

Sustainability of evidence-based community-based physical activity programs for older adults: lessons from Active for Life

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Abstract

Program sustainability in community and healthcare settings is critical to realizing the translation of research into practice. The purpose of this study is to describe the implementation and assessment of an intervention to increase organizational maintenance of evidence-based physical activity programs and the factors that impede or facilitate sustainability. All organizations implemented a sustainability action plan that included identifying factors related to sustainability, examining resources available, identifying program modifications to enhance sustainability, and long-term action planning. A mixed methods approach was used. Organizational ($n=12$ sites) ability to demonstrate program effectiveness, align priorities with the organizational mission, and integrate the program within the existing infrastructure were strengths related to sustainability. Sites were more optimistic about program sustainability when they had less reliance on internal financial, but more reliance on internal human resources to run the program post-funding. The study resulted in a number of tools that can help community organizations plan for sustainability of physical activity programs.

Keywords

Physical activity, Older adults, Evidence-based programs, Sustainability, Translational research

INTRODUCTION

Despite traditional stereotypes that increased physical activity is futile—or even dangerous—in later life [1–3], recent research documents the significant benefits that can be gained from participating in regular physical activity, even in late life [4]. There are a few aspects of life that regular moderate intensity physical activity does not impact—from improving physical functioning, affect, cognitive performance, and psychological health to enhancing quality of life and delaying or negating the need for assisted living [5]. These recognized benefits have spawned a growing base of efficacious interventions for increasing physical activity in older adults [6–8].

Implications

Practice: Programs are more likely to be sustained when there is a balance of internal and external financial support, programs are integrated into ongoing organizational activities and structure, and program champions are engaged to provide support for program continuation.

Policy: Organizational decision makers should consider changes in job descriptions for staff who are intended to deliver new, evidence-based physical activity programs to heighten the possibility of sustainability.

Research: This is a descriptive study of an intervention to promote sustainability of evidence-based physical activity programs; thus, more rigorous designs to determine the effectiveness of this approach are needed.

While there are now many recognized evidence-based programs [9], Active Choices (AC) and Active Living Every Day (ALED), two behaviorally based lifestyle interventions, have demonstrated efficacy within high quality randomized controlled trials (RCT) supported by the National Institutes of Health (NIH) and other major funding agencies in the USA. Researchers at Stanford University conducted a number of RCTs evaluating telephone-assisted counseling to increase physical activity among adults, and consistently demonstrated the intervention's efficacy in increasing regular physical activity [10–12]. These interventions were later packaged for more widespread use as a program called Active Choices. During the same time period, researchers at the Cooper Institute completed a comprehensive trial of ALED, a small-group physical activity intervention, that demonstrated the intervention's efficacy for increasing energy expenditure, cardiorespiratory fitness, and physical activity intensity while reducing cardiovascular risk factors [13–16].

Program background: active for life

In 2001, the Robert Wood Johnson Foundation (RWJF) funded the Active for Life® (AFL, www.activeforlife.info) program [2] with the stated goals “to reach more diverse populations and sustain programs over time in existing community settings.” To achieve these goals, AFL used a relationship research-practice model [17] to disseminate and encourage the sustainability–defined in this context as the degree to which program delivery is maintained at an organizational level beyond RWJF funding–delivery of AC and ALED. Nine different organizations, representing 12 sites, across the USA were funded to implement their choice of AC or ALED [10, 14, 18, 19], and–in partnership with program developers and an evaluation team–to determine the effectiveness of these programs when delivered in practice.

Results from the pilot-implementation phase demonstrated that both programs were effectively delivered in a broad range of community settings [20]. Both programs increased moderate to vigorous and total physical activity, improved satisfaction with body appearance and function, and reduced body mass index. ALED also reduced depressive symptoms and perceived stress. Furthermore, the magnitude of these changes was comparable to those reported in efficacy studies. Yet, unlike the bias toward a more educated, healthy, and white sample that was typically recruited in controlled studies, the AFL sample was more diverse in terms of age, race, education, and baseline health status, with the majority of participants having chronic illnesses and being overweight/obese. The results from all years of the program have now been reported and are consistent with those of the pilot phase [21]. Over 8,000 midlife and older adults were reached by the AFL program.

