Results of the First Year of Active for Life: Translation of 2 Evidence-Based Physical Activity Programs for Older Adults Into Community Settings

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Objectives. Translating efficacious interventions into practice within community settings is a major public health challenge. We evaluated the effects of 2 evidence-based physical activity interventions on self-reported physical activity and related outcomes in midlife and older adults.

Methods. Four community-based organizations implemented Active Choices, a 6-month, telephone-based program, and 5 implemented Active Living Every Day, a 20-week, group-based program. Both programs emphasize behavioral skills necessary to become more physically active. Participants completed pretest and posttest surveys.

Results. Participants (n=838) were aged an average of 68.4 ±9.4 years, 80.6% were women, and 64.1% were non-Hispanic White. Seventy-two percent returned posttest surveys. Intent-to-treat analyses found statistically significant increases in moderate-to-vigorous physical activity and total physical activity, decreases in depressive symptoms and stress, increases in satisfaction with body appearance and function, and decreases in body mass index.

Conclusions. The first year of Active for Life demonstrated that Active Choices and Active Living Every Day, 2 evidence-based physical activity programs, can be successfully translated into community settings with diverse populations. Further, the magnitudes of change in outcomes were similar to those reported in the efficacy trials. (*Am J Public Health.* 2006;96:XXX–XXX. doi:10.2105/AJPH.2005.074690)

A comprehensive review concluded that individually adapted behavior-change programs are effective and strongly recommended for increasing physical activity at the community level.[1] The efficacy of these programs has been documented in older populations,[2,3] yet evidence-based physical activity interventions have not been widely applied and tested in public health practice and other nonresearch settings.[4] It is unclear whether evidence-based programs can produce similar outcomes and reach broad target populations when delivered in community practice settings.[5] It is necessary to understand and evaluate translational efforts of efficacious physical activity interventions[5–8] to determine their public health impact.[9]

The National Blueprint[10] was developed in 2001 with input from 46 organizations. It outlines broad strategies that are expected to increase physical activity among older adults. Despite being an influential document in the area of physical activity and aging, physical activity programming for older adults in the community is typically not evidence-based, does not incorporate behavior-change theory, and does not include evaluation.[11] Increased physical activity at the population level is only likely to occur when efficacious interventions are translated for widespread use in community settings.[6]

Active for Life was designed to address major gaps in the science and practice literatures by examining the translation of 2 efficacious, theory-based[12,13] physical activity interventions to community settings. The primary aims of the outcome evaluation were (1) to evaluate 2 evidence-based physical activity interventions on self-reported physical activity in community settings, (2) to evaluate the impact of these interventions on specific quality-of-life outcomes related to physical activity, and (3) to determine whether the program reaches a more diverse sample of older adults than was reached in controlled research settings. It was hypothesized that both physical activity programs would lead to increased physical activity and improved physical activity–related outcomes and that Active for Life would recruit a more diverse sample compared with the evidence-based programs on which it was based. The outcomes for the first year are described.

METHODS

Program Overview

Detailed information about Active for Life can be found at http://www.activeforlife.info. Two evidence-based programs, Active Choices (AC; Stanford University) and Active Living Every Day (ALED; The Cooper Institute, Dallas, Tex, and Human Kinetics Inc, Champaign, Ill), were selected for translation and evaluation. These 2 programs met the criteria of (1) being successful in increasing physical activity in adults aged 50 years and older, (2) being based on behavioral theories, (3) including intervention manuals, and (4) having been tested in multiple settings with a variety of participants. Both programs help participants develop behavioral skills needed to build moderate physical activity into their daily lives.

Active Choices is a 6-month program delivered through 1 face-to-face meeting followed by one-on-one telephone counseling.[14–17] Participants receive biweekly telephone calls for the first 2 months and monthly telephone calls for the last 4 months (up to 8 calls total). Counseling is tailored to the person's readiness for change[12] and emphasizes key social cognitive theory[13] constructs (e.g., social support, self-regulation, self-efficacy).

Active Living Every Day is a 20-week program delivered in a group setting.[18,19] Participants come together to learn behavior-change principles consistent with social cognitive theory[13] and the transtheoretical model.[12] Participants are encouraged to provide support to one another and share successes and challenges. Applicant sites chose which program they wanted to implement, then justified their choice in a grant award competition (473 applications were received).

Grantees and Intervention Staff

The 9 successful grantees demonstrated their ability to recruit a diverse sample and participate in an evaluation, as well as the capacity to implement a large-scale program. Characteristics of these grantees are shown in Table 1. Grantees have local community partners who inform recruitment and programmatic activities. These partnerships allow grantees to enhance the representativeness of populations recruited. Most grantees had offered some type of physical activity programs previous to Active for Life.

Each grantee strived to recruit 100 participants in the first year of the study (beginning March 2003). Over the 4-year period, we expect that each grantee will recruit approximately 900 participants into Active for Life, for a total of approximately 8000 participants across communities.

