

Putting Promotion Into Practice: The African Americans Building a Legacy of Health Organizational Wellness Program

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A Los Angeles REACH demonstration project led by Community Health Councils, Inc. adapted and implemented an organizational wellness intervention originally developed by the local health department, providing training in incorporating physical activity and healthy food choices into the routine "conduct of business" in 35 predominantly public and private, non-profit-sector agencies. A total of 700 staff, members, or clients completed the 12-week or subsequently retooled 6-week curriculum. Attendance and retention rates between baseline and postintervention assessments were improved substantially in the shortened offering. Feelings of sadness or depression decreased significantly ($p = .00$), fruit and vegetable intake increased significantly ($+0.5$ servings/day, $p = .00$), and body mass index decreased marginally (-0.5 kg/m², $p = .08$) among 12-week participants. The numbers of days in which individuals participated in vigorous physical activity increased significantly among 6-week participants ($+0.3$, $p = .00$). This model holds promise for extending the reach of environmentally focused work-site wellness programming to organizations and at-risk populations not traditionally engaged by such efforts.

Keywords: *lifestyle change; work site; workplace policy; practice; physical activity; nutrition; exercise; community-based participatory research*

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Obesity is pervasive in our postmodern environment that daily presents us with a smorgasbord of aggressively advertised, highly palatable, energy-dense but nutrient-poor foods and in which most obligatory physical activity has been engineered out of our lives (e.g., French, Story, & Jeffery, 2001). For this reason, little sustainable weight-related lifestyle change has been produced by individually targeted interventions, despite their highly motivated, relatively affluent, and largely White volunteer study samples (e.g., Jeffery et al., 2000; Swinburn, Gill, & Kumanyika, 2005). In communities of color, obesity rates are higher and have increased at a greater rate in recent years than among Whites. This may be attributed, in part, to a proliferation of targeted advertising and fast food outlets, few supermarkets or healthy dining options, and recreational opportunities limited by unsafe neighborhoods and a dearth of parks, walking or biking lanes, or paths (Estabrooks, Lee, & Gyurcsik, 2003; Lewis, Wells, & Ware, 1986; Powell, Slater, & Chaloupka, 2004; Sloane et al., 2003).

Population-based obesity control, in which environmental change is targeted along with individual lifestyle change, is in its infancy compared with tobacco control (Matson-Koffman, Brownstein, Neiner, & Greaney, 2005; Mercer et al., 2003), a model of public health success in social norm and legislative policy change. The impetus for societal investment in these obesity control approaches

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is growing, as the costs of the obesity epidemic to business and society become increasingly apparent (Aldana, 2001; Kersh & Merone, 2002; Pelletier, 1996; Riedel, Lynch, Baase, Hymel, & Peterson, 2001; Sturm, 2002, 2004; Visscher & Seidell, 2001; Whitmer, Pelletier, Anderson, Baase, & Frost, 2003). Environmental approaches are particularly understudied in underserved communities, in which obesity has emerged as a central and growing contributor to chronic disease disparities (Hedley et al., 2004; Smith et al., 2005). Much of the recent obesity control work has focused on intervening at sites of daily activity, such as schools and workplaces. Such health promotion interventions have employed various strategies, from environmental regulation to voluntary programs. For example, efforts have been made to restrict access to certain foods (e.g., soda, highly processed snacks) and sedentary transport (e.g., elevators, nearby parking) and to improve access to physical activity opportunities and healthier food choices (e.g., Matson-Koffman et al., 2005).

Work sites are promising settings for physical, economic, and sociocultural environmental interventions designed to reach broad, captive audiences of adults (Aldana & Pronk, 2001; Dishman, Oldenburg, O'Neal, & Shephard, 1998; Shephard, 1996). The culture of a workplace has a tremendous influence on adults' fitness-related health practices (Emmons, Linnan, Abrams, & Lovell, 1996). Cross-sectional studies have demonstrated higher health care costs and absenteeism rates among the less fit, with clear potential for economic benefits to employers in improving employee fitness levels (Beresford, Shannon, McLerran, & Thompson, 2000; Cassady, Jang, Tanjasiri, & Morrison, 1999). However, most work-site interventions have disproportionately engaged younger, more highly educated, male, non-Hispanic Whites in large private corporations in promoting physical activity (Emmons et al., 1996; Linnan & Marcus, 2001; Thompson, Smith, & Bybee, 2005). In reviews of the more rigorously constructed studies (e.g., acceptable levels of study retention, recruitment across job categories or statuses, long-term follow-up), observed effect sizes have been small at best (Dishman et al., 1998; Shephard, 1996), probably because the "volunteer" nature of these interventions engages primarily the more fit. The focus of these interventions has been mostly on individual-level change; even when social support for physical activity is cultivated (e.g., walking groups, exercise classes), it is usually during nonpaid employee discretionary time.

Health and social services agency workplaces in large urban areas are key leverage points for obesity control, in part because of the predominance of women of color as staff, who are, themselves, at increased risk for obesity and sedentariness and are decision makers, gatekeepers, and change agents not only for their clients but also their own families (Berger & Neuhaus, 1996; Crawford et al., 2004; Emmons, 2000). People actively engaged in fitness-related lifestyle change themselves are more likely to prioritize it in their dealings with others (Abramson, Stein, Schauffele, Frates, & Rogan, 2000; Lewis et al., 1986; Martin, Holcomb, & Mullen, 1987). Their greater desire for healthy food and physical activity options for themselves may be reflected in their decision making and counseling behavior with patients and clients (Crawford et al., 2004; Frank, Breyan, & Elon, 2000). Thus, mobilizing and engaging staff at these agencies in lifestyle change may assist in creating the social norm change necessary to drive aggressive obesity control legislative and regulatory policy change.

