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How to promote physical activity in a community: research experiences from the US highlighting different community approaches

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Abstract

Much of the research investigating methods for promoting physical activity has occurred on an individual or group level of analysis. Yet, the substantial prevalence of physical inactivity in most developed countries coupled with the public health significance of becoming more regularly active provides a compelling rationale for expanding interventions to higher levels of impact. By targeting the community, the possibility of reaching a greater percentage of the underactive population with potentially lower costs per person becomes more likely. When the target of intervention becomes the community, as opposed to the individual, a shift in the methods by which the physical inactivity problem is both conceptualized and addressed is required. Successful intervention strategies that have occurred at each level of impact (i.e. personal/interpersonal, institutional, environmental, legislative/policy-level) are highlighted. Suggested future directions are summarized. © 1998 Elsevier Science Ireland Ltd.

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1. Introduction

The majority of the work undertaken in the physical activity intervention field to date focuses largely on ways to increase adherence in the individual client or patient, or among small groups of individuals. Yet, there is much to be gained when intervention goals are expanded beyond the individual to the community level [1,2]. The justifications for applying a community approach to physical

activity intervention are many, including the established importance of regular physical activity for a range of important chronic disease and health areas [3]; the substantial prevalence of physical inactivity across most industrialized nations and among a range of population subgroups [4,5], and the constraints of current individual- or small group-oriented intervention approaches (e.g. exercise classes) for being able to adequately reach and serve the large percentage of underactive persons in industrialized societies [6,7]. In addition, the importance of reaching the most sedentary segment of the population, who are at highest risk for disease yet least likely to begin a

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programmed, leisure time activity program, has become increasingly clear [1,5,7].

There is increasing consensus among scientists in the field that the public health goal for physical activity promotion should focus on finding ways to encourage increased levels of general energy expenditure throughout a person's day, including during leisure time, at work, around the home, and in the community in general [5]. This means a greater focus on the routine types of activities, such as walking and stair climbing, in which most adults can readily engage [1,2]. The community perspective provides an avenue for translating this public health goal into interventions that have the potential for influencing a large proportion of community members.

The goals of this article are to describe the conceptual and strategic differences between community-level and individual-level approaches to physical activity promotion, and to highlight some examples of promising community intervention programs that have been evaluated systematically.

2. The differences between interventions aimed at the individual versus the community

A shift in goals and perspectives is required when the objective becomes larger-scale community change as opposed to individual change. While the primary goal of personal approaches to physical activity promotion is individual behavior change, community-oriented approaches focus on widespread community behavior change in combination with changes in the social network, environmental milieu, community norms, as well as policies and legislation that can sustain long-term maintenance of change. When the individual is targeted, levels of intervention are limited typically to personal (e.g. individual counseling) and interpersonal approaches (e.g. supervised classes) to behavior change. In contrast, community approaches often include these two levels of intervention in addition to approaches focused on organizational, environmental, institutional, and societal levels of analysis [8–11]. While theories and perspectives for individual behavior change tend to focus primarily on psychosocial and behavioral conceptualizations of change, the community ap-

proach additionally includes theoretical conceptualizations drawn from the fields of communication, systems and diffusion theory, as well as social marketing [8]. Epidemiological data are used to provide information as to who in the population would most benefit from intervention, and social marketing and similar perspectives are applied in better determining how best to reach targeted population segments.

The clinical/medical model perspective that has been applied most often in the physical activity field typically yields a 'waiting' stance on the part of the health professional [8]. This is reflected by the tendency to develop programs in which the individual is expected to seek out interventions being offered by the professional. The programs are often scheduled at a time and location that are convenient for the professional, though not necessarily for those in the community who may be interested in participating. In contrast, the application of social marketing strategies as part of the community approach reflects a 'seeking' stance on the part of the health professional. Formative evaluation tools are applied (e.g. community-based surveys, feasibility studies, focus groups) in order to optimize the type, format, location, promotion, and price of the program for the community segment being targeted. In addition to the types of programmed, leisure forms of physical activity that have been traditionally targeted in the personal approach, the community approach also encompasses broader forms of physical activity that occur as part of transportation, household, and routine activity (e.g. taking stairs, walking to accomplish errands). The use of the health or physical fitness professional is supplemented in the community approach with other channels for disseminating information, including community agencies and organizations, policy makers, and the mass media [10,11]. The goal is long-term institutionalization of programs and strategies to affect change.