Intervention staff were employed by the lead organization and trained and certified by program developers who were also available throughout the project to provide technical assistance. The National Program Office provided technical assistance for program marketing, recruitment, budget management, and sustainability planning. A detailed process evaluation tracks intervention fidelity and use of technical assistance and will be reported in a future paper.

Participants

Recruitment strategies during the first year were tailored by grantees to the communities they targeted (Table 1). Participants had to be 50 years or older (no upper limit), sedentary or underactive, and free of medical conditions or disabilities that required higher levels of supervision. Each grantee was required to design and implement a risk-management strategy that included risk assessment, participant education, and health care provider involvement as appropriate (before and during the program).

All sites used the revised Physical Activity Readiness Questionnaire[20] (PAR-Q) for risk assessment. All sites educated participants on risks of physical activity and methods to minimize risks (also included in the consent form) and included safety tips and information on warning signs and symptoms. All sites advised participants to start at a low level of activity and gradually increase volume of activity over time to reduce injury risks. At 2 sites, participants who endorsed PAR-Q items were required to obtain written medical approval before starting the program. At the other sites, participants were advised to discuss positive PAR-Q items with their health care provider, but were not routinely required to obtain written medical approval. Program directors had the discretion to require medical approval if deemed appropriate. This type of approach has been shown to result in few adverse events.[21]

Measures

Participants reported their sociodemographic and health-related variables, including date of birth (to compute age), race, ethnicity, marital status, gender, years of formal education, income, height and weight (to compute body mass index [BMI][22] in kg/m^2), health rating, and presence of chronic health conditions.[23]

Physical activity was determined with the Community Healthy Activities Model Program for Seniors (CHAMPS), a 41-item self-report measure.[24] It includes activities typically undertaken by older adults for exercise, activities undertaken in the course of their day that are physical in nature, and recreational activities that provide physical activity. Minutes per week spent in moderate- and vigorous-intensity physical activities and in light-, moderate-, and vigorous-intensity physical activities (all physical activities) were derived. The CHAMPS measure has strong psychometric properties, including demonstrated validity,[25] test–retest reliability,[25] and sensitivity to change.[16,17,24,26,27] Underactive participants (as defined below) have been shown to report an average of about 3.0 hours per week of moderate- and vigorous-intensity physical activity from all sources.[15] A secondary 3-item measure[23] assessed participation, frequency, and duration of moderate- and vigorous-intensity physical activities to classify participants as sedentary (< 10 min/wk), regularly active (≥ 30 min/d, ≥ 5 d/wk), or underactive (not meeting criteria for sedentary or regularly active) according to current recommendations.[28]

For a measure of depressive symptoms, participants completed the widely used 10-item Center for Epidemiological Studies Depression Scale (CES-D).[29–31] Participants rated the frequency with which they experienced symptoms of depression during the past week. Possible scores can range from 0 to 30 with higher scores indicating greater depressive symptoms.

Participants also completed the 4-item version of the Perceived Stress Scale,[32,33] an extensively used questionnaire that was designed to measure the degree to which situations in one's life are appraised as stressful. Possible scores can range from 0 to 16 with higher scores indicating greater perceived stress.

In addition, a scale developed as part of the Activity Counseling Trial[34] measured satisfaction with body function and appearance. Participants rated their satisfaction over the past 4 weeks with 9 aspects of their body's appearance and function (e.g., overall level of physical fitness, muscle tone, shape, etc.) on a 7-point scale. Two subscales were derived from factor analysis: satisfaction with body appearance (3 items) and satisfaction with body function (6 items). Possible scores range from −9 to +9 and −18 to +18, respectively, with higher scores indicating greater satisfaction.

Design and Procedure

The original evidence-based studies of AC and ALED used rigorous randomized controlled designs. Active for Life was not designed to demonstrate efficacy of AC or ALED nor to compare the 2 programs, but, rather, to study translation of research to practice by examining whether the magnitude of effects was comparable in community settings to what has been reported in controlled research settings and to examine the representativeness (or reach) of the sample. Thus, a randomized controlled design

TABLE 1—Description of the Active for Life Grantees, Recruitment Target Populations, and Most Common Recruitment Strategies, by Program Type