The importance of social environmental change in promoting fit lifestyles has been even less appreciated than that of physical environmental change (Emmons, 2000:

Giles-Corti & Donovan, 2002; McKeever, Faddis, Koroloff, & Henn, 2004; Stahl et al., 2001), and the workplace is a primary venue for promulgation of such social norm changes (Backman, Carman, & Aldana, 2004; Stokols, Pelletier, & Fielding, 1996). However, there is a gap in the literature with respect to intervention strategies changing the organizational fabric of the workplace to include physical activity and healthy eating. This gap is particularly apparent for studies including substantial populations of color, lower socioeconomic status individuals, and those lower in the organizational hierarchy (Aldana & Pronk, 2001; Dishman et al., 1998; Peltomaki et al., 2003; Shephard, 1996; Stokols et al., 1996), though a few models are beginning to emerge (Crawford et al., 2004; Elbel, Aldana, Bloswick, & Lyon, 2003; Kerr, Yore, Ham, & Dietz, 2004; Linenger, Chesson, & Nice, 1991; Pohjonen & Ranta, 2001; Stewart, Dennison, Kohl, & Doyle, 2004; Yancey, McCarthy, et al., 2004).

This article reports data from an organizational wellness intervention, an effort to extend the benefits of work-site wellness programming to a broader range of population segments and settings than those traditionally engaged. African Americans Building a Legacy of Health (AABLH), a REACH 2010 project funded by the Centers for Disease Control and Prevention (CDC), addresses disparities in type 2 diabetes mellitus and cardiovascular disease morbidity and mortality. The lead agency, Community Health Councils, Inc. (CHC), has engaged a coalition of more than 240 community-based organizations, in collaboration with academic and health department evaluators and technical advisors, in a community-based participatory approach aimed at increasing access to healthy food choices and physical activity opportunities (described earlier in Sloane et al., 2003).

CHC/AABLH adapted and implemented an organizational wellness intervention, originally developed by the Los Angeles County Department of Health Services (LACDHS), in a variety of settings and sectors. We selected the term *organizational wellness* rather than *work-site wellness* because an innovation of the project is extending the reach to a broader representation of organizational settings beyond work sites (e.g., involving members, students, or clients, as well as staff, of senior centers, professional associations, churches, schools, and clinics). This article presents process evaluation data on intervention implementation and retooling, and pilot and pretest outcome data on the individual- and organizational-level intervention influences. Implications for organizational-level wellness policy and programmatic intervention in underserved communities are discussed.

METHOD

Formative Research

Strategy. The CHC/AABLH organizational wellness program was based on Fuel Up/Lift Off! LA, a community-level LACDHS social marketing campaign targeting African Americans and Latinos (Yancey, McCarthy, et al., 2004). The messages promoted incorporation of physical activity and nutritious eating into community members' work, home, and social lives, without focusing on weight loss. A central feature of this intervention was the 10-minute exercise break (Lift Off), composed of a series of basic aerobic dance and calisthenics movements to music with captivating titles (e.g., "Hallelujah," "Knee High"). These structured exercise breaks were developed by a preventive medicine physician (AKY) and an exercise physiologist at LACDHS and designed for inclusion in organizational gatherings and as a daily work break at a certain time of day. The intervention length reflects the 1995 consensus about the minimum duration of physical activity counting toward the CDC's 30-minute activity "recommended daily allowance."

Content. A pilot component of the LACDHS social marketing campaign was Steppin' Up to Better Health, an organizational wellness intervention designed to (a) build individual skills in nutritious eating and lifestyle physical activity integration and (b) create social support and organizational policy and practice change promoting healthy eating and active living. Steppin' Up to Better Health consisted of six 30-minute training sessions during a 6- to 8-week period (some flexibility to accommodate changeable organization schedules), followed by three on-site quarterly booster sessions during the subsequent year, delivered by county health educators. The curriculum was adapted from evidence-based fitness promotion interventions that had been tested in ethnically diverse populations (e.g., Dunn et al., 1999). By the third session, a "program champion" ("Wellness Warrior") from within the intervention site was identified and empowered by the site leadership and county project staff to assist in sustaining behavioral and organizational changes after the initial training period, to serve as a conduit for project materials and communications, and to represent the organization at quarterly training seminars conducted at county offices. At the end of the initial training period, the project staff health educator completed a physical activity prescription for each participant.

Evaluation. A time-series study design with multiple baseline assessments was selected as the most rigorous

evaluation design within resource constraints. The sampling frame included organizations subcontracting with the county to deliver a variety of health and social services, chosen in part to leverage the county role as a funding agency. Organizations were recruited through phone contacts, on-site presentations, and referrals. At the time of organizational enrollment in the study, each organization signed a memorandum of understanding (MOU) signaling its leader's commitment of paid time for employee training and data collection, of program champion time for project maintenance, and to implementation of specified organizational policy changes supporting project objectives. Provision of a complete roster of potential member, staff, client, and patient participants, including names, addresses, and home and work telephone numbers, completed the enrollment process. At the time of enrollment and, again, immediately before intervention delivery (4 or more weeks later), health educators were trained to conduct 10-minute telephone or in-person surveys including items assessing the study's main outcome measures of physical activity level, dietary intake, and body mass index (BMI).