Clearly, the AC and ALED interventions hold promise for achieving increased physical activity in older adults. However, in both the efficacy and effectiveness trials, the programs were delivered with significant financial support from a source that was external to those delivering the interventions (i.e., NIH and RWJF). Hence, the likely sustainability of these programs within the community settings is unknown. The specific purpose of this study was to describe the implementation of the AFL Sustainability Intervention by the AFL grantees and to examine the likelihood of program sustainability including the factors that impede or facilitate sustainability. Recognizing that sustainability is an important but often overlooked aspect of physical activity intervention research, the AFL National Program Office in collaboration with the developers of the RE-AIM Framework (www.re-aim.org) created a sustainability action plan protocol for each AFL community to work through over the course of the project. Each grantee provided qualitative and quantitative feedback on both the process and outcomes of their sustainability action plans. With this information, we hope that AFL can serve as a model

for those wanting to learn more about the sustainability processes involved in community-wide physical activity programming.

METHODS

AFL grants were awarded to nine organizations that represented 12 sites across the USA. The grantees represented a variety of community organizations, including faith-based groups, health departments, hospitals, adult learning centers, community action groups, and aging-related organizations. The grantee organizations, in turn, collaborated with a variety of community-based partners in their service areas to assist with program marketing, implementation, administration, infrastructure, and sustainability.

Figure 1 details the three-step sustainability plan. Training on how to use the sustainability tools was provided over an 11-month period (i.e., April 2004 to February 2005). Individual organizations met with RE-AIM experts to clarify conceptual issues and to develop their action plan for sustainability. Regular conference calls were held to provide ongoing training, assistance, and feedback. The AFL research protocol 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.

Sustainability intervention

The sustainability intervention was designed to help grantees develop a sequential plan that could be adapted to individual site preferences and circumstances. It was also based on an ecological model hypothesizing that factors operating at multiple individual and environmental levels impact sustainability [22]. These levels were conceptualized as design/implementation, organization/setting, and community/environmental. Sustainability tools from previous studies were used to develop the final intervention [23–26]. The plan included three steps, each associated with different activities and resources for developing and implementing the plan.

The first step addressed factors that could influence the sustainability of the program. The second step included examining the current and future resources available to deliver the program and identifying potential program modifications that could enhance the sustainability of AFL programs while adhering to the essential elements of the intervention. The third step included long-term action planning. This action plan captured the details of program sustainability on a three-page document which included six major categories addressing sustainability concerns: (1) goals for producing evidence and materials to support the program; (2) plans for obtaining and sustaining