Grantee—Lead Organization	Type of Organization	Typical Services Provided	Target Populations	Recruitment Strategies (5 Most Frequent)
Active Choices Program				
Blue Shield of California (BSC), Woodland Hills	Statewide nonprofit health plan	Health plan and related benefits including commercial and individual insurance products and government programs, access to quality care at an affordable cost	Sedentary BSC Medicare Advantage HMO and Medicare supplement members aged 65+ years, targeted subgroups including hard-to-reach Hispanic members and members with diabetes who reside in Los Angeles and Orange counties	Presentations, telemarketing, special events, new member orientations, direct mail
Church Health Center, Memphis, Tenn	Faith-based health and community development organization	Affordable health care and health promotion to uninsured individuals, families, and older adults	Lapsed members of Hope and Healing Center, churches, and low- to mid-income senior centers in urban/inner city areas	Presentations, flyers, telephone marketing, special events, calendar listing
San Mateo County Health Department, San Mateo, Calif (additional site at the Berkeley Public Health Department, Berkeley, Calif)	County and city public health departments	Health care and health education services	Lower income, minority, at-risk older adults (at risk in terms of health status, e.g., diabetes, heart disease, obesity)	Presentations, special events, networking, newspaper advertisements, flyers
YMCA of Metropolitan Chicago, Ill	Nonprofit service organization	Large health/fitness provider for all ages and social service agency offering childcare, youth leadership/development, job training/education, housing, etc.	Inactive and lapsed YMCA members in urban/suburban areas, minority residents in communities surrounding local YMCAs, Chicago Department on Aging members	Presentations, special events, direct mail, brochures, newspaper articles
Active Living Every Day Program				
Council on Aging of Southwestern Ohio, Cincinnati	Aging network organization in partnership with county health district and hospital system	Home health care, meals, and essential public health services	Seniors graduating from direct service needs, sedentary adults in 5-county area, senior centers, churches	Brochures, presentations, direct mail, flyers, newsletter (external)
FirstHealth of the Carolinas, Pinehurst, NC	Nonprofit health care delivery system	Health care, education, and promotion services	Retirees in resort areas; blue-collar, mid-income, and rural adults	Calendar listing, presentations, direct mail, newspaper articles, flyers
Greater Detroit Area Health Council, Mich	Regional, membership-based health coalition addressing cost, quality, and access to healthcare	Prevention, intervention strategies to improve community health status and consumer decisionmaking	Underserved, urban African Americans	Presentations, networking (church congregations), special events, flyers, radio
Jewish Council for the Aging of Greater Washington, Rockville, Md	Nonprofit human service organization	Programs and services focused on assisting older adults to maintain independence as long as possible	Older adults in suburban/urban areas in Maryland, Northern Virginia, and the District of Columbia; 35% ethnic minorities	Presentations and exhibits, special events, newspaper advertisements, newsletter (external), calendar listing
The OASIS Institute, St Louis, Mo (additional sites in Pittsburgh, Pa, and San Antonio, Texas)	National nonprofit adult learning organization	Education programs andservices designed to enhance quality of life for diverse audiences of mature adults	Sedentary older adults in St Louis, Mo; San Antonio, Texas; and Pittsburgh, Pa	Presentations, special events, networking, newsletter (external), brochures

was not deemed necessary or appropriate for these community-based settings (see Estabrooks and Gyurcsik[9] for a discussion of the evaluation of translational projects). Instead, a pre–post design was used.

All participants completed an informed consent form that was approved by the institutional review boards of the University of South Carolina and Texas A&M University and review boards or legal departments at the local grantee organizations. Participants then completed a brief questionnaire that collected personal and demographic information. Finally, participants were given the pretest survey and a postage-provided envelope. Staff was available to assist participants with lower literacy levels and cognitive or sensory impairments. In some instances where literacy levels were low among most participants, staff members read survey items out loud so that surveys could be completed in a group setting with less reliance on reading. Participants were encouraged to complete the surveys without input from or discussion with other group members. Surveys were completed and mailed directly to the evaluation team, which reviewed them for completeness, accuracy, and potential response-set biases. Participants with these types of problems were contacted via telephone for clarification.

Start and end dates were used to track dates for when to send the posttest surveys. One ALED grantee that served a low literacy population administered posttest surveys during the 19th or 20th group session. For the remaining 8 grantees, the posttest surveys were sent directly to participants, along with postage-paid envelopes, 2 weeks before the scheduled completion of their program. Postcard reminders and a second survey were sent to nonresponders. Participants who returned their pretest and/or posttest survey entered a drawing for a $20 gift card to a local retail store (1-in-25 chance).

Statistical Analyses

To address changes from pretest to posttest in hours per week of moderate- and vigorous-intensity physical activity, total physical activity, depressive symptoms, perceived stress, satisfaction with body function and appearance, and BMI, repeated measures analyses of covariance (using SAS Proc Mixed software [SAS Institute Inc, Cary, NC]) were conducted that controlled for site clustering, program (AC vs ALED), race (White vs ethnic minority), gender, BMI, health rating, and education (high school or fewer years vs some college or college graduate). Moderate- and vigorous-intensity physical activity and total physical activity were highly positively skewed at pretest and somewhat skewed at posttest. A square root transformation was successfully used to normalize these variables.

Participants were recruited from 12 geographic sites; therefore, all change analyses took into account this site-level clustering and accounted for the nesting of sites within programs. All change analyses had 10 degrees of freedom.

Two types of change analyses were conducted. First, we examined changes among participants who had both pretest and posttest data available (complete data). Because of missing data for variables of interest, 33 of the 608 who completed posttests were excluded from these analyses, leaving a sample size of 575. Second, we conducted more conservative analyses using an intent-to-treat model. Because there is no control group in Active for Life, these analyses assumed no change in outcomes among those who did not return posttest surveys by carrying forward baseline values. Because of missing data for variables of interest, 49 of the 847 participants were excluded from these analyses, leaving a sample size of 798. Both types of analyses were also conducted separately for AC and ALED.