Preliminary results of project pretesting and pilot testing were encouraging. The pretesting phase gathered input from the target audience on the appeal, feasibility, and acceptability of materials and strategies in development (e.g., information packaging such as video concept with split-screen format, resonance of messages and messengers, logistics of conduct of Lift Offs). The pilot testing phase constituted an intervention implementation dry run in a variety of types of organizational settings to further refine the protocols. The project was pretested in two sites (15 individuals) and pilot tested in seven sites (114 individuals), with CHC included in the latter group. It soon became apparent that insufficient staff resources were available for data collection prior to initiation of intervention delivery; even securing employee rosters in advance of baseline assessment at intervention launch was time consuming. Thus, the default evaluation design was an uncontrolled pretest-posttest. Seven organizations (262 individuals on employee rosters) were enrolled in early 2001. Participants were, on average, overweight or obese, relatively sedentary, well-educated women of color: 85% women; 55% Latino, 22% African American, 5% Asian American, 18% White or Other; 66% 30 years of age or older, 25% 40 or older; 38% married; 58% college graduates or higher; 24% overweight (BMI 25.0-29.9 kg/m²), 33% obese (BMI ≥ 30 kg/m²); 24% completely sedentary (< 10 minutes continuous physical activity per week), 6% vigorously active for at least 30 minutes per day on 5 or more days per week; mean daily consumption of

2.2 hours of screen time; daily nutrient intake of 2.6 servings of fruits and vegetables, 4.6 eight ounce glasses of water, 0.87 servings of whole grain cereals and breads, and 0.29 servings of legumes. Preliminary 3-month pretest-posttest follow-up results available on 38 of the 70 participants completing baseline questionnaires revealed a significant decrease in mean daily servings of red meat and poultry with skin ($p = .03$), a significant increase in the proportion of individuals performing weekly strength or toning exercises ($p = .04$), and a nonsignificant trend toward a decrease in the proportion of individuals categorized as sedentary ($p = .15$). However, the project was discontinued prematurely in early 2002, after 1 year of full implementation in which intervention delivery was completed in six sites with 220 individuals having provided baseline data and 3-month follow-up data collection completed in only four sites. No resources were available for data management and analysis. This discontinuation resulted from county leadership changes and a budgetary crisis.

Theoretical Framework

Grounded in social cognitive and social action theories (Bandura, 2004), infusing social marketing strategies, employing a social ecological model (e.g., Stokols, Grzywacz, McMahan, & Phillips, 2003), and utilizing community-based participatory research principles (e.g., Washington, 2004), this organizational wellness approach intervenes at the individual, organizational, and community levels to influence weight-related lifestyle. The hypothesized mechanism of community norm change is informed by diffusion of innovation theory (Rogers, 2003). A number of programmatic elements reflect these theoretical principles:

1. Inclusion of such socially obligatory ("push" vs. "pull") strategies as integrating exercise breaks into organizational meetings and at certain times of the workday, conducting walking meetings, and leading coworkers, members, clients, patients, or congregants to the stairs rather than the elevators during work- or organization-related movement within buildings to engage a substantial proportion of the less motivated individuals at earlier stages in the fitness-related lifestyle change continuum.
2. Self-efficacy enhancement through encouragement of incremental change from a realistic baseline, for example, low-impact, moderate intensity, uncomplicated, and easily replicated movements targeted to produce a manageable level of exertion, positive and reinforcing affective responses (Ekkekakis, Hall, VanLanduyt, & Petruzzello, 2000); and fitness improvements (Boreham, Wallace, & Nevill, 2000;

Stewart et al., 2004) and minimal injury risk for individuals who are, on average, middle aged, sedentary, suboptimally fit, nonathletic, and overweight. Exercises may be performed at higher levels of intensity during these breaks by more fit individuals, thereby accommodating a range of agility, cardiorespiratory fitness, weight status, age, and functional ability levels.

3. Utilization of peer role modeling and reinforcement by "like others" (demographically similar attributes, minimal social distance) as critical elements of group physical activity engagement and partaking in healthy refreshments at organizational functions serving food.
4. Cultural targeting building on community strengths, for example, cultural salience of movement to music for African Americans, for whom dancing at parties is normative even as adults, or receptivity to legume, whole grain, and green leafy vegetable consumption is predicated on traditional "soul food" favorites such as black-eyed peas, combread, and collard greens.

As reported elsewhere (Yancey, Lewis, et al., 2004), the CHC/AABLH coalition envisioned the community members who participated in the organizational wellness training activities as "walking the talk" or leading by example in their influence on each other and on community organizational structures in which they live, play, learn, advocate, and worship. Thus, CHC staff (by incorporating healthy and fit organizational practices in project activities) and trained community members would serve as community exemplars through their role modeling and as change agents or "early adopters" through their leadership and their skills and information transfer (Rogers, 2003).

CHC/AABLH REACH 2010 Intervention Implementation

CHC/AABLH adapted the LACDHS model, endeavoring to create a social support system for organizational employees, clients, and/or members by promoting integration of fitness instruction, chronic disease and nutrition education, and organizational practice change advocacy into the structure of the work site and/or community social, service, or faith organization. In addition, a community capacity-building mechanism engaged CHC staff as ambassadors (change agents and role models) in promoting physical activity and healthy food integration and fitness-enhancing lifestyle change throughout the targeted areas.

Components

Organizational wellness. Six sessions were added to the LACDHS curriculum to create a 12-month program including 12 weeks of 30-minute weekly training sessions

delivered during regular staff meetings and four bimonthly booster training sessions. This schedule was customized to accommodate membership organizations that met less frequently (e.g., social or civic groups). CHC hired and trained a team of community nutrition and fitness workers (CNFWs) to organize and deliver the curriculum (see Table 1 for curriculum content). The session format was modified somewhat to be culturally appropriate for the African American target population and sensitive to the needs of participating organizations. Program champions (*mkimus*, a Swahili term) were similarly identified and selected. The sessions provided practical suggestions for incorporating physical activity into organizational routine, identifying and procuring healthy foods in nonaffluent community settings, accumulating lifestyle physical activity, and managing stress.

