Activity 3—Surveillance and other activities designed to increase the knowledge base on brain health and to enhance use of evidence-based interventions to promote prevention and reduce the risk of Alzheimer's disease.

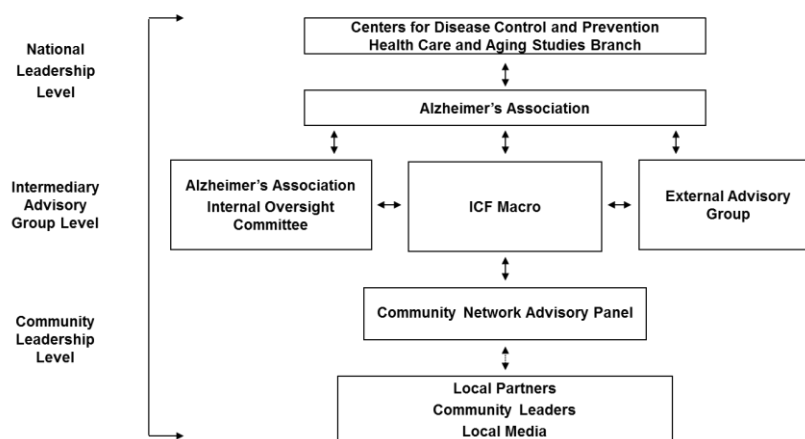
This paper features work done on impact activity 2. The result of impact activity 2 was the development, implementation and evaluation of the HBI for African Americans. The intervention was developed following engagement of local chapters and expert advisors, extensive formative evaluation to test intervention concepts, messages and materials (described below), research on theoretical approaches and intervention strategies, and development of the HBI program theory or logic model. Each of these activities is described in this paper.

Engaging Local Chapters and Expert Advisors

Several groups were involved in development of the intervention helping to ensure its successful pilot implementation in Atlanta, Georgia, and Los Angeles, California. Intervention development was guided by input from the Alzheimer's Association's internal oversight committee, a community network advisory panel of local Alzheimer's Association chapters, and an external advisory group of national health experts. Figure 1 depicts the relationships between national leadership, intermediary advisory groups, and community leadership involved in intervention development. The arrows between the entities involved are two-directional, indicating reciprocal relationships between the national, intermediary, and community levels all involved in development of the intervention.

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Figure 1. The Healthy Brain Initiative for African Americans Collaborative



The internal oversight committee was a group of staff internal to the Alzheimer's Association's national office. This committee guided the overall direction of impact activity 2 in developing the community-level intervention. The internal oversight committee helped build internal buy-in at the Alzheimer's Association and ensured that intervention development activities remained linked to the Association's national mission and goals. The community network advisory panel was a network of local Alzheimer's Association chapters selected by the Alzheimer's Association's national office to participate in intervention development. The national office oversaw the nomination and selection process to identify members of community network advisory panel, and local chapters were selected as part of a competitive process. In partnership with the community network advisory panel, the Alzheimer's Association and ICF Macro prepared a situational risk analysis (SRA) to identify and prioritize risk behaviors that the intervention would target. The community network advisory panel reviewed and provided input on documents to inform formative evaluation and participated in the selection process to identify the two sites to receive intervention implementation funding.

The external advisory group (EAG) was a group of 16 experts selected by the Alzheimer's Association's national office. The selected EAG members were experts in the fields of cognitive health, Alzheimer's disease, health disparities, and development of culturally appropriate interventions (particularly interventions that target African Americans). The EAG included representatives from Federal agencies (CDC, the National Institutes of Mental Health, and the Department of Health and Human Services); academic institutions (Columbia University, North Carolina Agricultural and Technical University, the University of Georgia, the University of South Carolina, Morehouse University, and the Mayo College of Medicine); advocacy and nonprofit organizations (the Alzheimer's Association, American Association of Retired Persons, and the Links, Incorporated); and the Chicago Department of Public Health and the New Birth Missionary Baptist Church. The EAG reviewed and provided feedback on formative evaluation guiding development of the HBI and the process and outcome evaluation of the intervention. Further, the EAG offered strategic guidance to ensure ongoing, in-depth understanding of the target audience and communication strategies to reach the target audience with HBI messages and materials during implementation.

