Dissemination of Physical Activity Promotion Interventions in Underserved Populations

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Abstract Achieving minimum physical activity levels of 30 or more minutes per day will require a variety of intervention strategies to engage each segment of an aging and increasingly ethnically diverse U.S. population. This article presents a focused review of the sparse literature on the diffusion of evidence-based physical activity interventions that are culturally appropriate for underserved populations. Related literature and experiential insights inform this discussion, because so few published studies report outcome data beyond the first diffusion phase of intervention development and evaluation. Three brief case studies are presented to further illustrate and exemplify key concepts and processes at several different stages in diffusing physical activity interventions. Successful engagement of underserved populations reflects a delicate balance between embracing group customs and values and recognizing the nonmonolithic nature of any sociodemographically defined group. The costs of failing to promulgate effective physical activity interventions in these groups continue to mount, in dollars, health, and lives. Researchers, practitioners, decision makers, and policymakers must partner to bridge the evidentiary gap so that the physically active lifestyle choices become the easier choices.
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Introduction

The link among physical inactivity, weight gain, and many common chronic conditions is now well documented.[1–3] Demographic shifts—such as the aging of the population and the growing ethnic diversity of Americans—have resulted in increases in the risk of inactivity-related health problems. However, we are least equipped to address these higher burdens of chronic disease among the most sedentary and understudied population segments[4,5]: the aged, ethnic minorities, and lower-income groups.

In the field of physical activity promotion, social–ecologic theoretical models that recognize the synergy between environmental-level change and individual-level change are increasingly recognized as having greater explanatory power than the traditionally invoked individual-level models.[6–8] Environmental intervention is certainly indicated in ethnic minority and lower-income communities, with their more substantial barriers to physical activity participation.[9,10] Little high-quality data exist on effective and sustainable physical activity improvement from interventions targeting or including meaningful numbers of ethnic minority or lower-income individuals.[11] Even interventions identified as "evidence-based" and recommended by government advisory bodies have been shown to be less effective or ineffective in ethnic minority or low-income populations.[12] For example, Andersen et al.[13] increased stair usage among whites in a suburban Baltimore shopping mall from 5.1% to 7.5% or 7.8%, depending on the sign used; among blacks, however, stair usage changed from 4.1% to 3.4% or 5.0%. Similarly, in a random-digit-dial telephone survey evaluating the impact of walking trail construction and promotion in rural Missouri, Brownson et al.[14] found that blacks and those of lower socioeconomic status were less likely to have access to the trails and were less likely to use them if they had access. Among those using the trails, women and less-formally educated individuals were more likely to report increased walking. However, significant increases in the proportion meeting Centers for Disease Control and Prevention (CDC)/American College of Sports Medicine recommendations were not reported and unlikely when 43% of respondents had to travel 15+ miles to reach a trail. This gap in the literature represents a major obstacle to developing effective and cost-effective policies and programs at the national, state, and local levels.[11]

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Population groups experiencing disparities in rates of sedentariness and related chronic diseases have generally been considered "hard to reach" by public health researchers because of their nonresponsiveness to health promotion materials and messages targeting "general" (i.e., younger, white, urban, affluent) audiences.[15,16] Factors related to the poor representation of these groups in medical/scientific research studies have been documented extensively and recently reviewed elsewhere.[4,11,17–19]

The purpose of this article is to present a focused review of the literature on the diffusion of evidence-based physical activity interventions culturally salient and appropriate for underrepresented populations, highlighting conceptual and methodologic issues that are often underappreciated. Common considerations in approaching and engaging these disparate populations will be identified, along with population-specific challenges and concerns. To further illustrate these issues, brief case studies will be presented that elucidate various stages in the process of intervention diffusion,[20] including innovation development as well as issues in selecting and disseminating programs or policies with demonstrated evidence of feasibility and effectiveness. Lessons learned will be summarized, and avenues indicated for new directions in physical activity promotion research and practice.