Community-based outreach. The overwhelming majority of organizational participants were identified through CHC's existing linkages with community organizations and direct outreach by the CNFWs. CHC project staff (project director, health educators, CNFWs), responding to requests from organizations serving African Americans, provided training in facilitation of exercise breaks and presentations on fitness-related lifestyle change strategies at functions with high visibility, reach, and potential impact on the community influence or support infrastructure (e.g., leading fitness breaks at national conferences convening in Los Angeles such as Blacks in Government and Jack and Jill of America, Inc.). This component also fostered recruitment to the formal organizational wellness training program.

Materials

CHC/AABLH utilized LACDHS audiovisual fitness promotion materials developed to demonstrate and promulgate the social marketing campaign messages of incorporating physical activity and healthy food choices into organizational routine. The series of three 10-minute structured exercise breaks (aerobic, strength, and stretching) were memorialized as videotapes, audiotapes, and holographic mouse pads. The video also integrates practical nutrition education during group exercises, inviting audience participation. Music, created and performed by a Peruvian guitarist and composer, in consultation with an African American jazz and rhythm and blues keyboard artist and composer, operates at the interface between the Latin and African American traditions (i.e., Carlos Santana). Healthy snacking and adequate hydration, fast food or restaurant dining, grocery and farmer's market shopping, and family dining at home on a budget are topics of vignettes, which employ a split-screen format so that exercise instruction continues throughout.

TABLE 1
Twelve-Week Intervention Curriculum Content

Module 1. Introduction (1 hr.; Module 1 for 6-Week Intervention)
Lecture and discussion: Introduction to REACH 2010 and African Americans Building a Legacy of Health (AABLH) project and the wellness program, including concept of <i>mkimu</i> . Baseline survey completion and provision of informed consent.
Exercise: 10-minute aerobic exercise break.
Module 2. Cardiovascular Disease (CVD) Prevention (30 min.)
Lecture and discussion: Risk factors for, definitions of, recognition of, and prevention of CVD, focusing on the impact of the disease on the African American community. Program champion and <i>mkimu</i> training.
Exercise: 10-minute aerobic exercise break.
Module 3. Diabetes Prevention (30 min.)
Lecture and discussion: Parallel focus on type 2 diabetes. Identification of site <i>mkimu</i> (s).
Exercise: 10-minute aerobic exercise break.
Module 4. Goal Setting and Self-Motivation (30 min.)
Lecture and discussion: + and – motivators. Goal setting key to success if realistic, specific, and rewarded.
Exercise: 10-minute stretching break.
Module 5. Nutrition—Part 1 (30 min.; Module 2 for 6-Week Intervention)
Lecture and discussion: Micro and macro nutrients in food. Importance of fiber, water; reducing Na and sugars.
Exercise: 10-minute stretching break.
Module 6. Nutrition—Part 2 (30 min.)
Lecture and discussion: Calculation of appropriate portion sizes. Performing dietary assessment.
Exercise: 10-minute strength break.
Module 7. Nutrition—Part 3 (30 min.)
Lecture and discussion: Uses of herbs in cooking. Altering traditional recipes to create healthier versions.
Exercise: 10-minute strength break.
Module 8. Aerobic Fitness (30 min.; Module 3 for 6-Week Intervention)
Lecture and discussion: FITT (frequency, intensity, time, type) principle. Lifestyle integration of physical activity.
Exercise: 10-minute aerobic break.
Module 9. Strength Training (30 min.)
Lecture and discussion: Influences of physical (in)activity, aging on muscle development, atrophy, mass.
Exercise: 10-minute strength and resistance break.
Module 10. Flexibility and Sleep (30 min.)
Lecture and discussion: Benefits of stretching. Sleep deprivation effects. Developing regular sleep patterns.
Exercise: 10-minute stretching break.
Module 11. Weight Control and Stress Management (30 min.; Module 4 for 6-Week Intervention) ^a
Lecture and discussion: Benefits of physical activity and healthy eating. Relationships to weight control.
Exercise: 10-minute strength break.
Module 12. HEAL (Healthy Eating/Active Living)—Knowledge to Practice (1 hr.; Module 5 for 6-Week Intervention)
Lecture and discussion: Review. “Alternative” approaches. Practical means of incorporating healthy food options and physical activity into the workplace (e.g., creating walking maps of work-site neighborhood healthy dining options, conducting walking meetings, hosting weekly “healthy tasting” potluck lunches and sharing recipes, “institutionalizing” exercise breaks, advocating for healthier vending machine and vendor selections, leveraging organizational purchasing power to support food vendors or establishments with healthy, tasty, culturally salient offerings). Postintervention survey completion. Cooking demonstration (12-week only).
Exercise: 10-minute aerobic break led jointly by AABLH staff and <i>mkimu</i> .
Module 6 (for 6-Week Intervention). Cooking Demonstration and Healthy Food Tasting (1 hr.)
Lecture and discussion: Practical means of incorporating healthy food options and physical activity into the workplace (continued). Postintervention survey completion.
Exercise: 10-minute aerobic break led jointly by AABLH staff and <i>mkimu</i> .

a. Sleep added in 6-week intervention.

Set in a typical public or nonprofit workplace or community meeting room, video participants are clad in business casual attire and reflect the sociodemographic diversity of Los Angeles. Sites may cue the video to a particular break and follow along during work gatherings or at a set time of day in the workplace. The video is targeted to organizations within low-resource urban environments with space constraints and outdoor safety concerns.