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Conducting Secondary Research

Formative evaluation began with a literature review, environmental scan and review of Health Styles data (ICF Macro, Inc., 2005) to understand brain health and health promotion behaviors among African American baby boomers related to vascular risks and the four pillars of a brain-healthy lifestyle: (1) physical activity, (2) enhanced or improved nutrition, (3) mental activity, and (4) social activity. Inclusion criteria included publication in the past 10 years (with the exception of some 1980s articles about African American church social support), a focus on brain health, any of the four pillars, and African American baby boomers. Fifty-two separate keyword searches were conducted with combinations using 20 prescribe key words, eight academic databases; 59 articles met the criteria for inclusion.

Literature review findings revealed no published sources about brain health (or cognition) and African American baby boomers, and a dearth of published literature about the four pillars of a brain health lifestyle for African American baby boomers. Most eligible studies focused on African Americans in general, and diet and physical activity as health promotion behaviors to reduce a variety of vascular risks and chronic diseases. Research about the role of physical activity to reduce the risk of cognitive decline referred to the general population and was not specific to African American boomers. However we did find literature on African American women (not specifically boomers) and exercise suggesting that social support is a key motivator to being physically active to reduce chronic disease. Research about African Americans and good nutrition or healthy eating tended to focus on obesity prevention (versus to promote cognitive health) also demonstrated improved healthy eating among people with robust support networks (e.g., family, church, community) to promote healthy eating. Literature about mental activity to promote cognitive health tended to be embedded in literature about Alzheimer's disease and dementia. In the studies reviewed the authors said that mental activity is commonly associated with decreased odds of cognitive decline, Alzheimer's disease, and dementia in the general population, however again we identified no articles specific to mental activity to promote brain health among African American boomers. Finally, many studies found social activity, engagement and support as essential to health and well-being for African Americans in general.

Simultaneous with the literature review, an environmental scan was conducted to obtain information on brain health, any of the four pillars, and African American baby boomers in electronic media. Because the Internet contains no central indexing system and, thus, using it to find information can be challenging, a specialized software program, Copernic Agent Basic, and the Google.com search engine were used to help narrow the field. The data was drawn from many online sources including online newspapers, magazines, and newsletters from research centers; Internet news channels; and Web sites of organizations addressing this topic. After completing the search process, sources were reviewed, categorized, and analyzed to identify key themes. Similar to the literature review, the scan yielded little information on programs or policies to promote brain health among African American boomers however (with relaxed search parameters) we did identify health promotion programs to promote African Americans physical activity and health eating for overall health and well-being. Findings, including promising components, strategies and practices from health promotion programs were used to create the aforementioned SRA and inform the design of HBI for African American baby boomers.

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To supplement the literature review and environmental scan, and better understand the target audience, the review of the Health Styles (Styles) 2005 data (ICF Macro, Inc., 2005) was conducted to obtain information on target audience perceptions of health and health protective behaviors. Analysis of Styles data revealed that the target audience believes they are in good health; believe that good health is important, and endeavor to stay healthy through good nutrition, are less likely to engage in physical activity. Over half of survey respondents said that healthy eating habits are important and that they actively try to eat a healthy diet. African American baby boomers value printed health information and commonly use magazines to get health information, followed closely by their use of the Internet to get health information.

Conducting Message/Materials Testing Focus Groups

Four focus groups to test intervention concepts and messages with the target population were conducted in the two demonstration sites prior to implementation of the HBI. The focus groups investigated four specific questions: (1) How does the target audience define brain health? (2) What are the audience’s thoughts about the key intervention components? (3) What are the audience’s general thoughts about the intervention concepts, messages and sample materials? (4) What would the audience likely do (if anything) after exposure to the proposed concepts and messages? Related to question number 2, the groups gathered data on if concepts, messages and materials were clear and understandable; relevant to the audience; captured audience attention; matched audience preferences for wording and format; and featured culturally-appropriate images, settings, and activities.

A professional focus group facility recruited participants using a recruitment screener developed by the Alzheimer’s Association and ICF International. Focus group participants were screened on age, race/ethnicity, city of residence, and willingness to participate in the 90-minute group. To ensure between 6 and 10 individuals per group, the facilities attempted to recruit at least 12 eligible individuals to attend each group. A skilled African American moderator guided the focus group discussions. All participants were in the target audience of African American baby boomers (see Table 1.)