Common Considerations Across Underserved Populations

Assembling an Evidence Base: Ecologic Models of Physical Activity Promotion

The minimal evidence base for physical activity intervention efficacy in underserved populations, much less effectiveness, particularly for ecologic intervention models, evokes many challenges with which scientists must grapple "in the dark."[21] These challenges include: identifying applicable theoretical behavior-change models that may translate to more diverse populations; balancing the goal of achieving the internal validity characteristic of efficacy studies (associated with greater sample homogeneity and accessibility) with that of retaining the generalizability and exportability needed for effectiveness and dissemination studies (associated with greater sample representativeness); and defining program success in populations that may have different priorities and resources. Although there is essentially no evidence base beyond the first phase of diffusion (innovation development) in intervening in underserved populations, valuable insights can be gleaned from related literatures (Table 1).

Table 1. Topics for examination utilizing relevant scientific and program literature

Topics
Recruitment to studies and programs
Retention in studies and programs
Social marketing of public health messages
Cultural targeting of intervention approaches
Intervention sustainability–adherence and effects
Cultural adaptation of interventions developed for "mainstream" (white affluent) populations
Culturally grounded intervention design and development, i.e., that originating within the cultural context—values, norms, resources—of the targeted population
Intervention generalizability/exportability

In order to develop effective physical activity promotion interventions in understudied and underserved populations, the conduct of research must allow group members to have input into and influence on the content of the interventions, their evaluation and the dissemination of findings and approaches. These concepts are now most often grouped under the rubric, community-based participatory research (CBPR). By nature, CBPR is culturally appropriate for, and congruent with, the needs and values of the targeted group, since it emerges from the affected community as much as from the academic research team.[22,23]

By developing strong partnerships, researchers can foster the trust and mutual respect necessary for active community participation in the development and evaluation of interventions. A true partnership—shared decision-making, resources, and recognition or "credit" with "cultural insider" key informants, marketing messengers, and/or investigators/research team members—creates a foundation for the institutionalization of the organizational support necessary for the sustainability of the interventions after the research is completed.[24] In addition, such a partnership cultivates leadership by training group members in research skills and assisting them in developing collaborations that reach beyond the initial research goals. These leaders may then become catalysts for sustained health promotion efforts, as a key component of CBPR is direct intervention and/or the incorporation of research findings into community change efforts.[23]

Social marketing or client-centered approaches derived from commercial marketing are consistent with many CBPR principles.[25] This framework takes into account individual and organizational "economic" considerations, for example, participating in physical activity as fun, nonstrenuous, and enjoyable versus demanding, high-exertion work; promotional materials targeting employers focused on the "bottom line" in terms of improved productivity; enhanced morale (averting attrition costs such as training of new employees); and lowered rates of injury and illness (decreasing costs of absenteeism, disability) versus "common good" messages more salient among public health professionals.

Recognition and Integration of Contextual Factors

Effective physical activity intervention will undoubtedly involve both decreasing sedentary behavior and in-

creasing moderate-to-vigorous physical activity to meet public health goals. At present, the more developed areas of environmental physical activity policy are premised on voluntary engagement for those culturally or economically situated to embrace active leisure, while monumental challenges in engaging the masses of adults have yet to be addressed.[26,27] In addition, early attention to intervention sustainability (potential for institutionalization) is more critical in low-resource settings with many competing health needs and priorities.[24,28] These challenges encompass sociocultural, physical, and economic environmental barriers to physical activity participation, which differentially affect the various sociodemographic population segments,[29] including gender-related socialization and role expectations, age-related biases and role expectations, historical and sociopolitical contextual issues, culturally "normative" overweight status, the dominance of commercial marketing in conveying physical activity and inactivity promotion messages, and economic issues (Table 2).

While the importance of contextual factors, for example, demand characteristics and tacit knowledge, is often verbally endorsed, specific cultural norms, values, and traditions facilitating physical activity engagement are commonly under-recognized. They represent missed opportunities for effectively intervening. Examples of such opportunities include the normative nature of movement to music among adults in African-American and Latino communities,[46,47] the encouragement to "be strong at an early age" among Native Americans,[48] and the desirability of social engagement for seniors.