In addition to the videos and audiotapes, items supporting project lifestyle change objectives and branded with REACH 2010 and AABLH logos were distributed as incentives (e.g., basketball and football stress management squeeze balls, T-shirts, lunch bags, and pedometers).

Recruitment

The sampling frame included organizations, agencies, and businesses located in the targeted geographical areas of Los Angeles defined by zip code. Organizations were recruited through announcements at AABLH community activities and events, in-person and telephone approaches to coalition members, and word-of-mouth referrals. Informal selection criteria included interest in staff development, regular meetings, at least 10 potential individual participants, leader commitment, and internal communication vehicles (Yancey, Miles, & Jordan, 1999).

Study Design

CHC/AABLH employed a longitudinal pretest-posttest evaluation design. AABLH followed the LACDHS example of MOU signing and roster retrieval procedures for enrollment. Individual-level data were collected at baseline and 12 weeks (postintervention), 6 months, and 1 year after the start of the implementation of the intervention at the time of intervention or booster session delivery. Main outcome measures were BMI and dietary and physical activity behaviors.

One year following the July 2001 initiation of the program, evaluators learned of an organizational practice or policy and physical environmental assessment instrument used in the New York State Health Department Heart Check program. The instrument was pretested in five sites to examine its capacity and practicality in capturing the institutional changes promoted in the organizational wellness program. Four AABLH sites were included, and a fifth site that previously had been provided with wellness training by LACDHS was added to increase the sample size. Thirteen key informant interviews were conducted in August 2002 by a doctoral student summer intern at the University of California, Los Angeles (UCLA), paid for by the California Department of Health Services and United States Department of Agriculture-funded Nutrition Network

program. Two to three interviews were conducted per site, with at least one line staff member and one senior manager at each organization. Four of the managers were CEOs, and two were deputy directors. The duration of time elapsed since training was conducted at each of the sites ranged from 6 months to 1 year. In one case, the intervention site included mostly student participants, who had graduated by the time of the assessment.

Research protocols for different aspects of the project were submitted to institutional review boards (IRBs) at the University of Southern California, UCLA, and LACDHS and were either reviewed or certified exempt from review. Informed consent was obtained from all study participants.

Measures

Individual Level

Sociodemographic, health status, and health behavior assessment items from the Los Angeles County Health Survey were used (Simon, Wold, Cousineau, & Fielding, 2001).

Physical activity. An adaptation of the short version of the International Physical Activity Questionnaire available in early 1999 (Craig et al., 2003) was used. Respondents were asked whether or not in a typical week, during leisure or work time, they engaged in "vigorous activities for more than 10 minutes at a time without stopping, such as running, aerobics, heavy yard work or any activity that causes large increases in breathing and heart rate," and, if so, on how many days and how many minutes total they spent each day doing such activities. Similar items captured walking.

BMI. BMI was calculated based on self-reported weight and height (kg/m²).

Self-rated health status. Self-perceived health and mental health status ("Would you say that in general your health is excellent, very good, good, fair or poor?" "During the past four weeks, how often have you felt sad, blue or depressed?") were assessed.

Dietary behaviors. Fruit and vegetable intake was measured by a single item assessing the total number of servings respondents consumed on the day prior to the interview.

Chronic conditions. Separate questions obtained information about whether "you [have] ever been told by a

TABLE 2
Participant Baseline Data

	12-Week Program	6-Week Program
% African American	74	80
% Female	89	80
Average age (years)	47	50
% Some college	70	79
% Married or partnered	33	33
% Diabetes diagnosis	13	10
% Heart disease diagnosis	6	5
% Hypertension diagnosis	41	50
% Hypercholesterolemia	28	19
% Cancer diagnosis	4	14

doctor or nurse that you have" the conditions indicated in Table 2.

Sociodemographic measures. These included age, gender, ethnicity, racial background, educational attainment, marital status, and household size and composition.

Organizational Level (Pretest)

Organizational practices or policies. The New York State Heart Check questionnaire, a validated instrument assessing organizational characteristics that support heart-healthy behaviors, with demonstrated sensitivity in detecting pre-post intervention changes, was culled to 37 to 68 interviewer-administered items depending on skip patterns, including 14 items added to capture social cognitive theory-based role modeling and leadership constructs for AABLH. Heart Check also includes 35 environmental audit items for completion by the interviewer (e.g., vending machine and cafeteria selection assessment, presence or absence of water fountains or coolers, and rating of stair characteristics). Tests of its metric properties confirm strong internal reliability (alpha coefficients for subscales = .83-.97) and strong content and face validity (e.g., Golaszewski, Barr, & Pronk, 2003). For the purposes of the pretest only, certain items were modified to ascertain when a practice or policy was introduced or instituted because interviews were conducted after the wellness training was provided.

Data Analysis

Questionnaire data were entered into a Microsoft Excel database for cleaning and editing shortly after data collection. Surveys obtained from the same participant at

different assessment points were linked by a common identification number specific to each study participant. Data were checked for outliers prior to analysis. Extreme values (> 3 standard deviations from the mean or unreasonable values; e.g., ages > 100) were converted to missing. Outliers were rare ($< 1\%$); their elimination did not appreciably change any results.

Three procedures were used to compare pre- and posttest data. For interval-level data, the cross-time comparison procedure involved two steps. The first step was a paired t test with alpha set at $p = .05$ (two-tailed). If the result appeared to be close to statistical significance ($p < .10$), then a second analysis reestimated the standard error to take into account the clustering of study participants within work sites. Stata (version 9) svy: means procedure was used to reestimate the standard error of the difference of means. Typically the reestimation yielded larger confidence intervals and therefore a more conservative test of hypotheses. For categorical data, a chi-square goodness-of-fit test compared pre- and posttest distributions of responses. Chi-square results yielding p values $< \alpha = .05$ were considered interpretable.