Table 1. Results from Screener Data (4 groups; 39 participants)

Geographic Location	Atlanta		Los Angeles		All
	Group 1	Group 2	Group 3	Group 4	
Group Number	Group 1	Group 2	Group 3	Group 4	Total
Number of Participants	10	10	10	9	39
Males	5	5	5	5	20
Females	5	5	5	4	19
Age*	49.9 (43–56)	53.1 (47–61)	50.0 (43–62)	54.33 (43–59)	51.8 (43–62)
Black/African American [‡]	9	10	10	9	38

* Mean minimum and maximum age in years. Ages are listed at the time of the groups in 2007.

‡ One participant did not provide a response to the race question.

Focus group participants were asked to complete a post-discussion information sheet (PDIS) after each focus group to gather additional demographic data to describe the group. Results on participants’ education, and if they have ever known or cared for anyone with Alzheimer’s is shown in Table 2.

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Table 2. Results from the Post-Discussion Information Sheet (PDIS)

	Atlanta		Los Angeles		All
	Group 1	Group 2	Group 3	Group 4	Total
Highest educational attainment: Completed 12th Grade/GED	1	1	4	1	7
Highest educational attainment: Some college or associate degree	4	4	6	5	19
Highest educational attainment: Completed 4 year degree or higher	5	5	0	3	13
Participant has ever known anyone with Alzheimer’s disease or dementia	4	6	4	4	18
Participant has ever cared for someone with Alzheimer’s disease or dementia	1	4	0	2	7

Focus group participants commonly shared that they define or think of “brain health” as having a sharp and alert mind, mental clarity, and being able to maintain one’s memory. They also said brain health is the ability to learn, stay independent and reason. Most participants favored the use of educational workshops to improve people’s awareness and understanding of brain health; they also agreed that engaging community-based, brain health champions to promote brain health activities was a good idea, especially if champions were compensated for their efforts to promote brain health knowledge and awareness in their communities. Across groups, participants had positive reactions to concepts and messages presented; understood messages conveyed; valued the images of African Americans, however they suggested including younger looking boomers. Images with older or “grandparent”-like pictures did not resonate with the audience, even though they were part of this demographic group. We learned that “boomers” are active, vibrant, and major contributors to their communities and that they want to see this conveyed in intervention messages and materials. These findings are similar to those found in recent market research on this audience (Needham 2006; Nielsen & the Black Press of America, 2012; Advertising Age, 2012).

There were few observed differences in findings between the Atlanta and Los Angeles focus groups. The only key differences were that all but one group in Los Angeles included brain health among their list of health concerns, however those participants included dementia and stroke as a main health concern. A few participants in only the Los Angeles groups mentioned the potential value of natural remedies to address cognitive decline. Additionally, across all groups, participants stated their desire for concise, less “wordy” messages however this was stressed more in Atlanta versus in the Los Angeles groups.

Creating Logic Model, Facilitator and Evaluation Kits

Intervention objectives must emerge from theoretical explanations for behavior, which are able to drive both program design and evaluation, particularly evaluation data collection instruments (Valente & Rice 2001). During the literature review, several valuable theoretical models were identified to inform development of the intervention; therefore the intervention is guided by five theoretical models shaping intervention activities. These theories/models are described in Table 3.

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Table 3. Theories/Models Guiding the Healthy Brain Initiative for African Americans Baby Boomers

Theory/Model	How the theory/model was used to guide development of the intervention
Planned Approach to Community Health	The PATCH model was used as a framework to organize local Alzheimer’s Association chapters’ ongoing involvement in the design and development of the HBI.
Empowerment Model	The Empowerment Model was used to ensure ongoing community-level participation and other bottom-up approaches focused on reducing health disparities. This model encouraged the continuing use of participatory strategies to recruit and involve community members (e.g., advisory group members, strategic partners, champions) in intervention activities.
Networking Model	This model was used to ensure the intervention’s broad and ongoing reach into the African American community, specifically to ensure engagement and networking among strategic partners and Healthy Brain Champions interested in and committed to promoting/disseminating brain health information in their communities.
Socio-Ecological Model	The Socio-Ecological Model was used as an overall framework for activities to ensure that the intervention addressed individual, organizational, and community-level factors expected to influence target audience knowledge and awareness of brain health and engagement in health protective behaviors.
Theory of Reasoned Action	The Theory of Reasoned Action was used to guide efforts focused on affecting target audience behavioral intentions. This theory states that the best predictor of behavior is intention. It suggests that an individual’s behavior (e.g., engagement in physical activity to control vascular risks and have a healthy brain) is determined by his or her intention to carry out the health protective behavior (Montano, Kasprzyk, & Taplin, 2002).