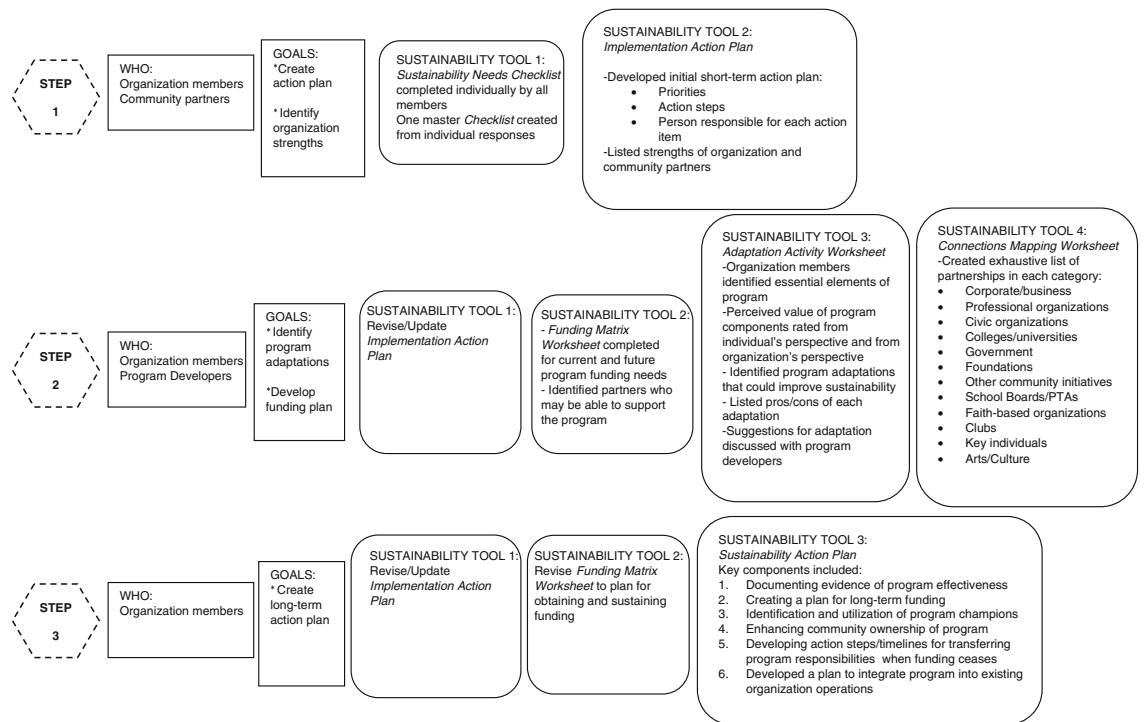


Fig 1 | Sequence of steps taken by grant recipients to complete the sustainability action plan

funding across internal and external sources; (3) strategies to engage and enlist the support of program champions; (4) methods to increase or maintain a good community involvement; (5) plans for a sustainable program delivery team; and (6) plans to integrate the program into existing operations before the funding comes to an end. Each step was presented separately, and the grantees then reviewed the activities included in that step and discussed questions or issues they had. After completing the activities, they filed a report describing their success and any revisions they made to their action plan.

During the final year of funding, all 12 sites completed a questionnaire designed to assess the likelihood of program sustainability and factors likely to promote sustainability (approximately 1 year after completing Step 3). The questionnaire primarily included questions regarding the degree to which the grantees found the sustainability intervention to be helpful and which aspects they found most and least valuable. Specifically, a single question was used to assess the likelihood of sustainability the program after grant funding ended: “Which category most accurately describes your organization’s situation regarding sustaining your AFL program post grant? (definitely will; hope to; very little chance; no chance).” Two questions were used to assess potential adaptations necessary to the programs to improve the likelihood of sustainability: (1) “If you are planning to sustain, are you: (using the original program format; making minor adaptations; making major adaptations),” and (2) “please list the adaptations you are planning to make (open-ended responses).”

Eleven questions were used to assess organizational factors that could influence sustainability. Each question that included a yes/no response was followed by an open-ended option for further explanation. These items focused on future organizational and departmental funding sources (e.g., “Is your organization primarily funded by? a sustained funding source; external grants; fee for service; other”), proportion of program management and facilitation effort that were completed by existing staff, changes in organizational mission or context (e.g., “Is there a Board of Directors or formalized group of champions for your AFL program?”), and future evaluation plans. Four items were used to assess changes in partnerships at the community level. Finally, 11 items were used to assess community perceptions of the degree to which different aspects of the sustainability action planning process were more or less helpful.

ANALYSIS

Grantee responses to areas of strength and weakness on the Step 1 master checklist activity were summed and reported across (1) design and implementation, (2) organizational setting, and (3) community environment factors. In addition, commonalities across areas of strength and difficulty were qualitatively summarized. Step 2 materials were reviewed for suggested program adaptations and potential connections that could assist with financial and resource sustainability were documented. The extent to which grantee organizations implemented Step 3, which included

completing the final Sustainability Action Plan, was documented by indicating the proportion of each component of the action plan that was complete and action plans were qualitatively summarized. Finally, the sustainability questionnaire responses were used to predict grantee perceptions of the likelihood of program sustainability within their setting.