Two procedures were used to assess the nature of the selection bias resulting from differential attrition from the study. For interval-level data, independent sample t tests were used to evaluate whether study participants retained in the study through the immediate postintervention follow-up assessment differed significantly at baseline from study participants who completed only the baseline questionnaire. For categorical data, the chi-square goodness-of-fit test was used to evaluate whether the distribution of responses at baseline differed between these participant groups. All analyses were conducted using Stata.

► RESULTS

Process

Recruitment. A total of 130 organizations were contacted between July 2001 and December 2003, generating 30 site enrollees. (It should be noted that many willing organizations were ineligible because they did not serve the targeted zip codes.) Seven organizations dropped out, and 24 organizational or work units at 23 organizations completed the curriculum. Response rates for the 12-week program ($n = 24$) dwindled after the early implementation period. Following the substitution of a 6-week curriculum, approximately 50 organizations were contacted (staff turnover shifted program recruitment monitoring responsibilities to CNFWs, from more experienced public health-trained managers;

subsequently, the remaining CNFW implementers left CHC, and, with them, institutional memory to offset record-keeping deficiencies). Fourteen organizations enrolled between January 2004 and December 2004, and 11 organizational units at 9 organizations completed the curriculum ($n = 11$). Three postponed their start dates indefinitely. Thus, the total number of organizations completing the curriculum and, therefore, included in the analyses is 35—24 in the 12-week program, and 11 in the 6-week program.

Study design and intervention delivery. The 30 organizations enrolled between July 2001 and December 2003 had a total of 565 employees, members, clients, or patients, based on organizational rosters provided ($n_{\text{site}} = 27$, $R = 3-103$), who enrolled and completed the 12-week curriculum. Although there was only one early termination prior to full curriculum delivery, the average time required to obtain completed baseline and postintervention surveys and deliver the 12-week curriculum was 17.6 weeks. Staffing issues also impeded program enrollment and implementation monitoring. These issues included turnover in key positions (e.g., health educator) and appropriately identifying position titles and job descriptions to match employee skill sets with programmatic needs (trained database manager). Sign-in sheet data for the 12-week curriculum were unavailable as they had not been electronically stored and catalogued. CNFWs reported that attendance rates were high initially but decreased substantially after 4 to 5 weeks. Employers also did not adhere to their (MOU) agreement to provide paid time for staff training, recommending that staff instead use their lunch time.

It became clear from these challenges that 12 weeks was too lengthy an intervention delivery interval to sustain the desired levels of participation. Poor attendance and retention, frequent organizational interruptions in weekly curriculum delivery, difficulties in organizational recruitment, and insufficient proportions of employees participating to adequately represent the entire employee population jeopardized the sociocultural environmental character of the workplace intervention. (This had been the prior experience of county local health department interveners, resulting in their 6-week offering.)

Subsequently, during the January 2004 to December 2004 implementation of the 6-week curriculum in 11 participating organizational units with a total roster of 144, attendance declined very little during the course of intervention delivery. Sign-in sheet and implementer session reports revealed a mean attendance rate of 66%. The lack of baseline data on many participants created uncertainty about the numbers of actual participants in some instances. To produce a conservative estimate, the

denominator chosen was the larger of two numbers—the number of unique participant identifiers in the database for that site or the largest number of participants attending any session.

Description of participating organizations. Participants came from multiple sectors—public (e.g., public health departments and other government agencies), private (e.g., Home Depot and SMS Transportation), and non-profit (e.g., community colleges, churches, and community and senior centers). In addition, the size of the offered programs varied, with several organizations hosting multiple weekly sessions to accommodate small group interaction during curriculum delivery.

Description of individual participants. Baseline data are available on 338 participants in the 12-week program, of 565 total; postintervention follow-up data are available on only 126. In the 6-week program (through December 2004), however, baseline data are available on 52 of 144 total, with follow-up data on 48. Thus, the proportion of the total employee population with any available data is substantially less in the 6-week program (36%) than the 12-week program (60%), but there was much less attrition of 6-week than 12-week participants (92% vs. 37%, respectively).

The majority of participants were middle-aged or older, well-educated, African American women (see Table 2).

Participant feedback. Representative responses to the open-ended query, "What have you learned?" included, "How to incorporate exercise and/or fitness into my everyday schedule . . . having the weekly sessions increased the morale between employees"; "The young [CNFWs] were willing to listen to ideas from the seniors . . . liked getting the statistics on African Americans"; "Learned a lot of exercises I can do at home to increase strength . . . took home a lot of information on diabetes for my mother-in-law"; "Helped me relieve stress . . . motivated me."

Outcome

Individual Level

Among all participants, those presenting for postintervention follow-up, compared with those providing only baseline data, were older (54 vs. 41 years, $p = .00$), more likely to be widowed or never married (29% vs. 17%, 62% vs. 22%, respectively; $p = .00$), more likely to be female (89% vs. 80%, $p = .04$), and more likely to report sad or depressed feelings ($p = .03$); ethnicity and physical activity levels did not vary. Among 6-week participants, those presenting for postintervention follow-up

TABLE 3
Participant Health Status, Health Behaviors, and Health Risk

	n	12-Week Program				n	6-Week Program			
		Baseline	Postintervention	95% CI for Difference ^a	p Value		Baseline	Postintervention	Difference	p Value
Health status										
Feeling sad or depressed	100	2.1	1.8	0.1-0.4**	.00	31	2.0	2.1	-0.3-0.4	.73
Health behavior										
Fruit and vegetable intake	93	2.4	2.9	0.1-0.8**	.00	43	2.6	2.4	-0.7-0.4	.73
Days of vigorous physical activity	111	1.8	1.8	-0.2-0.2	.66	39	1.6	1.9	0.1-0.5**	.00
Days of walking	111	1.4	1.4	-0.1-0.2	.71	41	1.2	1.3	-0.1-0.2	.60
Health risk										
Body mass index (BMI) ^b	86	28.8	28.3	0.0-0.3*	.08	31	28.6	28.7	-1.5-1.6	.95

a. Confidence interval recalculated to take clustering into account.

b. BMI (kg/m²) categories: underweight (< 18.5), normal weight (18.5-24.9), overweight (25.0-29.9), obese (30.0 or more).