Using these theories/models and formative evaluation findings, the following intervention objectives were identified: (1) increase awareness of brain health and the relationship between physical inactivity, vascular risks, and brain health in the African American community; (2) foster the development of strategic community partnerships between local Alzheimer’s Association chapters and representatives from community organizations interested in promoting health-protective behaviors in the target population; and (3) increase knowledge and awareness of brain health through culturally-appropriate, educational workshops to empower community members to disseminate information, messages and materials to increase target audience awareness of brain health and intentions to engage in health-protective behaviors to promote a healthy brain. Intervention objectives linked to target audiences are shown in Table 4, and the intervention logic model is shown as Figure 2.

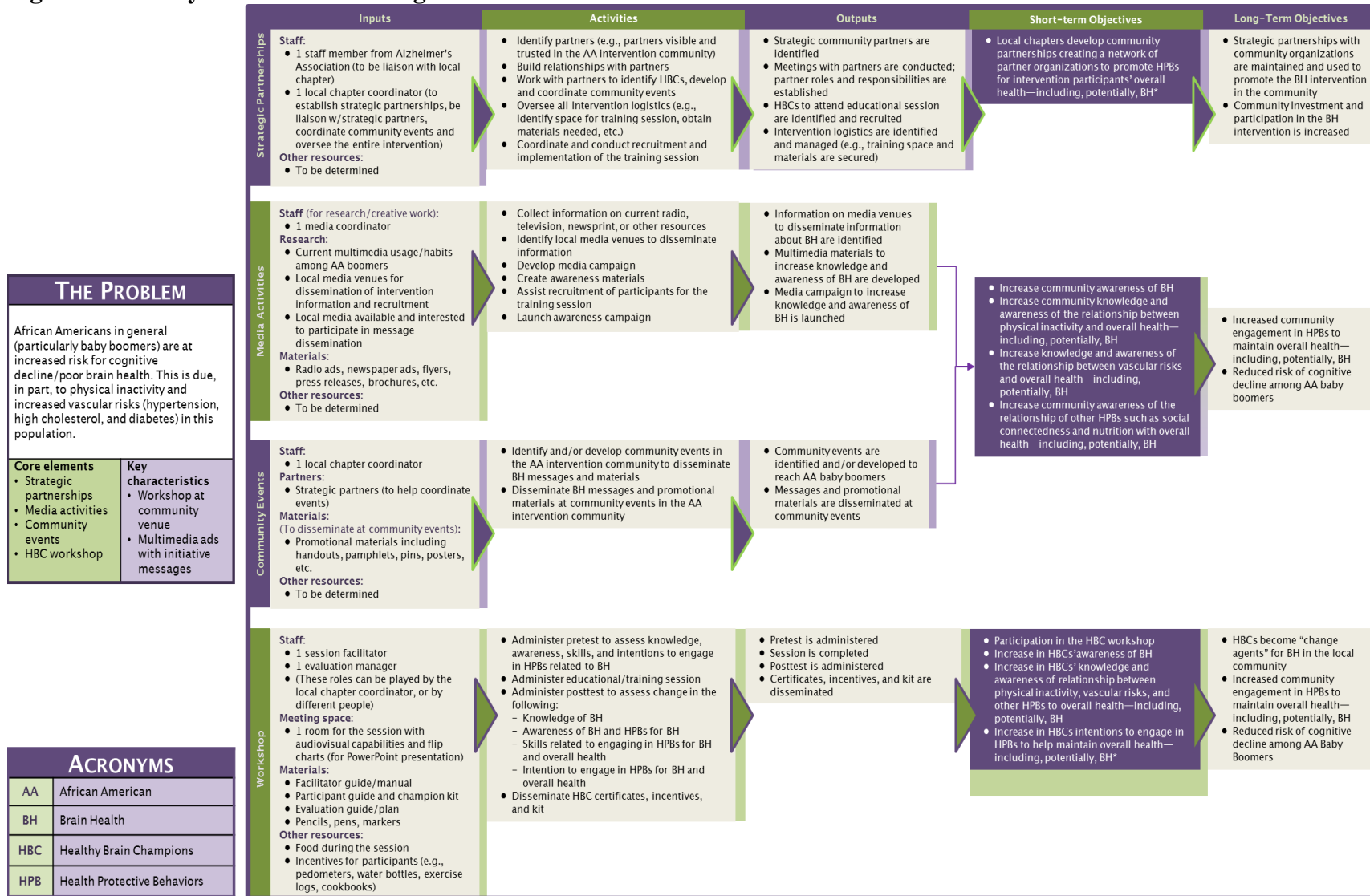
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Table 4. The Healthy Brain Initiative Objectives