Population-Specific Considerations

The emerging research and practice evidence base for developing and disseminating effective physical activity interventions within underserved populations permits a few general observations. While this presentation is organized in terms of key sociodemographic characteristics, these characteristics are not independent, and interactions across multiple statuses (e.g., low income, female gender, minority ethnicity, aged, rural or low-resource urban residence, minority sexual orientation) may increase the risk for unhealthy physical activity patterns and deleterious health outcomes.[49] Furthermore, cultures are not monolithic, and individual differences and subgroup distinctions must also be recognized.[50] There is much within-group variation; such factors as language, income, educational level, and acculturation can also greatly influence responsiveness to different intervention approaches, for example, cultural commonalities and distinctions between frail and elite elderly, between affluent and lower socioeconomic status African Americans or Mexican Americans, and between rural whites in Appalachia and rural Native Americans residing on reservations.[49] While many behavior-change interventions are "targeted" to minority and other underserved population, there must be a parallel effort to "tailor" interventions to the individual's histories, beliefs, and preferences in a way that is feasible and scalable to large population groups.[51]

Approaches to Particular Underserved Groups

Ethnicity. Among African Americans, a number of cultural assets have been identified and cultivated in physical activity promotion efforts, including the prominence of faith-based institutions and high prevalence of church involvement[52,53]; collectivistic versus individualistic orientation increasing the salience of positive ethnic identity, community unity, "common good," and empowerment messages[20,54]; historical necessity, as a legacy of segregation, of community organizing across institutions and sectors to address unmet needs[26]; increased traction of messages emphasizing health-promotion program participation as an entitlement (e.g., "your tax dollars are paying for it, so you should derive some benefit")[55,56] cultural elevation of athletic excellence, resulting from limited educational and other avenues for success, with prominent African-American sports figures as inspirational role models and interested stakeholders;[57] and oral tradition in communication.[53]

Latinos/Hispanics as a group, even less studied than African Americans, also have a number of cultural strengths that may foster the diffusion of physical activity interventions.[11,58,59] Gender is an especially important consideration, as traditional female roles may govern the perceptions of the appropriateness of certain activities, for example, individual exercise as a luxury or selfishly diverting time from home and family.[55] Faith involvement, intergenerational activities, and linkage of group physical activity to traditional celebrations (fiestas) have been identified as key assets in physical activity promotion efforts[55,59,60] and used to advantage, in varying combinations.[62–64]

Each of the 512 federally recognized American Indian tribes has its own history, social and cultural patterns, and political and economic structures.[48] However, these nations share many cultural concepts and values, including the oral tradition, intergenerational activities, and orientation to health through ceremonial ways, that may provide a foundation for physical activity promotion.[55] Interventions built on the recognition that scientists and educators must work in partnership with communities,[64] including teachers, parents, and school administrators as key stakeholders, are likely to be more culturally relevant and sustainable.

Extremely little physical activity promotion research has been conducted in the Asian/Pacific Islander communities, despite their lower levels of physical activity.[55] The major challenge for these communities is their diversity: the multiplicity of languages, insular urban

Table 2. Barriers to physical activity participation in the aging and increasingly ethnically diverse, U.S. population