* $p < .10$. ** $p < .05$.

were marginally more likely to be Asian ($p = .08$) and to be better educated (85% vs. 75%, $p = .07$) than were those providing only baseline data.

Health status. Feelings of sadness or depression decreased significantly among 12-week participants ($p = .00$), with no significant change among 6-week participants (see Table 3).

Health behaviors. The numbers of days in which 6-week participants engaged in vigorous physical activity increased significantly ($p = .00$), with no change among 12-week participants. Fruit and vegetable consumption increased by 0.5 servings per day among 12-week participants ($p = .00$), with no significant differences in intake among 6-week participants.

Health risk. There was a trend toward a BMI decrease among 12-week participants (-0.5 kg/m^2 , $p = .08$), with no significant change among 6-week participants.

Organizational Level (Pretest)

Response to the instrument was generally favorable. None of the sites had food service managers, so food policy questions were often unanswered except in a

few instances in which the CEO or executive director responded to these items. The lengthiness of the nutrition section warranted some prewarning of respondents, especially when none or all of the items were offered in the workplace. The inclusion of the response item "carbonized drinks" in the lists of foods available from the vending machines and cafeterias was noted to create confusion because the remainder of the items are "healthy" foods. Explaining to respondents that items queried may be considered healthy or unhealthy helped to avert this confusion.

Because this assessment was conducted for the first time after training had been provided, necessitating modification of certain items to determine when the practice or policy was introduced or instituted, it was not considered an adequate test of intervention effects. In one of the work sites, changes such as provision of drinking water at meetings, flexibility in scheduling, allowing for casual dress, and provision of health enhancement messages were temporally associated with AABLH training activities (1-2 months after program implementation). The responses to questionnaire items in that site were similar for the senior manager and the line employee interviewed. In several of the other work sites, however, the responses of employees and directors or managers

differed, with managers more likely to affirm the availability of free and subsidized healthy food options, membership in wellness organizations, casual dressing encouragement, and flexible schedule allowances.

► DISCUSSION

This article presents early outcomes of an effort to further adapt a private sector work-site wellness concept to a broader range of community organizations in south Los Angeles. Key features of the wellness promotion strategy include advocating for the sociocultural integration of physical activity and healthy food choices into organizational routine, rather than relegating them to discretionary time (Backman et al., 2004; Emmons, 2000; Yancey, McCarthy, et al., 2004), and focusing on health and social services organizations, with missions compatible with program objectives and staff both personally at risk and professionally influencing high-risk populations, to increase the feasibility of intervention implementation, the likelihood of institutionalization or sustainability within that organization (Goodman, McLeroy, Steckler, & Hoyle, 1993; Steckler, Goodman, & Alciati, 1997), and the prospects for diffusion or dissemination throughout the community (Rogers, 2003; Steckler, Goodman, McLeroy, Davis, & Koch, 1992). From a process standpoint, the results of this effort were quite positive. Achievement of such heterogeneity in organizational and individual participants—sector, size, racial/ethnic minority status, gender, and role in organization—supports the need for and feasibility of integrating physical activity and healthy food choices into the organizational infrastructure of underserved communities. Engaging “captive audiences” gathered for utilitarian purposes of work, worship, civic advocacy, socialization, and health or social services delivery is a viable strategy for increasing opportunities for physical activity and improved dietary quality in under-resourced communities for which fitness-promoting physical environmental changes will likely be “a long time coming.” Moreover, the effort was effective in reaching the targeted population of middle-aged, sedentary, overweight, and obese African American women at high risk for diabetes and cardiovascular disease, who are usually the health protection gatekeepers and decision makers for the entire family.

The pretest results of the organizational practice or policy change assessment instrument suggest that fitness-promoting policies may be supported to some extent by management or leadership but may not be communicated throughout the organizational structure or provided the level of support necessary for full implementation. Alternative explanations include greater tendency of management to slant responses to reflect favorably on the

organization (social desirability) and/or biased selection of line staff key informants less interested or involved in wellness activities than others in the organization. Evaluation team members utilized this pilot assessment experience, with input from intervention delivery staff, to modify the instrument. Pilot testing of the modified tool, following UCLA IRB clearance, was instituted with several new program participants at the baseline and 1-year assessments in mid-2004. The instrument is being further modified and pilot tested because of the development of a more user-friendly, self-administered version by St. Louis University School of Public Health (“Check for Health,” available through the California state health department—www.ca5aday.com).

The difficulties experienced in recruiting and retaining organizational and individual participants reveal a fundamental and intuitive reality in conducting intervention research in underserved and underresourced communities with their more substantial sociocultural, physical, and economic environmental barriers to healthy eating and active living. Public health fitness promotion efforts will be more difficult, arduous, and protracted in these communities than in more affluent ones. The substantial number of organizations not located within the targeted zip codes requesting AABLH wellness training suggests that these recruitment and retention difficulties were more a reflection of the recognition on the parts of many agencies of the substantial resources needed to mount and maintain these programs than of lack of interest.

