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A Social Model for Health Promotion for an Aging Population: Initial Evidence on the Experience Corps Model

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ABSTRACT *This report evaluates whether a program for older volunteers, designed for both generativity and health promotion, leads to short-term improvements in multiple behavioral risk factors and positive effects on intermediary risk factors for disability and other morbidities. The Experience Corps® places older volunteers in public elementary schools in roles designed to meet schools' needs and increase the social, physical, and cognitive activity of the volunteers. This article reports on a pilot randomized trial in Baltimore, Maryland. The 128 volunteers were 60–86 years old; 95% were African American. At follow-up of 4–8 months, physical activity, strength, people one could turn to for help, and cognitive activity increased significantly, and walking speed decreased significantly less, in participants compared to controls. In this pilot trial, physical, cognitive, and social activity increased, suggesting the potential for the Experience Corps to improve health for an aging population and simultaneously improve educational outcomes for children.*

KEYWORDS *Compression of morbidity, Generativity, Healthy aging, Older volunteer, Social engagement.*

INTRODUCTION

With the aging of the population, people will be living one third of their lives after retirement. It is imperative that we develop effective health promotion for this last third of life so that those living longer are healthier.[1,2] Improved health-related behaviors could contribute substantially to this goal because of health impact, low cost, and broad applicability. Observationally, physical and social activities are each independently and diversely associated with mortality and multiple morbidities,[1–5] with additive benefits. For example, physical activity in older adults is associated with decreased mortality, hypertension, cardiovascular disease, depression, falls, and disability.[3–6] Regular participation in structured social and productive activities[1,2] and membership in large social networks have each been shown to independently

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benefit health and functional outcomes as people age.[7–15] Social disengagement predicts age-related cognitive decline.[16,17] In addition, cognitively stimulating activity may preserve cognition with age.[18–24] However, engagement in all of these activities declines substantially as people age, suggesting opportunity for improvement of the public's health through these avenues.

Thus, observational evidence suggests that what older people do affects health outcomes. For this reason, numerous programs to enhance these behaviors are being developed. A broad range of approaches is needed to reach the full spectrum of older adults. However, there are obstacles to increasing activity by older adults. One challenge is exemplified by exercise interventions, for which participants most readily recruited are highly motivated, healthier, and more financially well off older adults.[25,26] Second, among those recruited, adherence to standard exercise programs drops off substantially within 6 months,[26] further limiting population benefit. Methods are needed to reach the full spectrum of older adults and to sustain activity to accomplish broad, population-based behavior change. Third, medically prescribed exercise programs are costly and rarely reimbursable for the length of time needed for health maintenance. Fourth, although increased "lifestyle" physical activity benefits health,[27] many older adults in urban settings are afraid to walk outside regularly and report limited alternative sites outside the home. Fifth, a social context appears important for physical as well as social activity for many older adults.[28,29] Finally, novel interventions to increase cognitive activity primarily involve laboratory-based activities to improve specific aspects of cognition, and results do not appear to generalize to people's cognitive function in their everyday lives.[30,31]

Although evidence is mounting that remaining active and engaged is beneficial as one ages, our society has not developed approaches that support such activity for the broad spectrum of older adults. This limits the potential to improve health outcomes with aging, a situation described as "structural lag" in the institutions needed to promote health for an aging society.[32,33] In fact, older adults report high rates of television watching[34] and a low frequency of opportunities to be productive in their daily lives, particularly in roles with high impact.[35] Potentially, urban settings are positioned to lead the way in creating community-based programs through which a critical mass of older adults, from diverse backgrounds, could help solve unmet social needs. Organizations that could effectively harness older adults' time, skills, and needs for "giving back" and at the same time increase activity levels could, simultaneously, provide broad-based health promoting and generative opportunities for an aging society.

To meet this objective, we designed such a social approach to health promotion for older adults,[36,37] the Experience Corps. This program places older adults in public elementary schools in a program designed to have high impact on academic outcomes of children in kindergarten through third grade.[38] We further designed the program to increase volunteers' physical, social, and cognitive activity simultaneously, hypothesizing that improvement in any of these pathways would have health benefits, and that concurrent improvements in multiple pathways could have additive effects (see Fig. 1). We hypothesized that a program designed to improve children's success in school would be able to attract a diverse population of older adults who want to "give back," including those who might otherwise not engage in programs specifically for their own health promotion. Finally, we designed the program to require at least 15 hours a week of service over the full school year, both to ensure a high health promotion "dose" and regular exposure longitudinally and to bring a high-intensity, high-impact volunteer force to the schools.