Potential barrier	Ethnic group(s) affected	Examples of specific deterrents
Gender-related socialization	All	Most girls and women prefer dancing and noncompetitive social physical activities to sports and other competitive physical games[30,31] Adolescent girls' primary deterrent to PA is not wanting to disturb hair and makeup[32,33] Many younger women prefer apparel intended to enhance aesthetic appeal at the expense of comfort, e.g., close-fitting skirts and high-heeled shoes, not conducive to lifestyle integration of PA[30] Middle-aged and older women may not perceive "sweating" as appropriate to their gender/class role ("ladylike") Elderly women may discourage girls' vigorous exercise, fearing that certain types of PA, e.g., horseback riding will rupture girls' hymens, thereby adversely affecting their marital prospects[58,31–33]
Age expectations and biases	All	Especially at the ends of the age spectrum, exercise may be discouraged because of role expectations about what is appropriate for individuals at different ages Parents may be concerned that walking or bike riding is not safe for their children, especially girls Schools emphasize academic subjects at the expense of physical education Older adults, or their younger relatives, may fear injury in initiating a new physical activity, or society simply promulgates the attitude that seniors "deserve a rest"[17,31,34]
Communicating PA messages	All	Dominated by commercial media advertising of sports/fitness equipment and rigorous gym workouts, featuring muscular men and sleek-bodied white women in affluent-appearing surroundings may erode self-efficacy and decrease the likelihood that "exerciser" status will be incorporated into older/overweight individuals' personal identity Little fitness-promoting venues/equipment advertised and preponderance of promotion of sedentary transportation and entertainment[35] Public-health messages (research and practice) reflecting more conflict than consensus, leaving impression that only amounts meeting recommendations are beneficial[36–39]
Economic trends and constraints	All	Increased prevalence of single parent or two wage-earning–parent families in lower SES groups, diverting potential available leisure time to extended paid work or household responsibilities Labor-saving devices at or outside of home (remote controls, leaf blowers, riding lawn mowers, mechanized car washes) are increasingly affordable Inconvenient and/or incomplete mass transit options[37,39,40]
Sociopolitical/historical context	African Americans and, possibly, Latinos, Native Americans, some Asian American subgroups	Forced labor, necessity for manual labor for survival, deprivation/poverty necessitating walking inordinately long distances (e.g., inability to afford private transportation), even if generations removed, colors cultural attitudes, resulting in active avoidance of PA or lesser prioritization[41]
Weight and fitness levels	African Americans, Latinos, Native Americans, Pacific Islanders	Higher prevalences of overweight/obesity, sedentary behavior, low fitness levels, and chronic illness/disability: (1) increase perceived exertion at any given level of PA for heavier/unfit versus leaner/fit individuals deters more vigorous energy expenditure, e.g., stair climbing; (2) necessitate incremental change approaches from realistic baselines[42,43] and passive behavior-change strategies that engage captive audiences, relying less on individual motivation; and (3) create misperceptions, particularly among youth, that obesity is normative, genetically predetermined and unavoidable[44,45]

PA, physical activity; SES, socioeconomic status.

geographic enclaves, and social classes and cultures encompassed. For example, in contrast to the "model minority" stereotype[63] engendered by the economic successes and superior health status of acculturated third- and fourth-generation Chinese and Japanese Americans, Southeast Asians remain largely poor, linguistically isolated, and lacking in formal education.[62] Pacific Islanders have a very high prevalence of obesity often masked by the low rates for Asian Americans as a whole.[65] In addition, there is early evidence that chronic disease morbidity increases begin at a lower, even nonoverweight, body weight index (BMI) among certain Asian subgroups.[66] The few published interventions targeting these populations[62] build on such cultural assets as collectivist values, intergenerational living, reverence for elders, a tradition of group physical activity participation, especially dance and martial arts (e.g., early morning tai chi in parks), and strong business support.

Age. Given the public health recommendations for being physically active at all ages, it is important to take a life-course perspective in promoting physical activity.[17,67] While there are some similarities across all ages, for example, the importance of access to safe and appealing physical environments, there are also unique opportunities and challenges for each age segment of the population.

Children and youth. Physical activity promotion efforts among children and adolescents have centered primarily on their availability as captive audiences in schools, with infrastructures dictated by state and local policies.[68,69] In fact, a major focus of state obesity-control legislative policy has been the promotion of school-based physical education, although to a lesser extent than the policy focus on restricting access to nutrient-poor foods and increasing the availability of nutrient-dense foods.[68] This school focus is particularly appropriate for youth in low-resource environments, in which extracurricular recreational opportunities are limited.[9]

Promoting physical activity throughout the day in school and school-related activities, outside of formal physical education instruction, is also receiving increased attention, for example, policies mandating recess periods of certain durations. One promising approach, Take 10!, aims to increase physical activity levels among schoolchildren by integrating 10-minute exercise breaks into the regular curriculum. The program trains non-physical education teachers in conducting these breaks. Earlier studies of Take 10! demonstrated the feasibility and utility of this approach in regularly engaging students and teachers in exercise of sufficient length and intensity to count toward the minimum 30-minute per day CDC daily recommendation.[69–71] In the current National Institutes of Health (NIH)-funded randomized controlled trial of this intervention, the gradual increase in the number of teachers engaged each year and the number of minutes provided (>50% achieving the 90 to 100 minutes/week goal) is evidence of promulgation of a sociocultural norm change.