Rather than omitting individual approaches to change when the target for intervention becomes the broader community, community approaches have often embedded successful individual approaches in a larger-scale effort to promote changes. The larger-scale community focus includes finding ways to organize the community around making physical

activity a priority for all of its residents (i.e. encouraging community residents to think actively about physical activity). The potential cost-effectiveness of producing large-scale behavior changes across a wider segment of the underactive population make the community perspective particularly appealing, although evidence of cost-effectiveness is in practice often difficult to demonstrate [6].

3. Community-wide approaches to physical activity

3.1. Comprehensive, integrated community approaches

Comprehensive, integrated community approaches to intervention typically involve targeting all people living in the community to promote risk factor change. Many such comprehensive community projects have targeted all of the cardiovascular disease risk factors, with physical activity promotion serving as just one of the foci of the intervention plan. In addition, because a number of these comprehensive community projects were begun prior to the full recognition of the role that physical activity plays in preventing chronic disease, physical activity promotion has tended to get significantly less attention in these projects relative to the other cardiovascular disease risk factors such as smoking, blood pressure control, and dietary intake [12]. For example, in the Stanford Five-City Project, educational messages focusing on physical activity constituted just 8% of the overall educational intervention being delivered [13].

The three major US National Institutes of Health-sponsored comprehensive community initiatives in the cardiovascular disease prevention area undertaken during the 1970s and 1980s serve to highlight some of the promise as well as limitations of such large-scale comprehensive approaches to physical activity promotion. The Stanford Five-City Project was launched in the late 1970s in two mid-size communities in northern California, with three matched communities serving as comparison communities. The interventions, which were focused on the major cardiovascular disease risk factors, covered

multiple intervention target groups, channels for delivering the message, settings, and strategies. The strategies applied included contests and competitions at worksites, schools, and other settings; health screenings that provided community members with individual information related to their current health and fitness levels; group educational events and classes; mass media; and environmental change. Additional strategies included coalition development and similar civic activity whereby community leaders representing a range of relevant community agencies and organizations (including those focused on health, exercise and recreation, transportation, schools, worksites, and the political/legislative aspects of the community) were encouraged to form a task force in order to enhance cooperative efforts around physical activity promotion; neighborhood activities such as the organization of neighborhood walking groups; and health professional and volunteer training. Information was delivered through a variety of sources and channels, including direct education (e.g. classes, demonstrations, lectures), electronic media (e.g. television, radio), and print materials (e.g. booklets, self-help kits, newspaper articles, newsletters). However, as noted earlier, physical activity was emphasized less often than other risk factors [13]. Nonetheless, some positive, albeit modest, treatment effects were found after 6 years of intervention in the physical activity area relative to the control communities [13].

In addition to the evaluation of the overall success of the physical activity campaign, specific portions of the Stanford physical activity campaign were highly effective. For example, organized community walking events attracted nearly 1000 participants, and the worksite exercise competition launched in the treatment communities resulted in significant increases in physical activity for worksite participants. This worksite program involved 87 worksites and included ~3000 participants [6].

Similarly, results from the Minnesota Heart Health Program, which took place in three pairs of communities over a 7-year period, provided some evidence that regular physical activity increased significantly in experimental communities relative to control communities [14]. Follow-up analyses suggested that this increase was primarily due to an increase in the proportion of the population who

engaged in light as opposed to moderate or vigorous activities.

Process evaluation undertaken by the Minnesota group suggests that more general mass media and community-wide events were most effective in increasing physical activity-related awareness, interest, and knowledge, whereas setting-specific programs that occurred over a period of time, such as those conducted in schools and worksites, were more cost-effective in increasing actual levels of physical activity participation [15]. These results are consistent with other health education and behavioral science research indicating the utility of interventions that can incorporate specific behavior change strategies (e.g. goal-setting, feedback, social support) in an ongoing fashion [16].

Among the conclusions that have been drawn thus far from these types of comprehensive community programs are the fact that detecting significant effects is often difficult [6]. Program participation rates and other forms of process evaluation may be more realistic approaches for evaluating such large-scale projects, and can provide information on effective strategies for influencing population subgroups considered to be hard to reach.

3.2. The use of mass media

Systematic information on the effectiveness of mass media alone in promoting physical activity participation has been difficult to obtain. Among the best information available to date is the evaluation of the Australian 1990 and 1991 mass media campaigns promoting physical activity [17]. Strategies included television advertisements, public service announcements, and distribution of print material.