An effect size (d=[posttest mean – pretest mean] / pretest standard deviation) using means that were adjusted for site clustering, program, race, gender, BMI, health rating, and education was computed for each outcome.[35] Effect sizes of d=0.2 were considered small; d=0.5, medium; and d=0.8, large.[36]

RESULTS

Description of the Sample

A total of 838 participants were recruited into Active for Life in the first year and completed pretest surveys. Recruitment numbers ranged from 76 to 107 across grantees. The screening and recruitment numbers are shown in Figure 1. Participant characteristics for the entire sample and separately by program are reported in Table 2.

On average, AC participants were significantly younger, heavier, and more physically active than ALED participants. Active Choices participants were also more likely than ALED participants to be non-White or Hispanic and less likely to have had a stroke. Consistent with eligibility and screening, most participants were sedentary (43.1%) or underactive (45.1%).

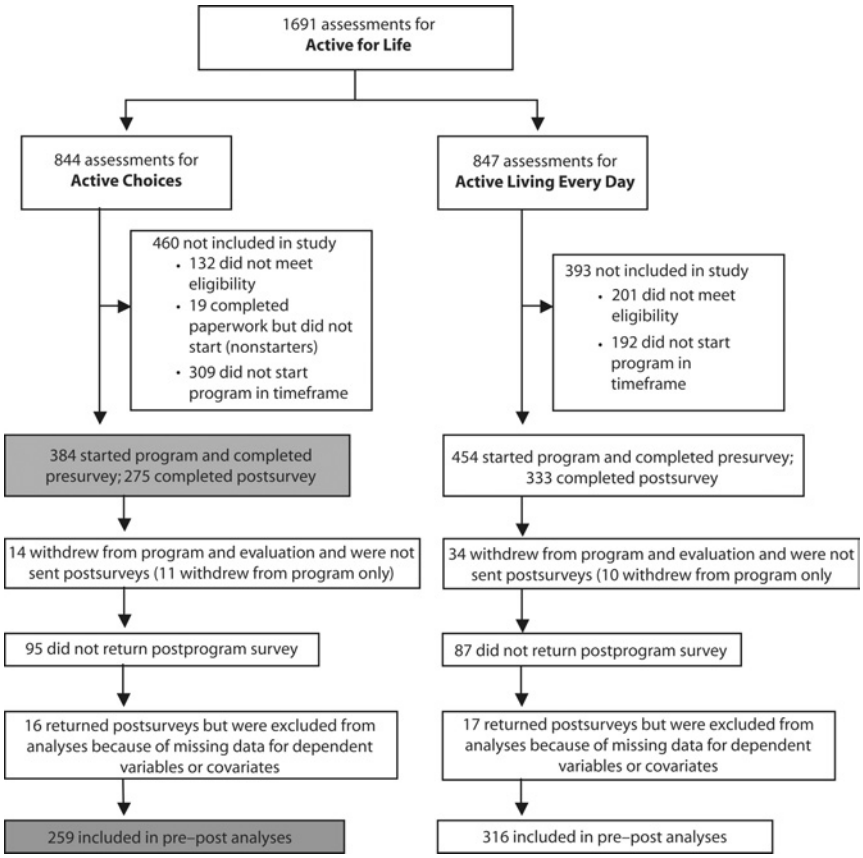
Analysis of Survey Nonresponders and Participant Withdrawals

A total of 608 participants (275 AC and 333 ALED) returned their posttest surveys (72% response rate). In data not shown but available upon request, participants who returned their posttest surveys were more likely to be older, White, married, and to have arthritis and osteoporosis compared with participants who did not return posttest surveys. Responders also had lower scores on depressive symptoms and perceived stress, and reported better overall health. Across both programs, responders were more likely to be White with fewer depressive symptoms. Among AC participants, responders were also more likely to be leaner, older, to have osteoporosis, and to report lower perceived stress. Among ALED participants, responders were more likely to be married, healthier (perceived rating), to have higher income, and to have arthritis. All P values were less than .05.

Sixty-nine participants (25 AC and 44 ALED; 8.2%) actively withdrew from the program or the program and evaluation. Non-Hispanic White participants were more likely than participants from ethnic minority groups to withdraw (10.0% vs 5.6%; P=.02), and people with arthritis were less likely to withdraw (5.8% vs 11.4%; P<.01). No other variables were associated with study withdrawal (data not shown).

Change Analyses

Table 3 presents adjusted mean scores on the outcome variables for pretest and posttest and effect sizes for these changes for the entire sample and separately by program. In analyses that used complete data



Note. Community organizations tracked recruitment efforts at an aggregate level. Thus, assessment numbers refer to the number of formal eligibility assessments conducted before and during the months in which participants were enrolled during the first year of the study. Some individuals who were screened and not included during the first year of the study could have started the program at a later time.