RESULTS

Summary of Step 1—Organizational perceptions of strengths and weaknesses related to program factors are summarized in Table 1. Organizations reported that their perceived strengths in design/implementation factors and organizational setting factors outweighed their perceived weaknesses. Consistent strengths reported by a large majority of grantee organizations included demonstrating the effectiveness of their efforts, building on established programs, aligning priorities with the organizational mission, and integrating the program within the existing infrastructure. Consistent weaknesses reported by the majority of grantee organizations included planning for financial sustainability, trying to obtain core funding, and encouraging funding agencies to increase the proportion of their funds dedicated to prevention.

During Step 1, many grantees selected building upon established activities and programs in the design and implementation area as a priority. Similarly, multiple grantees priorities included aligning the program activities with the organizational mission and identifying competing problems that could be a barrier to sustainability. Interestingly, although all grantees indicated that planning for financial sustainability was a weakness, none indicated this as a current priority area. An assessment of initial action plans suggested that grantees had difficulty identifying incremental action steps, sharing responsibilities across partners, and clarifying the time frames for accomplishing the action steps. Many grantees appeared to be uncomfortable with focusing on sustainability early in the project timeline.

Summary of Step 2—Examples of grantee responses to the Step 2 Adaptations Activity are provided in Table 2. Although specific proposed adaptations were variable across sites and programs, a consistent underlying rationale for the adaptations

involved making the programs more affordable for participants. Many grantee organizations indicated that reducing the cost of the program would allow for delivery to more people over time while maintaining a consistent level of effort from the delivery organization—one that was considered sustainable.

Through the Connections Mapping Activity, frequently cited partnerships included local health care organizations, fitness companies, and internal links within the grantee organization that had not, to date, participated in the partnership. The next most frequently cited connections were related to local government (primarily county health departments) and neighborhood groups. On average, grantees reported eight connections with corporate groups and five each with local government and neighborhood groups.

Developing a funding matrix, as was recommended with Step 2, proved challenging for the grantees, and only a small proportion (about 25%) was able to confidently project funding sources for the future. As a result, the plan was modified to allow grantees to develop the funding matrix in concert with Step 3.

Summary of Step 3—One grantee declined to complete the final step stating that they had already integrated the program into their delivery system. On average, grantee organizations completed 75% of the tasks associated with Step 3 (Table 3). Of the 12 sites, seven indicated that they would definitely sustain the AFL program once the grant funding was complete. One grantee organization reported they definitely would not sustain the program once the funding was complete, the remaining four organizations indicated they “hoped to” sustain the program. Of those sites that intended or hoped to sustain the program, seven intended to make minor adaptations to the program, and four sites intended to make major adaptations. Major proposed adaptations included using the program as a basis for expansion into other health promotion activities (e.g., nutrition; stress), shifting telephone counseling principles to current in-person staff contacts, offering the program as a worksite program for all adults over 18 years old, shortening the program length, combining the program with ongoing programs, and making it a fee-for-use program. Minor proposed adaptations included reducing handouts, using volunteer instruc-

Table 1 | Cumulative number of strengths and weaknesses that influenced organizational maintenance of evidence-based physical activity programs, as identified by the organization

Factors	Perceived strength	Perceived weakness	Neither strength nor weakness
Factors related to design and implementation	73	36	6
Factors related to organizational setting	37	20	1
Factors related to community environment	25	27	1

Table 2 | Examples of proposed adaptations, the rationale of need, and the potential pros and cons associated with each

Adaptation	No. of sites	Essential element	Part. value	Org. value	Can sustain?	Pros	Cons
Active choices							
Group orientation rather than individual and include logistic components	1	Yes	High	High	Yes	Face to face with health educators shortened (90 to 60 min). More participants	None noted
Modify data collection and questionnaires	2	No	Low	Low	Yes	Saves time. Allows more calls in a given period of time	Lack of comparable data
Reduce number of incentives provided at graduation	2	No	Med	Med	Yes	Reduces the cost of celebration activities	Participants receive fewer incentives at graduation
Change initial face-to-face meeting to a telephone call	1	Yes	High	High	Yes	Reduce cost and reach more participants. More convenient for participant	Potential weakening of rapport building
Modify the number of calls	2	Yes	High	High	Yes	Increase capacity for participants while decreasing program cost	May reduce effectiveness of program
Active living everyday							
Change group size and/or duration	3	Yes	High	High	Yes	Improve participant satisfaction. Easier to sustain shorter groups	May influence effectiveness
Convert participant manual to an audio format	1	Yes	High	Med	Yes	Audio version would not scare lower literacy participants off like current manual	None noted
Lower cost of manual by dropping internet component and share manuals	4	No	Med	Med	Yes	Lower cost for participants. Participants “not interested” in internet component.	Lose opportunity to provide seniors with computer experience
Use a train the trainer model or internet training for instructors	1	Yes	Med	Med	Yes	Improve the affordability of the program	Facilitators do not get face to face contact with potential instructors