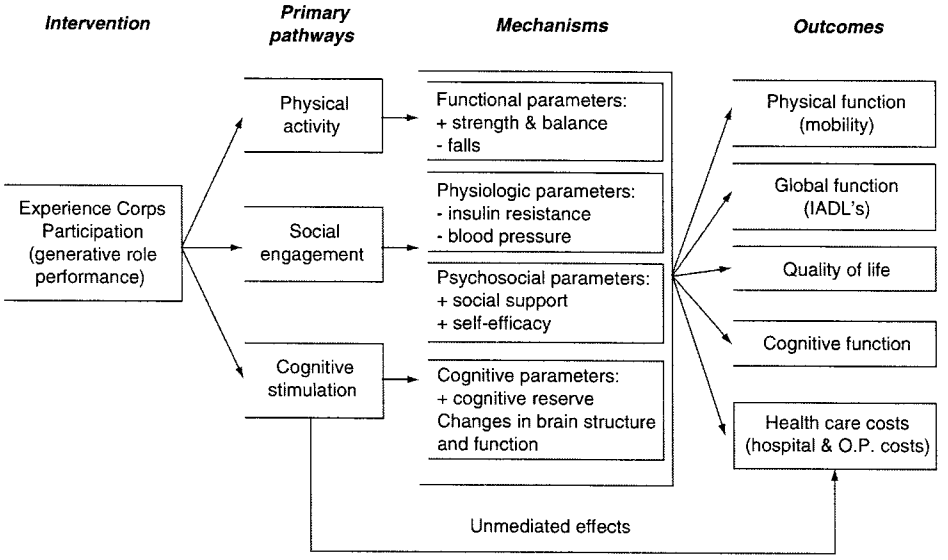

FIGURE 1. Causal pathways through which the Experience Corps program is hypothesized to benefit the health and function of older adults. IADLs, independent activities of daily living; O.P., outpatient.

We report here on the short-term results of a pilot randomized trial of volunteers allocated to either the Experience Corps or a comparison group. Our goal is to describe preliminary evidence that the program improves key risk factors: physical, social, and cognitive activity. Second, we sought to evaluate whether improvement in these risk factors was merely a replacement of one activity with another, particularly for cognitive activity. Third, we demonstrate feasibility of the program in urban settings, of recruitment and of randomization, and the potential for long-term involvement of older volunteers, which is important for effective health promotion for the volunteers as well as for maximal benefit for the schools.

METHODS

Design and Contents of the Experience Corps

A critical mass of volunteers 60 years and older is placed in a given public elementary school to maximize the program's impact on entire grades plus provide collective efficacy and retention of the volunteers. Initial critical mass is 15–30 volunteers per school.[39] Each volunteer serves 15 hours per week, usually over 3–4 days. They are trained by the program in roles selected by the principals as the schools' greatest unmet needs. In Baltimore, Maryland, we initially developed standardized programs to (1) support literacy development for children in kindergarten through third grade (Bound for Reading™, a program developed by B. W., modified by T. G.); (2) support library functions under the guidance of a librarian, including helping children pick books they will enjoy and reading to or with children (developed by S. M.); (3) teach children how to solve problems and play (both actively and in quiet board games), nonviolently, in the Partners in Play™ program (developed by J. H.), with this component employing a variant of I to I[38] from the Society of Friends Schools, which develops one-on-one conflict resolution skills; and (4) enhance school attendance. Additional roles are under development. Multiple roles were encouraged to

maximize stimulation of diverse cognitive abilities. Most start with literacy support and then add others. To recruit older volunteers to this intense time commitment, we found it essential to offer a small incentive of $150–$200 per month to reimburse expenses and to serve as token recognition for the volunteers' contributions.[37] Further details can be found in the work of Glass et al.[39]