FIGURE 1—Recruitment and retention of participants into the Active for Life program

(n=575), participants reported a significant increase from pretest to posttest in moderate- and vigorous-intensity physical activity (t_{10}=11.67; P<.0001) and total physical activity (t_{10}=13.53; P<.0001). Participants reported improvements in satisfaction with body appearance (t_{10}=11.22; P<.0001), body function (t_{10}=10.39; P<.0001), depressive symptoms (t_{10}=−3.14; P<.05), and perceived stress (t_{10}=−2.90; P<.05). Finally, BMI decreased (t_{10}=−5.19; P<.001). When analyzed separately by program, all effects remained statistically significant with 2 exceptions: depressive symptoms and perceived stress for AC participants. The intent-to-treat analyses yielded the same findings, as shown in Table 3, although the magnitude of the changes was expectedly somewhat smaller.

DISCUSSION

Despite the availability of effective programs to increase physical activity in older adults, few evidence-based programs have been translated into community settings. Increasingly, researchers are being asked to document the public health implications of effective programs and move beyond purely efficacy-based studies,[4–6,8,37] and projects like Active for Life are responsive to this call.

When implemented in diverse community settings by trained staff, both AC and ALED increased physical activity and the magnitude of increase (effect size) was comparable to that seen in the randomized trials on which they were based, where d=0.38 to d=0.64, depending on the outcome.[15,19,24] In Active for Life, moderate- and vigorous-intensity physical activity increased by 2.12 hours per week (d=0.50) and total activity increased by 3.84 hours per week (d=0.51), translating into comparable medium effects. Both programs emphasize building routine lifestyle activity into one's day, thus explaining the increases seen in both low- and moderate-intensity physical activity. It is important to note that the randomized trials followed participants for longer periods of time, and it is not known whether the changes reported at the completion of Active for Life were maintained over time.

Physical activity–related quality-of-life outcomes also improved as a result of the programs. Satisfaction with body function, a domain particularly relevant to older adults who are at increased risk of functional decline,[38] moderately improved from pretest to posttest (d=0.45). As is common in participants who volunteer for research studies, Active for Life participants had low levels of depressive symptoms and perceived stress, and, therefore, these measures were subject to floor effects.[39] Furthermore, those with higher levels of depressive (for AC and ALED) and stress-related symptoms (for AC) were less likely to return posttest surveys. The smaller improvements in mental health domains are consistent with the literature on evidence-based physical activity programs. In addition, although reductions in depressive symptoms and perceived stress were significant for ALED, they were not for AC. These findings for AC are inconsistent with 2 previous studies of middle-aged and older adults[15,40] and are unlikely to be caused by format differences. Findings might be attributed to lower statistical power in AC (fewer sites and participants), differential nonresponse (AC participants reporting greater stress were less likely to return a postprogram survey), or other differences in AC versus ALED participants in this particular study.

It is important for translational projects to extend evidence-based findings to more representative populations. Like most controlled research on interventions for physical activity, the original randomized trials of AC and ALED recruited sedentary or underactive older adults. However, these participants were more than 80% White, highly educated with few chronic health conditions, and, for

TABLE 2—Unadjusted Baseline Demographic and Health-Related Characteristics of Active for Life Participants Overall (n = 838) and by Program Type

Characteristic	Entire Sample (n = 838), %	AC (n = 384), %	ALED (n = 454), %	*P* Value Comparing AC and ALED
Age,[a] years				
Mean (SD)	68.4 (9.4)	65.9 (9.8)	70.6 (8.6)	<.001
50–64 years	35.4	45.0	27.3	
65–74 years	39.3	35.2	42.8	
≥75 years	25.3	19.8	29.9	
Race/ethnicity[b,c]				<.001
White	64.1	57.8	69.4	
Black/African American	29.8	32.4	27.7	
Asian	2.0	3.2	0.9	
Native Hawaiian/Pacific Islander	0.2	0.5	0.0	
Reporting 2 groups	1.2	1.3	1.1	
Other	2.7	4.8	0.9	
Ethnicity and gender				
Hispanic/Latino,[d] %	6.1	10.1	2.7	<.001
Women,[e] %	80.6	78.3	82.6	.12
Education[b,c]				.14
Less than high school	8.9	9.1	8.7	
High school or GED	23.2	20.4	25.6	
Some college	34.7	35.2	34.3	
College graduate	33.2	35.2	31.4	
Income[f]				.10
<$30 000	49.7	51.4	48.2	
$30 000–$59 999	30.8	32.4	29.4	
≥$60 000	19.4	16.2	22.5	
Marital status[b,g]				.08
Married or member of unmarried couple	42.6	39.4	45.3	
Divorced	19.6	24.9	15.1	
Widowed	27.0	23.9	29.6	
Separated	1.7	2.1	1.3	
Never married	9.2	9.7	8.7	
BMI,[h] kg/m^2				
Mean (SD)	29.8 (6.8)	30.5 (7.1)	29.2 (6.4)	.01
Underweight (BMI ≤ 18.5)	0.2	0.0	0.5	
Normal weight (BMI = 18.6–24.9)	23.9	23.6	24.1	
Overweight (BMI = 25.0–29.9)	34.0	30.0	37.5	
Obese (BMI ≥ 30.0)	41.8	46.4	37.9	
Health conditions				
Diabetes,[i] %	20.4	21.2	19.6	.57
Hypertension,[j] %	55.7	54.4	56.8	.50
Arthritis,[j] %	60.6	61.3	60.1	.74
Coronary heart disease,[k] %	14.6	13.6	15.4	.46
Stroke,[l] %	6.7	4.3	8.7	.01
Osteoporosis,[m] %	22.9	23.1	22.7	.89