Older adults and disabled populations. Older Americans are among the most sedentary population segments, with ethnic minority elders doubly disadvantaged.[72] There are several promising trends in spurring further development and dissemination of best practices for promoting physical activity in older adults, including engagement across multiple societal sectors and industries. For example, the Administration on Aging has funded a Prevention Research Center at the National Council on Aging to coordinate the dissemination of evidence-based research within the aging services network, and launch a public media campaign.[73] Similarly, both nonprofit foundations and for-profit corporations in the private sector have recently begun supporting active aging programs.[74] More than 50 organizations have coalesced to set a programmatic and policy agenda to reduce barriers to physical activity in the home, community, healthcare environment, and workplace, including the endorsement and distribution of a set of best practices.[75]

Age-related disability necessitates the tailoring of active programming to the individual's capacities and limitations, including prudent injury and risk management guidance. The CDC-supported National Center on Physical Activity and Disability is a clearinghouse for materials providing guidance in designing appropriate physical activity experiences for individuals with a wide range of disabling conditions.

Other underserved/understudied populations, for example, sexual minority women. Lesbians and bisexual women have been documented to be less sedentary than their heterosexual counterparts in some studies, despite their higher overweight rates.[76] Perhaps one barrier to recognition of the increased need for physical activity programming in this population is the stereotype of lesbians as athletically inclined and physically fit, with their higher overweight prevalence reflecting greater muscularity than their heterosexual counterparts. Yancey and colleagues,[77] however, demonstrated that levels of physical inactivity and obesity among lesbians and bisexual women in a large California snowball sample were inconsistent with this stereotype: Sexual minority women were less likely to have BMI between 25 and 29.9 kg/m^2 than heterosexual women and reported lower exercise frequency. Intervention research targeting this population is essentially absent from the scientific literature.

Case Studies

In order to provide a more complete illustration of efforts to implement physical activity recommendations

in underserved populations, we present the following case studies: Lift Off/Take 10!/Pausa para tu Salud, Participatory Action for Healthy Lifestyle, and Active for Life. Each represents a different phase in the diffusion of innovations process, setting, diffusion route, and target population, as detailed below.

Lift Off/Take 10!/Pausa Para Tu Salud: Innovation Development (First Phase of Diffusion)

Research question. This case study addresses the challenge of designing low-cost, efficacious interventions for sedentary minority populations in low-resource environments. The development of structured 10-minute exercise breaks integrated into organizational routine, operationalizing the multiple short daily bouts endorsed in the federally recast physical activity recommendations, occurred independently by several researchers/practitioners in public and private sector public health practice settings outside of academia. This "minimal intensity" environmental intervention approach paralleled such tobacco control organizational practice changes as banning smoking from certain locations. Its pragmatism was informed by each practitioners' understanding of the barriers (e.g., lack of recreational/physical education facilities, outdoor safety concerns, high obesity rates and low fitness levels deterring participation in physical activities necessitating substantial exertion and perspiration) and facilitators (e.g., collectivist values, cultural salience of dance and music, strong desire for social engagement and conformity) in predominantly African-American and Latino communities.[12,26,52,69,71,78–80] The high rates of sedentariness in these communities demand an intervention approach that could engage unfit/overweight individuals at early stages in the activity behavior-change continuum, while accommodating others with a range of fitness levels, athleticism, and functional abilities.