Each of these roles, and the program broadly, was designed to have high impact for both the children and schools and, simultaneously, the volunteers' health through three hypothesized pathways[36,37] (Fig. 1). To increase volunteers' *social engagement, social supports, and networks*; develop organizational skills; and likely enhance retention, volunteers were trained in team building and organized into teams of 7 to 10 that met regularly to problem solve, plan, and socialize. We hypothesized that *physical activity* would increase for many by virtue of participation in a regular program, several days per week, via their daily commute, and walking and stair-climbing activity throughout the school day. To enhance *cognitive activity*, volunteers were formally trained, in the roles above, in a 2-week, 30-hour program. Participation in multiple roles was encouraged to (1) maximize generalized benefits across different domains of cognitive functioning and (2) enhance mental flexibility and coordination skills. For example, literacy and library support roles were expected to exercise verbal learning, memory, and problem-solving skills. Helping children learn cooperative play and to follow rules was expected to exercise visuospatial learning and problem-solving abilities. Alternating among these activities, as needed, and working cooperatively with team members was expected to further enhance mental flexibility. Training in skill sets needed to contribute in a school environment was also intended to increase self-efficacy and confidence needed to take on these new roles.

Implementation of the Experience Corps Pilot in Baltimore, Maryland

After initial design,[36,37] the Experience Corps began in 1996 with a 4-year national demonstration in five and then nine US cities, which assessed feasibility and acceptability of program design, methods for recruitment, and potential roles for older adults in elementary schools.[37,40] The Experience Corps was implemented in Baltimore in 1999 through a partnership between scientists at the Johns Hopkins University and the Greater Homewood Community Corporation, an umbrella community organization serving 43 neighborhood organizations in northern Baltimore City. The goal of the program in Baltimore was to refine theory and practice through research and development, implement a standardized program with roles for older adults carefully designed to optimize impact on both the children and the older adults, and evaluate benefits to all constituencies. Secondary goals included development and refinement of recruitment methods, ascertaining acceptability of randomization of volunteers and schools, and determining the potential for long-term retention.

Six public elementary schools in Baltimore were randomly assigned in fall 1999 to receive the Experience Corps program (Dallas Nicholas, Abbotston, and Guilford Elementary) or not (Barclay, Mildred Monroe, and Margaret Brent Elementary) during the first year. Over a 3-month period beginning October 1999, older adults were recruited through community groups and churches in the neighborhoods around the chosen schools, at senior events, at job fairs, on the sidewalk, and by targeted mailings using the AARP mailing list. Eligibility criteria were 60 years or older; ability to read and pass a criminal background check; ability to travel to the schools; a Mini-Mental State Examination[41] score of 24 or above or, if among those with a high school education or less scoring between 20 and 23, ability to complete the Trail Making Test[42] within specified time limits.

Those volunteering underwent a five-stage run-in process designed to minimize dropout: (1) completion of an intake form, generally by telephone; (2) attendance at an informational meeting, at which time they filled out a standardized questionnaire, including demographic and health-related information; (3) a baseline evaluation and then randomization to the intervention or control group; with (4) training, and (5) a background check by the schools for those randomly assigned to the program. Controls were placed on a waiting list for crossover into program participation the following year. All were asked to return for a follow-up evaluation in June 2000.

From November 1999 to January 2000, we evaluated 159 volunteers, of whom 148 agreed to participate and were randomly assigned in three sequential groups of approximately 50. After randomization, 20 dropped out, leaving 70 in the intervention group and 58 in the control group; dropout was disproportionately in the control group. Volunteers entered the schools in small groups (17 in November 1999, 18 in January 2000, and 27 in March 2000), which could be absorbed at one time, and served through June 2000, when follow-up evaluations were performed after 8, 6, and 4 months, respectively. Of 70 intervention group members, 69 completed follow-up evaluations, as did 56 of 58 controls. Those who did not receive follow-up evaluations (n=34) were more likely than those who did (n=125) to be older than 75 years, male, Caucasian, and working for pay.

Standardized evaluations at baseline and follow-up consisted of both self- and interviewer-administered questionnaires regarding health, functional status, physical activities in the prior 2 weeks,[43,44] and social networks and supports.[45] To assess cognitive activity, we ascertained out-of-program cognitive activities for both control and intervention groups at baseline and follow-up to assess change and to evaluate whether participants in Experience Corps were merely trading off one activity for another. This was done through a standardized, self-administered questionnaire[46] ascertaining (1) the number of books and variety of materials read per month; (2) the number of high (e.g., crossword puzzles), moderate (e.g., cooking), and low (e.g., television viewing) cognitive intensity activities engaged in outside the program over the prior month; and (3) the number of hours spent watching television per day. Because television is a passive, low-demand cognitive activity, the hours of television watching represented relative inactivity. We also ascertained frequency of engagement in each role in the schools, hypothesizing that spending 15 hours per week in these roles would represent increased cognitive activity. Standardized performance-based measures of physical ability included grip strength and time to walk 4 meters at usual pace.[43]