Continued

ALED, relatively young (35–60 years).[14–16,18] Thus, these studies are high in internal validity but weaker in external validity. The first year of Active for Life has addressed external validity of AC and ALED, because targeted samples were enrolled that were similar to the older US population for race[41] (with oversampling of Black and undersampling of White participants), chronic health conditions,[42,43] and health ratings.[42,43] Participants were more likely to be obese and less likely to be normal weight than the older US population.[42] Although participants had higher educational levels relative to the older US population,[42,43] they were less educated than participants in the AC and ALED randomized trials.

One constraint on representativeness is that individuals who seek out such programs tend to be more motivated for change. However, in the real world it is precisely such individuals that would make use of this kind of programming, and the Active for Life grantees were diverse, real-world organizations. Thus, this study extends the literature by moving from efficacy toward effectiveness and allowing us to generalize to a population that is more representative of those who could realistically be reached by physical activity programs.

Several limitations should be considered when interpreting our findings. To reduce grantee and participant burden, we relied exclusively on self-report data. Although a weakness, the primary study outcome (CHAMPS) correlated moderately with objective physical activity measures, objective measures of physical functioning, and quality of life in other studies.[22,25,27] The evidence-based studies of AC and ALED used subjective as well as objective measures of physical activity, fitness, and functional performance and showed similar increases in these objective measures.[14–16,18] Social desirability is the major concern related to self-report data. Yet, our pattern of results does not support a social desirability bias. Because all measures were self-reported, one might expect similar effect sizes across outcomes. However, effect sizes varied by outcome and were consistent with the literature.

A second limitation is that participants who returned posttest surveys differed from those who did not (28% of the sample). Responders were significantly older, White, and college

TABLE 2—*Continued*

Health rating,[n] range: 1 to 5				
Mean (SD)	2.9 (0.8)	2.9 (0.9)	2.9 (0.8)	.94
Excellent score = 1	5.2	6.5	4.0	
Very good score = 2	23.3	22.5	23.9	
Good score = 3	47.9	44.5	50.8	
Fair score = 4	21.5	24.9	18.6	
Poor score = 5	2.2	1.6	2.7	
Physical activity				
Moderate and vigorous CHAMPS physical activity,[o] h/wk (SD)	2.5 (3.9)	2.8 (3.9)	2.2 (3.9)	.02
Total CHAMPS physical activity,[p] h/wk (SD)	8.0 (7.2)	8.9 (7.4)	7.3 (7.0)	<.01
Physical activity recommendations[o]				.03
Sedentary	43.1	38.3	47.1	
Underactive	45.1	49.3	41.6	
Regularly active	11.8	12.4	11.2	
Quality of life				
Depressive symptoms,[j] range: 0 to 30 (SD)	5.9 (5.0)	5.9 (5.0)	5.9 (5.0)	.90
Perceived stress,[q] range: 0 to 16 (SD)	4.7 (3.0)	4.7 (2.9)	4.8 (3.1)	.82
Satisfaction with body appearance,[r] range: −9 to +9 (SD)	−3.0 (5.2)	−3.3 (5.1)	−2.7 (5.3)	.10
Satisfaction with body function,[s] range: −18 to +18 (SD)	−3.2 (9.6)	−3.4 (9.3)	−3.1 (9.9)	.74

Notes. AC = Active Choices; ALED = Active Living Every Day; SD = standard deviation; GED = general equivalency diploma; BMI = body mass index; CHAMPS = Community Health Activities Model Program for Seniors. Reported means, standard deviations, frequencies, and *P* values were not adjusted for design characteristics and clustering.

[a]n = 835.
[b]This variable was dichotomized prior to testing for group differences: married or member of unmarried couple versus not married, White versus not-White race, high school or less versus greater than high school education.
[c]n = 832.
[d]n = 770.
[e]n = 836.
[f]n = 736.
[g]n = 831.
[h]n = 808.
[i]n = 815.
[j]n = 826.
[k]n = 823.
[l]n = 824.
[m]n = 825.
[n]n = 829.
[o]n = 838.
[p]n = 847.
[q]n = 830.
[r]n = 831.
[s]n = 828.

educated; more likely to have arthritis and osteoporosis yet rate their health as better; and less likely to report depressive symptoms and stress than nonresponders. If participants with greater symptoms of depression and stress remained in the study, it is likely that they would have benefited to an even greater extent than participants observed given that reductions in depression and stress were found even among a population with very low levels of these symptoms. When considering the translation of these programs into the community, the evidence base for the types of individuals who did not return surveys may not be as strong as for those who did. Future papers will examine whether intervention effectiveness differed by participant health and sociodemographic characteristics.

