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Experience Corps: Health outcomes of participation

Experience Corps® (EC) is a program that brings older adults into public elementary schools to improve academic achievement of students through one-to-one tutoring, small group academic help, and assisting teachers. It has been in existence for over 13 years and currently operates in 20 cities across the country. The Atlantic Philanthropies provided funding to Washington University in St. Louis to conduct a national evaluation. Mathematica Policy Research assisted with data collection services.

The evaluation was designed to assess outcomes associated with participation in EC. EC participants who first joined the program in Fall 2006 and served for two years were reassessed in Spring 2008 (n=167). The observation period and measurements utilized in this study were designed to allow comparison with a matched sample from a national study, the Health and Retirement Study (HRS). The resulting quasi-experimental design enabled the comparison of change over a two-year period between EC members and a comparison group of similar older adults.

Method

Identification of a comparison group. Data from two HRS observation periods, 2004 and 2006, were used. HRS participants over the age of 50 and with at least the minimum education and income of the EC sample were considered for matching. We did not exclude HRS participants who were volunteers, unless they volunteered more than 200 hours a year. With this HRS subsample of 17,560, a stringent matching procedure (the nearest available Mahalanobis metric matching within calipers defined by the propensity score) was applied, and a study participant from the HRS was identified that matched each EC participant. The table demonstrates that the samples were not statistically different on any measured characteristic, except education. The groups were comparable on the health measures.

Testing for differences in health outcomes between EC members and comparison group

Three standardized measures of health were employed, and the questions were identical between the EC and HRS surveys. Regression with robust standard errors analysis was used to assess the effects of EC participation, with post-test measures of self-rated health, physical function, and depressive symptoms as dependent variables. All demographic variables, volunteer history, and pretest measures of health were included in the model. To further control for any difference between the two groups, the propensity score was also included in the model.

	EC group (n=167)	HRS group (n=167)	Test statistic
Age	64.78 (7.4) 51-83 yrs	65.14 (7.2) 51-84 yrs	t=-0.50 [0.83]
Female	86%	84%	$\chi^2=0.27$
Married	40%	49%	$\chi^2=4.80$
Widowed	25%	15%	
Never Married	36%	37%	
Employed	13%	19%	$\chi^2=1.93$
Non-white	62%	61%	$\chi^2=0.003$
Education			
0-12 yrs	26%	44%	$\chi^2=13.62^{***}$
13-15 yrs	29%	21%	
16+ yrs	45%	35%	
Annual family income	7.04 (3.05) 1-11	7.26 (3.14) 2-11	t=-0.55 [0.34]
Volunteer history ^a	51%	46%	$\chi^2=0.97$
Pretest health measures			
Self-rated health	3.64 (0.96) 1-5	3.44 (0.85) 1-5	t=1.39 [0.09]
Depression (CES-D)	5.08 (2.28) 0-9	5.88 (2.48) 0-9	t=-1.17 [0.26]
Functional limitations (Nagi)	2.06 (2.16) 0-10	2.48 (2.25) 0-10	t=-1.76 [0.24]

*** p<.001

^aThe person had volunteered before the two year observation period in which current volunteer status was captured

Findings

The estimates below indicate the effects of EC participation on health outcomes. These estimates were calculated while controlling for all covariates.

	Self-rated health b [se] t, p	Functional limitations b [se] t, p	Depression b [se] t, p
EC participation	.12 [0.07] t= 1.7 p=.09	-0.88 [0.19] t=-4.52 p<.0001	-2.11 [0.26] t= -8.20 p<.0001

These findings indicate that participation in the EC program was associated with improved health outcomes. That is, EC members experienced more positive changes in two outcomes compared to matched comparisons. EC members experienced a statistically significant decrease in functional limitations ($p<.0001$) and depressive symptoms ($p<.0001$). Further, both groups showed a decline in self-rated health. Although the differences are only marginally significant ($p=.09$), EC members registered less decline than the comparison group.

The following table shows the adjusted post-test means, correcting for all covariates and the associated effect sizes.

Outcome ^b	EC	Comparison	Program Impact	Effect Size
Self-rated health	3.56 [0.04]	3.44 [0.05]	0.12 [0.07] t=1.70, p=.09	0.12
Functional limitations	1.79 [0.13]	2.67 [0.14]	-0.88 [0.19] t=-4.52, p<.001	0.42
Depression	4.31 [0.18]	6.42 [0.16]	-2.11 [0.26] t=-8.20, p<.001	0.73

^b Higher scores on self-rated health indicate better health; lower scores on functional limitation and depression indicate better health

The EC group experienced a reduction in functional limitations and depressive symptoms while the comparison group experienced an increase on both health measures. The EC participants adjusted post-test score was 4.31, indicating a drop in depression symptoms from the pretest score; while the comparison group adjust post-test score was 6.42, indicating an increase in depression symptoms from pretest.

The effect size associated with program participation was large (.73), indicating that EC members averaged three-quarters of a standard deviation lower on depression symptoms than would have been expected without EC participation.

Summary and Implication

Given the fact that there are more students referred to the EC program than can be served, it was not feasible to randomize volunteers into the program or develop a waitlist control group. Yet with the national representative sample of HRS participants, a comparable two-year observation period, and a large data set of identical information about HRS and EC participants, it was possible to develop equivalent groups and use statistical techniques to further equalize the groups, allowing analysis of program effects using a quasi-experimental design.

Results demonstrated that participation in the EC program produced positive health outcomes. It was expected that a pattern of maintenance of health versus decline in health would emerge, as EC participation may not reverse but rather postpone loss associated with age-related medical conditions. This pattern was observed on self-rated health, where EC members reported less decline than the comparison group. However, EC participants had a reduction in depressive symptoms and functional limitations over two years of program participation, while the comparison group experienced an increase in these two measures over a two year period.

Effect sizes associated with statistically significant program impacts on depression and functional limitations are quite impressive. It is documented that an effect size of .50 on health-related quality of life measures translates to clinically important differences (Norman, Sloan, & Wyrwich, 2003).

Finally, it is important to note that this analysis included EC members from 17 cities, increasing generalizability of these findings.

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