The differences in outcomes between the 6- and 12-week programs observed at the individual level might argue for a need to balance ease of organizational adoption and potential for substantial and clinically meaningful risk reduction (from the broader complement of possible benefits in terms of mood improvement, weight stabilization, increased fruit and vegetable intake). Changes in the organization are critical to long-term changes in health status in underserved populations, and thus ease of program adoption is the key driver for AABLH in intervention marketing and dissemination. The effect of the shorter program on vigorous physical activity likely reflects its greater focus on pragmatic group and individual behavioral change strategies (e.g., exercise, books), whereas the bulk of the sessions to which most 12-week participants were exposed (Modules 1-3, given the drop off during the 4th and 5th weeks) were devoted to increasing health and chronic disease knowledge. Although the shorter intervention exposure may have permitted nutritional gains, it probably takes longer for relatively sedentary individuals to reap sufficient fitness gains in the workplace to sustain those patterns in the workplace setting or to generalize that behavior to non-work hours. As a result of these collective experiences,

the program has once again been modified to further increase its organizational reach. Menu options designed to increase knowledge and utilization of secondary and primary disease prevention strategies (e.g., symptom recognition, clinical screening, and medication adherence, along with eating and physical activity behaviors) include, but are not limited to, organizational assessments, health promotion education and outreach opportunities, and technical assistance in tailored wellness program development, marketing, and implementation.

The modifications that this AABLH component has undergone since its inception highlight the need for a flexible approach in developing organizational wellness programming for nontraditional sites. Program findings suggest success in initially interesting organizations but not in sustaining the commitment of their leaders in supporting enrollment and implementation, nor their organizational staff, members, clients, or patients in continuing participation, though postintervention retention rates for the retooled 6-week curriculum are promising. Compensating participants for their time and inconvenience in providing data may be a useful strategy in sustaining both organizational and individual engagement, as is typical in more rigorous research efforts (e.g., Yancey, McCarthy, Siegel, Leslie, & Harrison, *in press*; Yancey, Ortega, & Kumanyika, *in press*), but will certainly not address all of the obstacles to recruitment and retention at the organizational or individual levels.

The newest format modification offers the 6-week wellness training as one of several menu options. This expanded flexibility recognizes the difficulties that small community organizations have in mounting and devoting ongoing resources to health promotion efforts. This concept of a menu of options has received growing attention and support as a way to improve participation and retention of staff with varying interests and receptivity to change in different areas and to increase organizational investment and commitment (Erfurt, Foote, Heirich, & Gregg, 1990; Rapkin & Luke, 1993).

A number of limitations are inherent in this demonstration project study design. With no control group or randomization by work site as the unit of analysis, changes from baseline may be attributable to many factors other than intervention exposure. The limited resources for process data collection constrain our ability to understand barriers and facilitators to organizational recruitment and enrollment. With regard to barriers to individual participation and retention, even in the 6-week program, retention levels were insufficient for long-term (≥ 6 months) outcome assessment; in addition, for reasons likely related to staff turnover, a substantially lower proportion provided baseline data (36% vs. 60%), creating greater uncertainty than in the 12-week program about their

representativeness of the total employee populations of those organizations. Given U.S. secular trends in weight gain, marginal weight loss in even one third of a sample may portend substantive benefits on more rigorous testing. Nonetheless, 12-week postintervention attrition is unacceptably high for confidence in findings, especially as BMI is self-reported. Variation in individual item response rates (e.g., BMI follow-up assessment item garnered only 31 of 52 responses vs. 48 of 52 for a physical activity item) also must be addressed. There is the need, in addition, to assess additional organization-level mediating variables (e.g., workplace social norms and coworker social support). Increased investment of resources in data collection, management, and analysis functions in future demonstration projects is critical, as greater rigor is required to answer the questions increasingly posed by funding agencies, particularly in the public sector, as to the impact of these programmatic interventions on the population(s) served, not merely the numbers of units of service delivered.

Challenges to sustaining wellness program funding and viability in the future include the necessity of capturing more distal environmental-level outcomes, both sociocultural (e.g., changes in community norms, community capacity for wellness promotion, changes in news media coverage and "Black audience prime time" TV programming) and physical (e.g., changes in quality or quantity of healthy grocery items and in purchases of these items, changes in outdoor advertising and marketing of healthy or unhealthy products and services, changes in nutritional value of dining options). Linking longitudinal, observational data (e.g., survey or secondary data sets such as grocery store scanner data, reflecting changing taste preferences and demand for healthy foods) and environmental physical activity facility quality and utilization audit data (e.g., adapting such tools as SOPARC [System for Observing Play and Leisure Activity in Communities]—McKenzie, Cohen, Sehgal, & Golinelli, 2005—and BRAT [Bedimo-Rung Assessment Tools]—Bedimo-Rung, Mowen, & Cohen, 2005) would assist in this effort.

Aggressive legislative policy change will be required to stem the obesity and sedentariness epidemics. The model developed by CHC/AABLH may be valuable in driving these changes through its melding of individual-level and organizational-level engagement. The "hearts, minds, bodies, and souls" of community advocates, service providers, organizational decision makers, legislative policy makers, neighborhood opinion leaders, and community change agents in communities of color may be influenced through incremental lifestyle change, slowly but sustainably improving their mental and physical well-being. This may focus the necessary energy and political will on accomplishing the social norm, physical,

environmental, and organizational practice change to achieve the goal of eliminating chronic disease disparities and increasing quality of life and longevity.

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