Results from the 1990 campaign indicated that recall of the physical activity message increased from 46% pre-campaign to 77% post-campaign. In addition, prevalence of walking for exercise increased post-campaign for those who were older than 40 years of age [17]. No additional changes in physical activity were found from the 1991 campaign. These results suggest that mass media efforts, particularly those that focus on the types of moderate or routine forms of activity which are preferred by most adults, may be effective in promoting behavior change in some important target groups, such as

older adults. However, the overall results thus far suggest that such mass media approaches may be most successful in heightening awareness and knowledge related to physical activity, but less effective in actually promoting behavior change. They thus may need to be combined with other more intensive strategies to influence a broader segment of the population.

Despite the somewhat ambiguous results in this area, there is a growing number of printed materials available in many countries for providing information and instruction on the best ways of both getting started and maintaining participation in regular physical activity. One goal remains finding the best methods for effectively delivering these materials to the sedentary segments of the community that need them most. A related goal is to make certain the materials are appropriate to the groups for which they are targeted.

Printed materials do not necessarily have to be mailed to each individual in a community to be effective. They can be used instead as an environmental cue to prompt increases in routine forms of activities. For instance, a seminal study undertaken in the 1980s in the US demonstrated that placing simple signs at choice points in public places, such as train stations and shopping venues, where people had the choice of either using an escalator or the stairs, could have a positive impact on stair use [18].

4. Segmentation of the population to promote physical activity participation

4.1. Population subgroups

Another method for undertaking a community approach, suggested by some of the mass media efforts described earlier, is to target programs to specific subgroups in need rather than focusing on all community members collectively. This approach has become increasingly popular in the United States, in light of the expense and complexity of undertaking multiple risk factor community-wide programs [6]. Potential targets for intervention include people at increased risk for cardiovascular disease and other chronic diseases (e.g. the already sick, smokers, the obese); the poor, the unemployed, and underserved

ethnic groups, all of whom are less likely to be reached via traditional community programs; youth, for whom primary prevention benefits are likely to be the greatest; and the old, who are most likely to become sick or disabled in the immediate future.

Some have argued that targeting the poor or underprivileged for physical activity promotion may be inappropriate or counterproductive, since they clearly have more pressing issues to worry about. Current data available in the US, however, indicate that this perspective may not be accurate, at least with some populations. Projects such as the Community Health Assessment and Promotion Project (CHAPP) [19], which have targeted inner-city, low-income residents of Atlanta, Georgia, have found that this segment of the community is quite interested in positive health promoting behaviors such as physical activity, over which they can actually exert some control and from which they can become empowered. The challenge is to find ways for such individuals to exercise in a safe and comfortable manner. In this case, security escorts were provided for groups walking in dangerous neighborhoods, and methods for arranging low-cost transportation and child care were developed.

As indicated by the Australian National Heart Foundation mass media results, older adults may be another promising group to specifically target. Data indicate that they tend as a group to be reasonably sedentary, quite interested in health promotion programs, and can particularly benefit from such programs, especially in areas related to physical functioning [20]. The challenge is to develop programs for them that are safe, convenient, enjoyable, and of a more moderate intensity [21].

4.2. *Intervention gate keepers*

It is useful to target that strata of people in a community who likely can have the greatest influence on delivering the intervention message to the community at large, e.g. health care professionals, media reporters and journalists, teachers and scholars, politicians, and other community opinion leaders [22]. For example, in many industrialized nations, there has been an increasing amount of scientific activity evaluating ways to train physicians and other health care providers to deliver appropriate

physical activity messages to their patients. Efforts in this area thus far, such as Project PACE [23], have in general shown promising results. These programs underscore the continuing need to develop and evaluate methods for training health professionals in the best methods of promoting physical activity in the community. Examples include developing both introductory and continuing education curricula for physicians, nurses, psychologists, and other health professionals focused on promoting physical activity; training physical education instructors in methods for promoting life time activities among their students; continued development of certification and continuing education programs to ensure consistency across physical education and exercise instructors; and further development of multidisciplinary collaborations for physical activity promotion which bring together exercise scientists and instructors with behavioral and social scientists, as well as other health professionals.

4.3. *Communication channels*

Telephone and mail-based approaches can help to expand the reach of interventions to those households who might not otherwise participate in physical activity programs. A number of surveys have demonstrated that a significant proportion of both younger and older adult men and women prefer to undertake their physical activity outside of a structured class setting and in locales, such as the neighborhood, that afford greater convenience [24–27].

This information was used to develop and evaluate several supervised, home-based exercise programs for 357 healthy, sedentary men and women ages 50–65 years living in the community [27]. The goal of the home-based program was to allow individuals the flexibility to choose when and where they exercise, while providing them with some structure and ongoing support.