Lessons learned: feasibility and efficacy testing. The burgeoning evidence base for the rationale, feasibility, and/or efficacy of organizational integration of experiential physical activity, although early in stage, includes at least 12 studies published or in press in peer-reviewed journals,[12,26,52,69,71,78,81–84] one submitted,[70] and one in preparation.[85] Feasibility-related outcomes for the Take 10! intervention in schools were described earlier. Regarding the acceptability to adults of incorporating exercise breaks into worksites and other organizations, more than 90% of workers elected to participate in these breaks during a randomized, controlled trial conducted in staff meetings and training seminars in a local health department.[12] Yancey et al.,[26] Crawford et al.,[78] and Wilcox et al.[52] have also demonstrated substantial organizational receptivity to, and success in, integrating 10-minute exercise breaks into daily routines in community-based health and social services organizations serving African Americans and/or Latinos in California and South Carolina. Small but statistically significant and "clinically" meaningful effects on self-reported physical activity,[80] one or more components of fitness including body composition,[79,81,84] psychological variables,[12,70] and physiological outcomes[79,81] have also been reported.

Next steps. The second generation of this approach includes the incorporation of this brief-exercise-bout intervention into formal research studies with rigorous designs, as either a central feature (NIH-funded, University of Kansas)[85] or as one component of a broader-based organizational wellness intervention (CDC-funded, Community Health Councils, Inc.; CDC-funded, University of South Carolina; and NIH-funded, Wake Forest University). This represents a concrete example of a response to the assertion that in order to succeed in implementing more evidence-based practice, more practice-based evidence (testing of interventions arising in practice settings, and, hence, inherently more generalizable) is needed.[86]

Participatory Action for Healthy Lifestyle: Development and Dissemination (First to Second Phases)

Research question. In response to growing concerns about the rapid increases in obesity and diabetes among American Indians, Pathways, a unique collaboration among the NIH, five universities, and seven American Indian tribes was developed to test theory-based, culturally targeted school interventions. A number of indigenous learning modes were identified and incorporated into the Pathways intervention.[87–89] This was accomplished by designing experiential activities and presenting concepts through storytelling, games, and other creative expression. Historical and cultural sharing, built on native traditions of healthful eating and active lifestyles, were integrated throughout the curricula to reinforce students' cultural identity.

The specific research plan calls for enrolling a diverse sample of more than 8000 adults, ages 50 years and older, distributed among nine grantee sites across the US.

Lessons learned. Upon Pathways study completion, one of the participating communities, along with researchers at the University of New Mexico, initiated the Participatory Action for Healthy Lifestyles (PAHL) project to investigate intervention dissemination, prospectively. Groups from three sectors participated—a local community, a state health department, and a regional site in a nearby state. Key elements of CBPR are followed and partners from each of the sectors are involved in the process of examining the facilitators and barriers to dissemination. Preliminary data, includ-

ing field notes, interviews, and meeting minutes, indicate the presence of some of the same challenges identified during intervention development. These include staff turnover, competing priorities, and lack of resources. Facilitators include involving a program champion, timing project activities to match the local agenda, and addressing needs held in common.

Next steps. Findings may be used to inform large-scale dissemination studies in other American Indian communities, and studies examining the next phases of diffusion, adoption, implementation and maintenance in the currently targeted PAHL communities.

Active for Life: Adoption/Adaptation and Implementation (Third and Fourth Phases)

Research question. Active for Life® was designed to export two behavioral research-based programs to more diverse settings, providing structured social marketing support and independently evaluating effectiveness at both the individual and organizational levels. The primary goals of this Robert Wood Johnson Foundation–funded initiative were: to learn the ways in which the selected program models must be adapted to be acceptable to community organizations and intended constituents ("real-world settings"); to determine whether the adaptation is consistent with the core elements of the original program; to ascertain the comparability of the effect size achieved to that of the original efficacy studies; to assess site characteristics associated with program success and long-term sustainability; and to examine environmental factors facilitating or impeding individuals' attainment of their physical activity goals.[87,88,90]

The specific research plan calls for enrolling a diverse sample of more than 8000 adults, aged 50 years and older, distributed among nine grantee sites across the US.