Data Analysis

Analyses described characteristics at baseline, compared those who completed follow-up with those who did not, and assessed change from baseline to follow-up between intervention and control groups, calculating statistical differences (*t* tests or chi square, as appropriate). Kilocalories expended per week were calculated using information on participation in any of 15 leisure time activities along with activity frequency.[44]

RESULTS

Volunteers were 60 to 86 years of age, with a mean age of 69 years. There were 92% females, and 95% were African American (Table 1). There were 71% who had attended some high school, 12% had an education between fourth and eighth

TABLE 1. Baltimore Experience Corps: characteristics of participants of the pilot randomized trial by treatment group

	Overall (n = 128), %	Intervention (n = 70), %	Control (n = 58), %	*P*
Age, years				
60–65	28.1	29.4	27.3	
66–70	33.6	27.9	40	
71–75	26.6	30.9	21.8	
>75	8.6	10.3	5.5	.23
Gender				
Female	91.7	88.6	94.8	.21
Male	8.3	11.4	5.2	
Race				
African American	95.5	97.1	94.7	.66
Caucasian/other	4.5	2.9	5.3	
Education, high school or less	82.3	80.9	84.2	.63
Income, <$15,000 per year	69.1	65.6	73.2	.37
Marital status, married	23.5	24.3	22.8	.34
Working for pay at baseline	15.9	11.6	19.0	.25
Prior occupations				
Professional/technical	30.3	31.2	29.6	.11
Sales/clerical	10.9	16.4	3.70	
Machine operator/laborer	6.7	4.9	5.6	
Domestic work/child care	14.3	9.8	20.4	
Homemaker	6.7	9.8	3.7	
Other	31.1	27.9	37.1	
Health Status (self-assessed)				
Excellent/very good	28.6	23.9	33.3	.05
Good	59.5	68.7	48.2	
Fair	11.9	7.5	18.5	
Poor	—	—	—	
Chronic conditions, mean number (±SD)	2.5	2.7	2.4	.36
Health conditions diagnosed by a physician				
High blood pressure	62.6	62.5	64.8	.80
Arthritis	52.1	48.5	58.0	.31
Vision problems	36.1	28.8	51.9	.01
Diabetes	22.0	28.4	13.7	.06
Lung disease	10.4	12.1	9.3	.62
Angina	9.2	12.1	6.0	.27
Hearing problems	6.4	7.5	3.8	.39
Congestive heart failure	5.9	7.8	4.0	.40
Stroke	5.7	7.6	3.9	.40
Cancer	5.7	7.5	3.9	.41
Heart attack	2.5	4.7	0.0	.11
Hip fracture	2.4	4.5	0.0	.12
Difficulty in				
Climbing stairs	61.9	58.2	66.7	.34
Lifting/carrying weights	49.6	47.1	50.0	.75
Walking several blocks	37.3	35.3	41.5	.49
Getting up from a chair	31.5	32.4	31.5	.92

TABLE 1. ***Continued***

	Overall (n = 128), %	Intervention (n = 70), %	Control (n = 58), %	*P*
Sitting for 2 hours	19.8	19.4	16.7	.70
Using map	44.6	42.0	48.7	.53
Using a calculator	23.7	24.5	22.5	.83
Managing money	7.4	6.0	7.3	.80
Shopping for groceries	4.2	2.0	7.3	.21
Used cane	14.2	14.7	13.0	.64
Health services utilization				
Seen doctor in past 6 months	89.5	89.2	88.9	.95
Seen doctor number of times in past 6 months, mean (SD)	2.6 (1.86)	2.5 (1.68)	2.9 (2.05)	.25
Range	0–2			
Have a regular doctor	95.2	92.5	98.2	.16
Insurance coverage				
Covered by any government insurance program	86.8	91.0	82.5	.16
Insurance through employer	36.8	35.8	37.7	.83
Long-term care insurance	17.8	21.3	13.2	.26
Supplemental insurance	16.7	13.9	19.6	.39
Mini-Mental State Exam score				
Mean ± SD	25.4 (2.81)	25.6	25.3	.56
Range	18–32			

grade, and 2% had a third grade education or less. Health status ranged from excellent to fair, with 2.5 diseases on average (range 0–9). Although mobility difficulty was frequent, difficulty in mobility-based instrumental activities of daily living, such as shopping for groceries (4%), was rare. A cane was used by 14% to ambulate outside the home, and 1 participant was wheelchair bound. Difficulty in cognitive/visual tasks was reported by 45% for using a map, 24% for using a calculator, and 7% for managing money.