Key HBI Target Audience	HBI objectives
African American Community	<ul style="list-style-type: none"> • Increase awareness of brain health • Increase knowledge and awareness of the relationship between physical inactivity and overall health, and potentially brain health • Increase knowledge and awareness of the relationship between vascular risks and overall health, and potentially brain health • Increase knowledge and awareness of the relationship of other health protective behaviors such as nutrition with overall health, social connectedness, and potentially brain health
Strategic Partners (Partners)	<ul style="list-style-type: none"> • Develop local chapters' community partnerships to create a network of organizations that promote health protective behaviors for HBI participants' overall health, and potentially brain health
Workshop Participants (Healthy Brain Champions)	<ul style="list-style-type: none"> • Participate in the educational workshop (Healthy Brain Champion workshop) • Increase awareness of brain health • Increase knowledge and awareness of the relationship between physical activity, vascular risks, and other health protective behaviors to overall health and, potentially brain health • Increase intentions to engage in health protective behaviors to help maintain overall health, and potentially brain health

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Figure 2: Healthy Brain Initiative Logic Model



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After developing the activities, outputs, and expected outcomes for the HBI, intervention facilitator (and evaluation) kits were developed. These kits were designed to help program coordinators plan, prepare for, conduct, and evaluate all activities associated with the intervention core elements. Each kit included the following components: (1) an overview of the HBI, along with administrative information on implementing the program; (2) information and tools to help program coordinators identify, initiate, and maintain relationships with a coalition of strategic partners; (3) resources to enable coordinators to identify, plan, and execute community events; and (4) a comprehensive educational workshop planning guide. The workshop guide helped coordinators to prepare for and facilitate the workshops, and included facilitator talking points and instructions to conduct the workshops.

Implementation of the HBI

The intervention was implemented in Atlanta, Georgia, and Los Angeles, California, as each of these cities have large and vital African American communities and built environments that contribute to poor eating habits and physical inactivity. Atlanta is the capital and the most populous city in Georgia, and home to the second largest African American population in the United States, with over 1.6 million individuals; currently, 54.0% of the metro Atlanta population identifies as African American (U.S. Census Bureau, 2015; Frey, 2011). The Los Angeles metropolitan area is the second largest in the United States, and ninth in terms of African American population size, with an African American population of 898,000 (Frey, 2011).

In California and Georgia, African Americans are overweight and obese at higher rates than Caucasians; excess adiposity of this type is correlated with higher rates of vascular disease. In Georgia, 37.2% of African Americans are obese, compared to 26.2% of Caucasians; in California, the obesity rate is 34.8% for African Americans, versus 22.4% for Caucasians (CDC, 2014). Both Los Angeles and Atlanta are decentralized cities with widely separated residential, commercial, and public areas that commonly require motor vehicle transportation. In addition, low commercial and residential density (“sprawl”) and traffic congestion contribute to an unfriendly walking environment and few outdoor areas for residents to get physical activity. Also, African American neighborhoods in both cities have high concentrations of fast-food restaurants coupled with low access to grocery stores, resulting in “food deserts.”

Engaging Strategic Partners

In Atlanta and Los Angeles, local coordinators from the Alzheimer’s Association recruited strategic partners from local organizations with a history working within and serving local African American communities. These partners formed a coalition of organizations to promote health behaviors to manage vascular risks—diabetes, hypertension, and high cholesterol—among African American baby boomers to promote brain and overall health. Local coordinators recruited partners based on two specific criteria that included: (1) the perceived credibility and trust of the strategic partner organization within the African American community; and (2) the partner organization’s interest in and capacity for ongoing participation in implementation and evaluation of the intervention. Local coordinators engaged 30 strategic partners in Atlanta of which 15 were consistently and actively interested and involved in increasing brain health awareness in their community. The local coordinator in Los Angeles engaged 14 strategic partners all of whom were consistently engaged with the intervention (Fuller, Johnson-Turbes, Hall, & Osuji, 2012).