During the first year, participants randomized to the two telephone- and mail-supervised home-based programs completed significantly more exercise sessions (75% of prescribed sessions) than the class program, which had a 52% session completion rate [27]. During the second year, the two home-based

programs continued to show better participation than the group program [28].

This program represents one type of home-based regimen that directly applied strategies derived from social learning theory and other individually-based approaches, but used a more flexible channel (i.e. the telephone and mail) for delivering the program. Other types of home- or neighborhood-based programs have involved the development of neighborhood walking clubs that combine the social aspects of a class with the convenience of location in the neighborhood [13].

5. Community institution-based strategies to physical activity promotion

5.1. Educational institutions

Established institutions in the community where a significant proportion of community members are present on a regular basis provide excellent settings in which to undertake physical activity promotion. One such popular venue for promoting physical activity has been schools. Schools represent an institution that has the capacity for reaching youth as well as other family members. For instance, several studies have used children as a means of engaging other members of the family in increases in physical activity. Interventions have primarily focused around education and skill-building for physical activity presented in a class format. Results to date, however, generally have been disappointing for these sorts of family programs [29]. Community colleges and universities provide another potentially useful avenue for reaching adults in a community.

5.2. Worksites

Another popular community venue for conducting physical activity programs is the worksite. Unfortunately much of the programming at worksites has been limited to traditional class-based approaches, which still leave out a huge proportion of the worksite population. The targeting of the entire worksite through comprehensive, public health approaches such as that undertaken by Johnson and Johnson as part of their Live for Life program [30],

remains rare in the US. Such approaches often target all or a large percentage of employees, treating the worksite as a community, and use health screenings or examinations, incentive programs, and environmental and/or policy changes to promote physical activity.

Contrary to common belief, on-site exercise facilities may not be necessary to increase employee physical activity participation. Heirich et al. [31] have reported on the effectiveness of different types of worksite programs in reducing cardiovascular risks over a 3-year period. Automotive plants were randomly assigned to four different types of worksite wellness programs. All sites had baseline and 3-year screenings. Results indicated that, after 3 years, almost half of employees at sites that offered either counseling or counseling combined with worksite organizational approaches reported exercising at least three times per week, compared to only about one-third of employees at either the control site, which consisted of health education classes only, or the site which had established a fitness facility [31].

These results suggest that personal counseling was more effective at increasing regular physical activity than the presence of fitness facilities. Interestingly, the costs of the programs were not substantially different across sites [31]. Unfortunately, systematic evaluation of worksite physical activity or fitness programs does not commonly occur. One innovative worksite-related project is the UKK Institute evaluation of methods for promoting physical activity-based commuting behaviors in Finland [32] described in another article in this issue. This is particularly useful when a large proportion of a community or population live reasonably close to their place of work. Unfortunately, in the US and other large countries, this is often not the case, although there is at least one published report of an effective incentive-based program to increase cycling to work in the US [33].

6. Organizational, environmental, and regulatory approaches to physical activity promotion

A variety of approaches, in addition to face-to-face communication, can be applied both in par-

ticular settings (such as schools or worksites) as well as across the community at large. These include community organization or advocacy (i.e. garnering community support for a specific idea or cause) approaches; environmental change approaches; and regulatory approaches.

6.1. Community organization

The formation of a community coalition or task force around the promotion of physical activity may be a good way to share resources, increase awareness, and build momentum for community-wide change. Examples of the types of organizations that have been included in such coalitions in the US include parks and recreation departments; local public health departments; schools and colleges; community service clubs; local chapters of non-profit agencies (e.g. the Heart Association); professional organizations; hospital auxiliaries; and civic and business leaders, including owners of exercise clubs and facilities.

The potential importance of community organization around this issue has been shown in a recent study of public housing developments in the US [34]. In this study, active involvement of public housing residents in a number of low-income housing developments in Alabama was solicited, and they were involved in planning the intervention. The intervention was multi-focused, and included hiring and training community residents to conduct classes, disseminating exercise pamphlets that met literacy levels of the residents, and conducting intra- and inter-community competitions. Specific support from community and church leaders was solicited, and attempts were made to reduce barriers to attendance, through doing things such as providing for child care.

Results indicated that communities which had the highest levels of community organization, with committed and effective leaders, had the highest average monthly class attendance rates and showed the greatest increases in physical activity levels. These results support the importance of community organization and commitment in influencing physical activity patterns in low-income, urban populations such as the ones targeted in this study.