Volunteers signed up for the program for generative, not health-related, reasons. Specifically, 64% volunteered "to help children," 24% because they "loved children," and 7% to "make a difference in their own life"; 4% described their goals as helping themselves "feel good," and 2% wanted to "keep active." There was no significant difference between the intervention group and controls ($P = .4$) (data not shown). At follow-up, 98% of those in the intervention group reported satisfaction with their experience, and 80% returned the following year, supporting a perception of generative impact.

Table 2 describes baseline and short-term follow-up status of Experience Corps participants and controls in the primary risk factors, physical, social, and cognitive activity, and in selected intermediate mechanisms these risk factors were hypothesized to affect. Despite the limited power in this short-term pilot study, there is evidence for meaningful improvement in each of the primary risk factors. Specifically, regarding physical activity, at follow-up 63% of the Experience Corps intervention group reported that they were "more active" than they had been at baseline, compared to 43% of the controls ($P = .04$). Although not statistically significant, the mean number of blocks reported walked per week by the volunteers increased

TABLE 2. Experience Corps: Short-term change in risk factors and potential intermediate mechanisms; pilot, by treatment group assignment (1999–2000)

	Intervention group (n = 69)		Control group (n = 56)		
	Baseline	Follow-up	Baseline	Follow-up	P*
Physical Activity					
More active at follow-up	—	62.7%	—	42.6%	.04
Number of blocks walked/week† (mean)	26.7	35.1	20.2	18.4	.30
Proportion walking no blocks/week	16.4%	10.9%	2.4%	9.8%	.13
Flights of stairs climbed/week (number climbed† (mean)	13.9	16.6	19.7	21.2	.83
Proportion climbing no stairs/week	17.9%	14.9%	4.1%	6.1%	.42
Activity in kilocalories/week (mean)	1624.1	2035.8	892.6	933.3	.20
Number of hours lying down or sitting while awake (mean)	5.9	4.8	6.0	5.2	.77
Intermediate outcomes					
Strength					
Very good/excellent	47.7%	64.8%	52.4%	35.9%	<.03
Feel stronger at follow-up	—	43.6%	—	18.2%	<.02
Fallen in past 12 months	14.8%	6.6%	10.4%	12.5%	.17
Cane use: less often	—	50% (3/6)	—	20% (1/5)	.30
Walking speed (m/s)	0.95	0.92	1.06	0.86	.001
Social activity					
Number of adults (mean)	5.3	6.2	5.8	4.3	.03
Who would check on you if sick (mean)	8.8	9.4	7.5	6.5	.20
One could depend on (mean)	4.7	4.1	3.4	3.7	.24
Seen in a typical week (mean)	7.0	5.7	7.7	6.4	.93
Could have used more emotional support from others in the past year, % yes	24.1%	6.9%	43.5%	34.8%	.25
Cognitive activity					
Summed outside of program activity scores					
High-intensity activities	3.1	3.1	3.1	3.0	.83
Moderate-intensity activities	2.8	2.6	2.8	2.7	.73
Low-intensity activities	3.5	3.5	3.5	3.5	.78
Books read/month (mean)	5.9	5.4	5.6	5.6	.43
Hours of television/day (mean)	4.6	4.4	4.5	5.3	.02
Activities only in school					
Number of activities, mean (SD)		6.8 (3.77)			
Number of hours/week in these activities, mean (SD)		25.0 (20.3)			

*P test differences of change from baseline to follow-up between intervention and control groups.
†Among those who walked any blocks or climbed flights of stairs.

31%; the controls decreased walking by 9%. There was a 19% increase in stairs climbed per week in the intervention group versus an 8% increase in the control group. Kilocalories reported expended per week in physical activity, overall, increased 25% in the Experience Corps group and decreased 5% in the controls (Fig. 2A).