Part. value value to the participants, *Org. value* value to the organization

tors, using (or not using) online program resources, and reducing participant incentives.

Grantee organizations also varied considerably on the sources and proportions of their future financial support. On average, 45%, 25%, 11%, and 19% of operating funds were attributed, respectively, to internal organizational funds, grants, external sources (i.e., state or foundation funds), and fees for service. Interestingly, those organizations that indicated they were definitely going to sustain the program budgeted approximately one third of their operating funds to come from internal sources, while those that indicated they hoped to sustain the program reported nearly 60% of their funds would come from internal sources. Also, those that indicated they would definitely sustain the program were more likely to use existing staff to manage (100% to 75%) and facilitate the programs (72% to 25%) than those that hoped to sustain the program. Finally, half of the “definite” organizations devel-

oped and used a Board of Directors or Program Champions, while only a quarter of the “hope-to” organizations did so.

Grantee organization perceptions of the sustainability action plan were generally positive. Specifically, grantees reported that the proactive planning increased their sense of accountability toward sustainability. Grantees also responded positively to the sustainability “template” in that it generated a shared organizational vision on sustainability and highlighted elements that may not have been addressed early on in the grant period. It was also noted that the sustainability action plan helped identify and coordinate key players, their strengths, and roles.

Grantees indicated that a number of the tools worked well for them during the sustainability planning process. Highly valued tools included (1) written plans that focused their sustainability strategies, (2) templates for each activity, (3) ideas around fostering program and organizational champions, (4) review

Table 3 | The percentage of the final sustainability action plan components completed across grantees

	Grantee number									Average	
	G1	G2	G3	G4	G5	G6	G7	G8	G9		
Producing evidence and materials to promote the program	100	67	100	67	100	100	0	100	100	100	83
Funding development committee	80	100	100	80	100	100	0	100	100	40	78
Fostering and utilizing program champions	16.7	83	83	67	83	100	0	83.3	83	83	76
Keeping the community involved	66.7	67	100	50	100	100	0	100	100	83	77
Planning for a sustainable program delivery team	0	100	100	80	100	100	0	100	100	100	78
Integration into existing operations	0	100	100	80	100	100	0	100	100	100	78
Average within grantee	44	86	97	71	97	100	0	97	97	84	

process for action plans, (5) strength and weakness needs assessment and connection activities, and (6) the adaptation activities. Conversely, the grantee organizations reported the following deficiencies in the process: (1) insufficient information for getting community partners involved, (2) action plan reporting process was too formal, (3) a premature focus on sustainability when early implementation was the major priority, (4) requests for information that was not easily obtained, and (5) a lack of consensus on the best approach to sustainability.

DISCUSSION

The purpose of this paper was to describe the implementation and assessment of an intervention to increase organizational maintenance of evidence-based physical activity programs and the factors that impede or facilitate sustainability. Based on qualitative and quantitative methods, beliefs about the ultimate sustainability of the program were stronger when a balanced plan for financial support, program champions, and engaged partnerships were in place. Furthermore, the surrounding context related to mission, values, and infrastructure resulted in partnerships and plans that were dynamic and fluid. All grantees also suggested modifications or adaptations to the program as a method to improve potential sustainability. Finally, the sustainability action plan was viewed positively by grantees, but was difficult to implement during the early stages of the project when the focus was on recruiting participants and delivering the program for evaluation.