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Strategic partner organizations, including senior centers, churches, public health organizations, professional organizations (e.g., nurses and social worker associations), and local government officials were invited to and collaborated with local Alzheimer's Association chapters to promote, guide and assist implementation of the HBI in their communities. The mix of partners varied in both locations and over the course of HBI planning, implementation and evaluation, however in general strategic partners from Atlanta organizations were staff members from community-based organizations (CBOs), health care providers, social workers, faith leaders, and government employees; those in Los Angeles included physicians, faith leaders, and directors of CBOs (Fuller, Johnson-Turbes, Hall, & Osuji, 2012).

Announcements about the intervention were made at every local Alzheimer's Association event or meeting in each city. In Atlanta, when the coordinator or partners attended other community events, they made announcements about HBI events, and in Los Angeles, flyers were left in cafes and restaurants in the local African American community. Alzheimer's Association staff working at senior centers encouraged seniors to share information about the educational workshops (described in detail below) with their friends and family, especially adult children. Over time recruitment efforts gained traction as communities became more familiar with the intervention. Further, local coordinators worked to establish intervention credibility and trust in each community leading to strategic partners' willingness to conduct outreach to other potential community partners.

Coordinators met regularly with partners to help facilitate collegial exchange and morale; the coordinators and the chapter's programs and services coordinator ordered healthy food options for these meetings from local restaurant vendors who provided accommodations for diabetic and low-sodium diets. Partners worked with local coordinators to incorporate HBI messages into their organizational programs, activities, and materials and determine the areas within a community to conduct the educational workshops and hold a community event (see Community Events). They provided coordinators with overall guidance about how to best implement the HBI. The coordinators facilitated the meetings, asking for input from partners on the HBI and developing a routine in which they would feel accountable for their contribution. At each meeting, partners strategized ways to incorporate HBI messages into their organizational programs, activities, and materials; brainstormed methods to recruit participants for the educational workshops; and provided overall guidance on intervention activities.

Conducting Educational Workshops

Strategic partnerships served as a top-down mechanism for disseminating brain health messages into each community. To reach more deeply into the community, local coordinators conducted the half-day educational workshops in their communities. Workshops focused on educating the target audience about the science of the brain, the relationship between vascular and brain health, the benefits of physical activity and other health promotion behaviors, and ways to share knowledge and advocate for brain health in their families and communities. Individuals who completed this workshop earned the title, Healthy Brain Champions.

The educational workshops in both cities followed a curriculum however local coordinators were given freedom to adapt the workshop to the needs and interests of their community. In Atlanta, for example, the local coordinator incorporated interactive brain games, thinking exercises, and puzzles to help participants contextualize the health information. In Los Angeles, workshop attendees arrived to tables filled with quotes about brain health and healthy

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living, brain games, and puzzles. Partners helped facilitate certain workshop sections. For example, a physician facilitated the workshop section that focused on the heart/brain connection, and the importance of knowing your blood pressure and blood sugar and cholesterol numbers, and a neuroscientist described the science of the brain. In both cities, registered dietitians spoke about portion control, label reading, and healthy food substitution with visual samples of foods and cooking tips. Fitness coaches with experience working with senior groups provided 30-minute exercise sessions, incorporating chair exercises that could be done at work or at home for inactive adults working toward becoming more physically active.

Implementing Media Activities

Intervention coordinators used local newspapers and radio to disseminate information and messages about the HBI, brain health, vascular risks, and health promotion behaviors. Due to the high cost of media placements, the coordinators were unable to purchase significant advertising space. Instead, they relied on constituency building and collaboration within the chapter to disseminate information about the intervention. Strategic partners suggested strategies and provided contacts for low-cost avenues for publicity, local African American newspaper ad placement, and free public service announcement radio spots.

Conducting Community Events

Community events were held in order to educate community members about brain health and the link between vascular risks, health behaviors, and maintaining a healthy brain. The community events were collaborations between the Alzheimer's Association and the community groups. An estimated 100 people attended the "Soul Train"-themed community event in Atlanta, which incorporated line dancing demonstrations (including Chicago Step), with a disc jockey playing music; cooking demonstrations; demonstrations on fitness boot camp for seniors; and blood glucose and blood pressure screenings. The Atlanta event took place in a historical community in Southwest Atlanta. The community event in Los Angeles was a collaborative effort with a local senior/community center in which the Alzheimer's Association cosponsored the event. Partners suggested offering blood pressure and blood sugar screenings, fun physical activities, and healthy food snacks to enforce messages of the HBI. Speakers from various organizations, including a partner from a local university, spoke about brain health. In Los Angeles, an estimated 300 people attended the festive event, which included balloons and music; attendees received health information and blood pressure and blood glucose screenings, and treats including various kinds of granola bars, water, and fruit.