We evaluated evidence for change in measures affected by increased physical activity: strength, walking speed, cane use, and falls. At follow-up, 44% of Experience

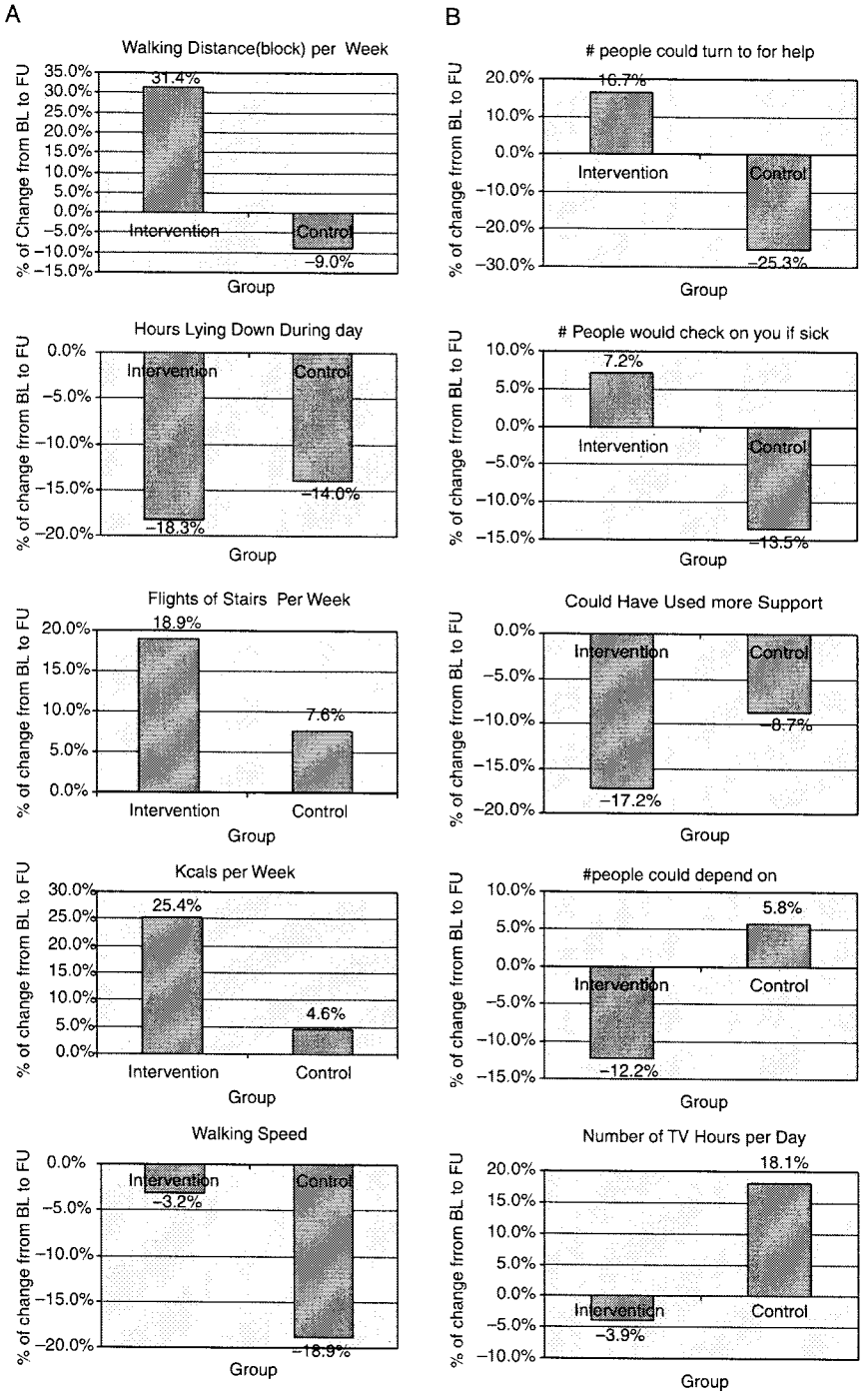

FIGURE 2. Percentage change in physical, social and cognitive activities for the intervention and control groups at baseline (BL) and follow-up (FU).