6.2. Environmental change approaches

Environmental change approaches can focus on the physical environment (e.g. safe bicycle lanes and walking paths; proximity of housing to recreation areas; ready access to stairs in public buildings), or the social environment (e.g. providing the public with information on the locations and schedules of walking groups and physical activity classes). While relatively little systematic intervention in the area of environmental change has been undertaken in countries like the US, a number of ideas are beginning to be explored. These include increasing the safety and convenience of exercise facilities to all sectors of the community for participation in leisure time activities (e.g. public swimming pools, ice rinks, local parks, public tracks or par courses, community centers). It also includes enhancing environmental support for routine or non-discretionary forms of activity through increasing the availability and safety of bicycle lanes and walking/bicycle paths [35]; stairways in worksites and public buildings; and pedestrian malls in the major shopping districts of the community.

6.3. Legislative and regulatory policy approaches

At the highest level of intervention is the enactment of legislative and regulatory policies that promote increases in energy expenditure across the population. Such strategies may have the most far-reaching potential yet have been the least used for physical activity in the US and a number of other countries. Such strategies often have been used much more frequently in those health areas, such as tobacco and alcohol control and dietary change, for which a specific product is under scrutiny. Clearly, possible strategies in this area are strongly tied to the economic and political systems that are in place in a country or region.

Examples of possible legislative actions to promote community-wide physical activity include school and health curricula to promote life-long physical activity; changes in the tax code that encourage increases in physical activity at the worksite, in the community at large, as well as for transportation purposes; health insurance incentives as applicable; and zoning, building, and land-use

legislation that encourages the use of stairs, increased walking and bicycling throughout the day. For example, in the United States more emphasis is being placed on community zoning that encourages residential areas to be located closer to worksites [36].

Laws that develop specific structures for facilitating increases in physical activity as a part of transportation-based or routine activities may also have potentially far-reaching consequences. For instance, in the United States, 'Rails to Trails' legislation has been developed that encourages incentives for communities to convert unused railroad tracks into commuter paths for bikes and walkers [36].

7. Conclusions

Combining interventions that target all of these different strategies and levels of analysis may help to increase the external validity or generalizability of our efforts. The trade-off, though, clearly is a decrease in scientific rigor and internal validity. This can result in the situation that if a program works or does not work, it is often difficult to figure out why.

Among the major lessons that have been learned from community-wide programs across a variety of countries [8,10] are the following points.

1. The development of a community coalition appears to be a useful first step in creating a community organizational structure that can serve as a base for strategy, advocacy, and action. Given the competing health demands in many communities, however, it may be most prudent to 'piggy back' the physical activity programming agenda onto already formed or larger health coalitions when possible.
2. Physical activity should be made a focal point for intervention. It is important that physical activity not get 'lost in the shuffle' or be given less attention than other risk factors, if the greatest gains are to be made. Whether gains are more easily met by launching an independent physical activity campaign or imbedding such a campaign in a broader, multiple risk factor program remains unclear.
3. Professional training remains an important consideration in this area. Virtually all of the community-wide physical activity programs included mechanisms for training a range of community health professionals in effective approaches to physical activity promotion. It is critical that support be obtained early from such community groups, given their influence in the health arena.
4. Focusing the use of mass media may aid efforts to promote regular physical activity across the population [37]. Mass media strategies may need to be specifically tailored to reach targeted subgroups and formally linked with other programs in the community to achieve measurable changes in behavior. To date, this has not occurred consistently in most community programs.
5. Facilitating more convenient forms of leisure activity is strongly recommended. The development of telephone- or mail-supervised home-based approaches to physical activity has shown promise in facilitating long-term exercise adherence with a minimal amount of face-to-face contact. In addition, settings in which a substantial percentage of the population typically spend a large portion of the day provide a convenient and cost-effective venue for undertaking physical activity promotion.
6. It is important to include environmental change approaches. While relatively few such approaches have been applied systematically to the physical activity area, it is clear that a number of possibilities exist for modifying environments to facilitate or promote physical activity.
7. Whenever possible, it is important to explore legislative and regulatory policies, which may have the greatest potential for reaching the large number of people who are inactive.
8. Finally, evaluation remains critical. Understanding the processes through which behavior change interventions exert their effects can be invaluable in achieving campaign effectiveness as well as successful program replication [38].

In summary, it is becoming increasingly clear in a growing number of countries that it will likely take efforts aimed at policy and environmental changes in addition to more typical interventions aimed at individuals or groups to provide the necessary impact across the population that is strongly needed. This is

where some of the most exciting initiatives are being focused currently, both in the US and in other countries, such as Finland, which continues to serve as a leader in such activities.

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