The results of the study generally confirm the importance of adopting an ecological approach to enhance sustainability [22]. Each site reported on factors operating across the design/implementation, organization/setting, and community/environmental levels that increased or decreased the likelihood of sustainability. While different factors may have been salient across the diverse grantee organizations that adopted the AFL programs (e.g., a shift in organizational mission versus dynamic community partnerships), the grantees indicated that it was important to identify strengths and weaknesses across levels and to address these through planning.

Participating sites that had a strong belief in the future sustainability of their programs were more likely to have a balanced plan for financial support from internal and external sources. Similarly, building program costs into the organizational infrastructure appeared to enhance the likelihood of sustainability. These findings are consistent with other reports showing that continued identification and utilization of new funding sources are of critical importance in program sustainability [27]. Similarly, other researchers have documented the need to have locally trained and integrated program leaders when planning for sustainable physical activity programs [28].

The geographic or organizational context also impacted program sustainability in ways that could be independent of any sustainability plan. For example, one site took advantage of a new Administration on Aging evidence-based programming initiative for support and added infrastructure. In contrast, a second site saw significant changes in mission that removed program delivery as a key organizational responsibility, thus making sustainability impossible (unless strong external partnerships were developed).

Program champions are described regularly as key components of the adoption and dissemination of different types of programs [29–31]. Within our sample of grantees, interaction between champions and organizational decision makers was considered an important factor for sustainability. Some suggested that program champions are critical to obtaining funding and lobbying for policies that would enhance program sustainability [31]. Novel methods to engage program champions that emerged from our work included active recruitment of highly successful program participants and outreach to organizational decision makers with a recent history of significant lifestyle behavior changes.

The interchange between AFL program developers and grantees on adaptation issues aligned with a relationship model as a support for sustainability [17, 32]. This partnership allowed grantees to adapt the program while feeling secure that the changes would not adversely affect the program's effectiveness. It should be noted that the AFL adaptation process likely led to fewer adaptations because each site was required to create pros and cons associated with each adaptation and then proposed those adaptations to program developers. It is possible that without the link to researchers, a number of adaptations that could reduce effectiveness may have been implemented. Researchers may consider developing resource materials that highlight essential elements and the evidence-based principles that underlie program effectiveness to reduce adaptations that could attenuate program effects [33].

Community partnerships developed by each grantee were also important in enhancing the sustainability of AFL programs. However, partnerships were clearly dynamic and, on occasion, difficult to navigate, consistent with what others studying community physical activity interventions have found [34]. Still, a number of grantees noted that the changing composition of their partnerships was positive and related to recruitment needs. For instance, new partners bring new audiences to a program demonstrating an ongoing demand for the program [35].

The grantees viewed the sustainability action plan positively and found that it increased focus and accountability for sustaining the AFL program. Suggested modifications to the tools involved devel-

oping strategies to engage community partners and a more realistic timeline of when sustainability activities should occur. Another important message from this study is that sustainability is more likely with a balanced approach to generate internal and external funding support on an ongoing basis; however, developing budget plans and projections was a task that most grantees identified as a weakness. Thus, future initiatives may consider stronger intervention training on methods to secure external funding support that can be sustained.

There are limitations of the present approach to understanding the sustainability of community physical activity programs. First, the study is primarily descriptive in nature and did not compare the sustainability process to a control condition. Second, a self-reported measure of intention to sustain the program was used rather than an objective measure of program sustainability (e.g., observation of the programs continuing beyond the life of the grant). Third, the AFL demonstration project was tied to significant funding, and sites were competitively identified making the generalizability of this sustainability process to other programs questionable. It is important to note that there is relatively little known about sustainability and this research reflects a balanced qualitative and quantitative research approach to understanding one possible method to enhance the likelihood of sustainability. Future research should build upon these deficiencies to provide a more compelling and complete case for evidence-based sustainability interventions as requested by the grantees in this study.

CONCLUSIONS

To our knowledge, this is one of the first descriptive studies that provided a detailed examination of the process and outcomes of the sustainability of physical activity programs delivered in real world settings. The study resulted in a number of tools that can help other community programs plan for sustainability. Finally, this work provides a basis for future research on the adoption and sustainability of community-based physical activity programs.

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