Corps participants reported feeling stronger, compared with 18% of controls ($P < .02$), and there was a 13% increase in those who reported their strength as very good to excellent versus a 36% decline among controls ($P < .03$). Grip strength

decreased less (21%) in the Experience Corps group than in the control group (26% decrease), but the difference was not significant. Walking speed decreased in both groups, but there was a significantly smaller decline in the intervention group (from 0.95 to 0.92 meters/second) than in the control group (from 1.06 to 0.86 meters/second; $P=.001$), declines of 3% versus 19%, respectively (Fig. 2A). Fall rates decreased more than 50% among the Experience Corps participants (from 15% to 7%), and the rate increased from 10% to 13% among controls; however, the numbers in each group were small, and changes were not significant (Table 2). Finally, cane use decreased in 50% of users in the intervention group (3/6) and 20% of users in the control group (1/5), a nonsignificant difference.

In terms of social activity, Experience Corps volunteers reported a significant increase (compared to a decline for controls) in the number of people they felt they could turn to for help ($P=.03$) (Table 2 and Fig. 2B). Although other differences were not statistically significant, similar patterns were seen for "the number of people who would check on you if you were sick" and whether the volunteers thought that they "could have used more emotional support from others in the past year." One area for which significant change was expected but was not seen was in the number of adults seen in a typical week. This suggests that the quality of social interaction improved for the Experience Corps participants more than the number of adults with whom they interacted.

To assess the hypothesis that Experience Corps participation would not result in diminished cognitive activity outside the program, we evaluated engagement in nonschool activities both before and during the program. As seen in Table 2, there was no significant difference in the number of books read per month or in the frequency and number of high- and moderate-intensity cognitive activities outside the program between baseline and follow-up for intervention or control groups. By comparison, for the most common low cognitive intensity activity, television viewing, those in the Experience Corps program reported a 4% decline in the number of hours of television viewing per day; the control group reported an 18% increase ($P=.02$; Fig. 2B). Experience Corps participants added 25 hours of school activity per week, participating in seven different types of activities, on average (Table 2). Importantly, this increase in school activity was not offset by decreases in high- and moderate-intensity cognitive activity at home.

Finally, we theorized that the health promotion potential of the Experience Corps is closely tied to long-term program retention. During this pilot study, only 2.3% of the Experience Corps participants dropped out before the end of the first school year. To ascertain long-term potential, at follow-up we asked participants in the intervention group the number of years they would like to stay in the program. There were 82% who stated that they planned to stay in the program 2 or more years, including 27% who said 4 or more years.

CONCLUSIONS

This work sought to expand the range of approaches to health promotion for an aging society while offering an intergenerational "win–win" in terms of social benefit. Data from this preliminary randomized trial suggest that the Experience Corps program increased the physical, social, and cognitive activity levels of older adult volunteers as hypothesized. Each is an independent predictor of important health outcomes in late life, including disability, dependency, and dementia. This pilot offers initial evidence suggesting that a single program could affect these multiple

major risk factors over a short follow-up period of 4 to 8 months. The validity of these observations is supported preliminarily by both consistency across multiple measures and by the modification of several intermediary outcomes linked to these risk factors (self-reported strength and falling and measured walking speed, in particular). These findings suggest the potential for this program to improve the health outcomes of older adults through either single-pathway changes or additive effects of multiple pathways (Fig. 1). Given that the program was intentionally designed to involve a high "dose" of behavior change through a commitment of 15 hours per week over a 9-month school year and that there was a high rate of volunteer retention (about 80% per year in subsequent years), there is potential for a long-term, sustained dose that beneficially affects health outcomes.

The Experience Corps is a senior volunteer program designed to have both meaningful social benefits and to offer a community-based approach to health promotion that could attract diverse older adults, including many not likely to participate in more traditional health promotion activities. One theoretical base for Experience Corps was that it would attract older adults because of the opportunity for generativity,[36] and that ongoing generativity would retain volunteers while they received regular doses of physical, social, and cognitive activity (Fig. 1). There is evidence from this pilot trial to support underlying theory.

Simultaneously, as reported elsewhere in this issue, we also observed meaningful improvements in school environment and children's reading scores and behavior in Experience Corps schools.[38] Teachers' and principals' evaluations consistently stated that older adults in this program were having an important beneficial impact. In many cases, this was contrary to initial fears that older adults would be a drain for a school rather than a gain. Thus, resources directed to supporting the well-being of older adults could, simultaneously, benefit the next generation. This suggests the possibility of reframing our traditional social equations of mutually exclusive financing of programs to benefit either one target group or another, to include approaches that are, intentionally, synergistic.