Lessons learned. Results based on 838 participants enrolled in the pilot study[76] demonstrate that evidence-based research can be successfully implemented in larger, more varied, and more sociodemographically diverse settings. Initial study successes[76] include increases in moderate to vigourous physical activity, decreases in depressive symptoms and stress, increases in satisfaction with body appearance and function, and decreases in body mass index, with the magnitude of outcome change similar to those reported in more controlled efficacy trials.

While definitive results from this program initiative are not yet available, some lessons about program expansion to larger and more diverse, populations have emerged. The initial pilot study has demonstrated that community-based organizations are motivated to improve the physical activity levels of their clients and can implement evidence-based protocols with extensive technical assistance (not typically available in a third generation dissemination study). Active for Life plans to enroll a diverse sample of more than 8000 adults, aged 50 years or older, distributed among nine grantee sites across the United States.[91] This was possible, in part, because community organizations—not academic researchers—were the source of recruitment and program delivery. Few difficulties were encountered, despite the many different recruitment strategies employed, and the requirement that organizations with traditionally middle-class constituencies specifically target the underserved.[67,92,93]

Early experiences with program adoption/adaptation suggest that community providers do not necessarily want to throw out "the baby with bath water" but want to be sure that evidence-based programs are responsive to their clients' educational levels and cultural preferences. Recommended adaptations have been at the margins rather than core or sweeping programmatic changes. Fitting into organizational missions is another important factor, causing some organizations to suggest changing population targets in future iterations or combining lifestyle programs with ongoing activities.

Next steps. Assessment tools are needed that assist community organizations in identifying who they are actually reaching, and in extending to those who have not previously responded but may significantly benefit. Attention to cultural sensitivities, linguistic competencies, and opportunities for feedback to both providers and consumers is also a critical next step. The intent is to avoid approaches that result in productive yields, but do not push programs beyond engaging their current clientele.

Synthesis of Lessons Learned and Implications for Future Directions

Whether defined by ethnic minority status, age, or place, there are similarities in successful intervention approaches in underserved populations. To the extent possible, physical activity interventions should be built into the philosophies and cultural practices of the communities targeted. Proposed interventions must be part of a seamless web of ongoing community rituals and practices that incrementally and unintrusively mold norms and values (e.g., recognizing that many of these cultures hold more collectivistic than individualistic cultural orientations). As a corollary to this collectivist cultural orientation, instead of engaging different age groups separately, promoting intergenerational intervention approaches, where both young and old can help and be helped by one another, will likely meet with greater success. This will undoubtedly require an infrastructure investment, if only in relationship building, which cultivates community capacity and culturally salient leadership and role modeling. Respect for the

dignity and preferences of potential program participants or those affected by policy initiatives is key. Therefore, the importance of highlighting assets rather than deficits cannot be overemphasized. Providing a menu of choices to make programs more adaptable and flexible in accommodating real-world circumstances is another key ingredient of success.[93]

Behavioral scientists and program developers must also recognize and accommodate the ways in which interventions are implemented in field settings that depart significantly from the tightly theory-driven interventions that were originally designed. A critical question is how much and what type of adaptation can and should be made, while retaining essential components. There is always a delicate balance between fidelity and adaptation/reinvention to fit particular settings.[94] Communities must be encouraged and empowered to inform researchers about what works and does not work in their settings, and have their recommendations meaningfully incorporated. Evaluating an unacceptable intervention is not really a good test of program reach and effectiveness. A comprehensive process evaluation may be critical in capturing detailed descriptions of these adaptations, the rationale for the adaptations, and their influence on outcomes.

Enormous challenges await both researchers and practitioners in working to develop, test, and further disseminate innovative evidence-based physical activity programs that meet the needs of the most sedentary Americans. Yet the cost to society of "business as usual" is also enormous, in dollars, health and lives. This is not simply a "minority health" issue—the costs associated with insufficiently effective or comprehensive physical activity promotion policy and programmatic approaches will accrue to all Americans. Researchers, practitioners, decision makers, and policymakers must partner to bridge the evidentiary gap in realizing a central tenet of health promotion, making the physically active choice the easier choice.[61]

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