The third major limitation is that data regarding the maintenance of behavior change were not collected. Finally, it is not clear whether small, community-based organizations with fewer resources would show comparable success in implementing these programs.

These limitations notwithstanding, our findings have implications for community-based practice and translational research. Public health practitioners and health care providers can be assured that older adults can and do change as a result of behavioral interventions. Active for Life is also responsive to a call to conduct research that has greater public health relevance.[4–6,8,37]

Although efficacy studies are a critical first step in the research process, all too often effective behavioral programs do not impact communities because they are never translated broadly. Active for Life will reach at least 8000 diverse older adults over a 4-year period, and the community organizations funded in this initiative are currently working on sustainability plans to ensure continued reach over time. Active for Life may serve as a useful model regarding how to translate evidence-based programs and how to evaluate the translational process. Future papers will focus on recruitment, intervention moderators (including environmental factors), process evaluation, and sustainability. ■

About the Authors

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This article was accepted December 18, 2005.

TABLE 3—Effect Sizes (d) Based on Adjusted Pre- and Posttest Scores (With Standard Errors) for the Primary Outcomes of Interest, Complete Data, and Intent-to-Treat Analyses, by Program Type

	Total Sample		Active Choices		Active Living Every Day	
Outcome	Complete Data (n = 575)	Intent to Treat (n = 789)	Complete Data (n = 259)	Intent to Treat (n = 368)	Complete Data (n = 316)	Intent to Treat (n = 421)
Moderate and vigorous physical activity, d	0.67 (0.06)	0.50 (0.06)	0.62 (0.08)	0.74 (0.08)	0.74 (0.10)	0.56 (0.10)
Pretest h/wk	2.54 (0.42)	2.65 (0.32)	2.89 (0.77)	2.96 (0.42)	2.27 (0.57)	2.46 (0.48)
Posttest h/wk	5.06 (0.42)	4.54 (0.32)	5.33 (0.77)	4.69 (0.42)	4.92 (0.57)	4.55 (0.48)
All physical activity, d	0.68 (0.06)	0.51 (0.06)	0.55 (0.08)	0.41 (0.06)	0.79 (0.07)	0.60 (0.07)
Pretest h/wk	6.99 (0.82)	7.25 (0.64)	7.97 (1.45)	7.73 (0.75)	5.77 (1.06)	6.69 (0.96)
Posttest h/wk	12.12 (0.82)	11.12 (0.64)	12.13 (1.45)	10.75 (0.75)	11.72 (1.06)	11.38 (0.96)
Depressive symptoms, d	−0.11 (0.17)	−0.08 (0.12)	−0.04 (0.24)	−0.03 (0.17)	−0.17 (0.22)	−0.12 (0.17)
Pretest score, range: 0 to 30	6.64 (0.39)	6.53 (0.30)	7.69 (0.85)	6.82 (0.48)	6.10 (0.48)	6.17 (0.41)
Posttest score, range: 0 to 30	6.12 (0.39)	6.14 (0.30)	7.52 (0.85)	6.69 (0.48)	5.30 (0.48)	5.56 (0.41)
Perceived stress, d	−0.18 (0.19)	−0.13 (0.14)	−0.01 (0.24)	0.00 (0.17)	−0.29 (0.19)	−0.21 (0.14)
Pretest score, range: 0 to 16	5.49 (0.28)	5.12 (0.22)	4.93 (0.56)	4.72 (0.33)	5.53 (0.33)	5.20 (0.29)
Posttest score, range: 0 to 16	4.94 (0.28)	4.73 (0.22)	4.91 (0.56)	4.72 (0.33)	4.63 (0.33)	4.53 (0.29)
Satisfaction with body appearance, d	0.40 (0.18)	0.28 (0.17)	0.34 (0.32)	0.23 (0.32)	0.43 (0.23)	0.32 (0.19)
Pretest score, range: −9 to +9	−2.61 (0.41)	−2.53 (0.33)	−2.76 (0.87)	−2.76 (0.51)	−2.28 (0.52)	−2.12 (0.49)
Posttest score, range: −9 to +9	−0.59 (0.41)	−1.05 (0.33)	−1.04 (0.87)	−1.60 (0.51)	−0.05 (0.52)	−0.42 (0.49)
Satisfaction with body function, d	0.61 (0.55)	0.45 (0.50)	0.49 (0.85)	0.36 (0.62)	0.70 (0.64)	0.52 (0.60)
Pretest score, range: −18 to +18	−2.44 (0.79)	−2.24 (0.66)	−1.90 (1.64)	−1.03 (0.95)	−2.56 (0.95)	−2.43 (1.03)
Posttest score, range: −18 to +18	3.29 (0.79)	2.07 (0.66)	2.74 (1.64)	2.32 (0.95)	4.01 (0.95)	2.60 (1.03)
BMI, d	−0.05 (0.07)	−0.04 (0.05)	−0.05 (0.11)	−0.03 (0.08)	−0.06 (0.09)	−0.05 (0.08)
Pretest kg/m^2	30.15 (0.78)	29.65 (0.65)	32.74 (1.61)	31.27 (1.27)	29.17 (0.97)	28.69 (0.84)
Posttest kg/m^2	29.78 (0.78)	29.40 (0.65)	32.41 (1.61)	31.05 (1.27)	28.76 (0.97)	28.37 (0.84)