There are implications from this pilot randomized trial at several levels. First, we provide evidence that placement of a critical mass of older volunteers in challenged public elementary schools in a major US city is feasible and well accepted. Despite some initial ambivalence by principals of the schools, we established successful partnerships with six schools in an urban area. Second, the program was successfully implemented via a university–community organization partnership. Third, it is feasible to recruit urban older adults to this high-intensity volunteer model, and the program's attractiveness is based on the opportunity to give back in a model perceived to lead to high impact for children rather than for health promotion. With these incentives, as well as reimbursement for costs incurred, it appears feasible to recruit a broad age span of older adults, including minority group members, across a broad range of socioeconomic, health, and functional status; more recent experience has also demonstrated the ability to recruit Caucasian older adults to this urban program, as well as increasing numbers of men. Even those with low education, a group likely to benefit from all of the targeted health behaviors, were recruitable (with certain exclusions), trainable to roles, and retained.

Although there was evidence for short-term change in our key mediators, expected change was not seen across all measures. The lack of change in grip strength, in the presence of a decline in reported fall rates for the intervention group and an increase for controls, suggests that this reliable and easy-to-implement measure of upper extremity strength did not capture program effects. This could be because

Experience Corps activity preferentially affects lower extremity strength. If so, future evaluations will need to utilize a lower extremity strength measure. Alternatively, it may be that a true effect, if present, would need to be captured through increased sample size and longer follow-up. Our findings regarding the direction of change in intermediary mechanisms further support observations elsewhere that the public health benefit of some interventions for older adults needs to be measured in terms of prevention of decline rather than improvement[47] (as seen here with walking speed).

This pilot study also demonstrated the success of several methodologic approaches. First, randomization of both older adults and schools was acceptable to both parties in the service of evaluating the impact of the program. Randomization led to some loss of controls, but substantially fewer than was feared, and 81.8% returned for follow-up evaluations. In addition, the five-stage screening process led to a low dropout rate. Such an accomplishment is critical to minimizing the cost of training people who then do not participate.

It was critically important to develop standardized approaches to implementation as a basis for evaluation and future scaling-up of an effective model. To these ends, we developed successful methods to screen out those who were not acceptable to the schools, either behaviorally or cognitively, in addition to those who might not be able to function in the program, in a manner that did not undermine the message to the community that the most diverse group of older adults was sought. Second, there is now initial evidence for the effectiveness and acceptability of standardized, theoretically based volunteer roles in the schools, ones designed around the principals' highest priorities[38] and specifically designed for older adults. In addition, the infrastructure that provides recruitment, training, management, and oversight in collaboration with the schools is essential to meeting the needs of older volunteers while not asking overtaxed schools to provide these roles. That this was done successfully is indicated, in part, by the enthusiastic retention of all schools and over 80% of volunteers from one year to the next.

This program demonstrates that older adults can offer social capital that is highly valued and potentially could have great social impact if taken to a large scale.[39,48] In this case, the model is a social program with intentional multirisk factor reduction. Our approach was to embed risk factor modification into a program dedicated to social goals. In contrast to other programs that target health care beneficiaries,[26] the Experience Corps program was designed to attract all older adults, including those less likely to participate in formal health promotion programs, particularly through a medical venue. Following on recent work that suggested that increasing habitual physical activity though lifestyle changes is an effective health promotion strategy for older adults,[27,49] we sought to provide structured activities that would lead to increased physical activity levels and further stimulate activity along three parallel pathways (Fig. 1). It remains to be seen whether such increases translate into improved health outcomes. We hypothesize that the generalizability of the activities may well lead to real-life beneficial health outcomes for an aging population and ones that are sustainable.

The Experience Corps program has rapidly expanded to over 18 cities and two nations, suggesting both its feasibility and its attractiveness. Now, scaling up will provide evidence for broad impact, as well as determining the messages that can attract older adults on a large scale. It is hoped that the diffusion will intentionally include the elements demonstrated to benefit older adults as well as children and evaluation of the impact of such programs in helping to meet the goals of compressing the morbidity and disability associated with aging. The early observations of risk factor modification

reported here along with the success of randomization in this program and early evidence for impact on children and schools[38] and positive cost benefits[48] reported in this journal suggest that a larger clinical trial powered to examine the effectiveness of the program for health improvement and reduction in disability may be appropriate. Ultimately, definitive evidence that the program has impacts on health outcomes will aid recruitment on a large scale and broad dissemination that will maximize the generativity of an aging society.

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