Lessons learned from development and implementation

During intervention development and implementation, several key lessons were learned.

Create separate health messages. There is a great deal of confusion about cognitive decline, brain health and related conditions. Intervention messaging needs to make clear distinctions between normal healthy aging and cognitive decline, and demonstrate the connections between healthy behavior, vascular health, and brain health.

Define "partnership" early in the process. Early in the process (and in writing), identify any expectations and/or different ways to "partner" with organizations helping enable people understand their roles and expectations of them. A written agreement provides partners with accountability documentation that may be used with their parent organizations. In addition, it is important to develop trusting partnerships as these partnerships can last beyond intervention pilot

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implementation; most relationships between local chapters and their strategic partners have continued to the present time.

Ensure sufficient planning time. Local coordinators were given 3 months to identify, contact, and engage community partners, and to publicize, plan, and implement the educational workshops. This was determined to be inadequate time for implementation planning. Coordinators reported that a minimum of 6 to 9 months of preplanning is needed for building new partnerships and to coordinate intervention implementation activities.

Honor stakeholder contributions. Community members do not like feeling that they are part of a research project or that the program is a one-time event only. Community members want candid information as to whether or not their participation will make an impact or facilitate continued intervention funding versus piloting an intervention, stopping, and having no resources to move forward.

Encourage Healthy Brain Champions. Healthy Brain Champions care deeply about brain health in the African American community and will complete 3- to 4-hour workshops if the information is relevant, culturally appropriate, and interesting. However, individuals preferred to complete such workshops in segments if possible (i.e., lunchtime “brown bag” or seminar formats). Incentives (food, materials, bags, water bottles, brochures, t-shirts, etc.) assist with educational workshop recruitment and interest in the program. After the workshops, most participants demonstrated increased knowledge. Some champions became “super” champions—persons who changed their behaviors and spoke publically about brain health in their communities. Rewarding “super” champions or giving tokens of appreciation can motivate champions and partners to remain involved in intervention planning and implementation.

Develop the intervention to ensure it is appropriate for the target audience. The success of any community-based intervention hinges in part on working with the target audience to ensure that the intervention is culturally appropriate. Interventions and educational materials are more likely to be culturally appropriate when target audience representatives are involved in planning, developing, and pilot testing them (Kreuter, Lukwago, Bucholtz, Clark, & Sanders-Thompson, 2003). Interventions that are not tailored may be perceived as containing inaccurate information, and irrelevant to the lives and experiences of the target audience, or lacking respect for the needs of the intended audience. All stakeholders—the local coordinators, community organizations, partners, and educational workshop participants—involved in formative evaluation to guide development and implementation of the intervention had a deep knowledge of the needs and culture of African American baby boomers and their communities.

Implications for practice

Exposing vulnerable audiences to tailored and culturally appropriate brain health information may change peoples’ behavioral intent and ultimately health protective behaviors; the direct impact of an intervention on such individuals may be sustained and augmented by reaching people who are leaders (or who have high social capital) in the target population. As the U.S. population grows older, issues of cognitive health and impairment are emerging as high priorities for public health intervention. Since cognitive impairment is closely related to Alzheimer’s disease and other forms of dementia, which have a higher prevalence rate in African American communities, it is imperative and critical that interventions such as these are funded and replicated in with vulnerable populations.

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Community-level interventions that address the needs of target audiences in a way that is understandable and culturally appropriate have been shown to be the most effective in increasing desired outcomes, including behavior change. Research indicates that reaching people where they are is the most viable way to increase peoples' knowledge and awareness of health issues, and motivate behavior changes in vulnerable populations. In a separate study, the intervention was evaluated using a mixed-method evaluation design; study methods and findings are featured in Fuller et al. (2012). Study results showed that the intervention led to increased knowledge and awareness of brain health and intentions to engage in health-protective behaviors among HBI participants. Thus this intervention serves as example of a culturally appropriate, community-level intervention, successfully implemented in two cities to increase knowledge and awareness of brain health, understanding of the heart-brain connection, and increase engagement in health-protective behaviors to promote brain and overall health among African Americans.

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