Note. All means and standard errors are adjusted for site clustering, program (except in program-specific analyses), race, sex, body mass index (BMI; except for the analysis predicting BMI), health rating, and education. Effect sizes (d) are computed using pretest standard deviations. All change scores were statistically significant except for change in depressive symptoms and stress for Active Choices participants. Both physical activity measures were skewed and square root transformations were conducted and used in all change analyses and in the effect size calculations. The untransformed means and standard errors, however, are presented using the original scales of measurement and are adjusted for variables listed above. Intraclass correlation coefficients for level, computed on the complete sample of 575 and on the basis of 10 *df*, were (listed in the order they appear in the table): 0.0374, 0.0504, 0.0002, 0.0144, 0.0000, 0.0108, 0.0585. Pre–post correlations for site were high ($r > 0.8$) for BMI and the 2 physical activity outcomes, but were negligible for other outcomes ($df = 10$); correlations for individuals were moderate ($r = 0.4$–0.6) for all outcomes except BMI ($r = 0.96$).

Contributors

S. Wilcox led the development and implementation of the evaluation, synthesized analyses, and led the writing. M. Dowda contributed to the implementation of the evaluation, led and conducted all analyses, and assisted with the writing. S.F. Griffin contributed to the implementation of the evaluation. C. Rheaume oversaw the implementation of the evaluation. M.G. Ory contributed to the origination of the study and oversaw grantee implementation of the programs. D.M. Buchner and T. Bazzarre contributed to the origination of the study. K. Campbell-Voytal and J. Bartlett-Prescott contributed to the implementation of the program and evaluation. D. Dowdy oversaw grantee implementation of the programs. R. Mockenhaupt originated the study. In addition, M. Dowda, S.F. Griffin, C. Rheaume, M.G. Ory, L. Leviton, A.C. King, A. Dunn, D.M. Buchner, C.M. Castro, and R.A. Carpenter contributed to the development of the evaluation. All authors helped to conceptualize ideas, interpret findings, and review and revise drafts of the article.

Acknowledgments

Active for Life is funded by The Robert Wood Johnson Foundation. The findings and conclusions in this report are those of the authors and do not necessarily represent the views of The Robert Wood Johnson Foundation, the Centers for Disease Control and Prevention, or other institutions affiliated with the authors.

We gratefully acknowledge the many participants who took part in the first year of the Active for Life program and evaluation. We also acknowledge the involvement and significant contribution of the following program managers, facilitators/health educators, and staff at each of the grantee sites and organizations involved in Active for Life during the first year: Barbara E. Ainsworth, Vernice Davis Anthony, Jan Arnold, Vanessa Batt, Peter Bense, Susan Binkert, Esther Bishop-Files, Paul Bridgewater, Christine Bruchac, Karen Calhoun, Marvin Cato, Fabiana Cheistwer, Kate Clayton, Mary Cocanougher, Teresa Cutts, Annemarie DeFazio, Mia Earl-Clemmons, Doris Y. Estremera-Rohleder, Erica Frechman, Julie Freelove-Charton, Maude Freeman, Mary Ganzel, Russell E. Glasgow, Doris Grider, Lisa Groce, Michele Guerra, Isabel R. Guerrero, Lisa G. Hartsock, Katya Henriquez, Sharlene P. Hirsch, Justine Kaplan, Marcia Kerz, Lisa M. Klesges, Deborah Kosmont, Elise Krumholz, Diana Lattimore, Jassen Lanfair, Fran Lewickyj, H. Michelle Maloney, Angela Merlo-Rains, Cindy Merrins, Martha Milk, Dorothy Morgan-Quelch, Mindy Morgen, Michael C. Nabors, Cheryl Roberts Oliver, Russell Pate, Alisa Phillips, Shirley Pogue, Michelle D. Rice, Juan Rivas, Brigid Sanner, Amber Schickedanz, Brenda Schmachtenberger, Patricia A. Sharpe, Dennis Shepard, Tracy Slate, William Smith, Alberta Smith-Plump, Sam Stebbins, Debbie Stefanides, Madhuri Sudan, Theresa Taylor, Winifred W. Thompson, Jocelyn Tobnick, M. Renée Umstattd, Melissa Watford, John B. Waller Jr, Stacy Wegley, Gail Weisberg, Shirley Williams, Carolyn Wilson-Hall, and Jaslin Yu.

We also thank Peter Hannan, from the University of Minnesota, for his statistical consultation on this project. We thank the National Advisory Committee for its valuable contributions to Active for Life. Finally, we thank the coalitions, partnering organizations, and advisory

boards at each of the grantee sites for their meaningful contributions and support of the program.

Human Participant Protection

This study was approved by the University of South Carolina and Texas A&M University System institutional review boards. It was also approved by local grantee review boards.

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