Impact of school, community and home gardens on fruit and vegetable access and consumption in low-income neighborhoods in Silicon Valley

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Background

The U.S. has seen drastic increases in rates of overweight and obesity for adults and children. Obese adults are nine times more likely to be told they have diabetes, compared to adults who are in the healthy weight range.[i] Children who are obese have high rates of cardiovascular risk factors such as high blood pressure, high cholesterol, and type 2 diabetes.[ii]

In Santa Clara County, California:

- 25% of middle and high school students are either overweight or obese.[iii] African American and Hispanic students had the highest rates of overweight and obesity.
- 38% of adults are overweight, and 17% are obese, and rates are highest among adults who are male, Hispanic, and at lower levels of income and education.[iv]
- One in seven adults eats at least five servings of fruits and vegetables a day, and only 30% of middle and high school students consume at least three servings of vegetables and fruits a day.[v vi vii]

Gardens and farms can provide neighborhoods with access to locally grown produce, create greater awareness of the benefits of healthful food and local food systems, increase consumption of fruits and vegetables, and enhance community cohesion.[viii ix x]

Silicon Valley HealthCorps Program

In 2008, the Silicon Valley HealthCorps (SVHC), a group of non-profit garden and urban agriculture organizations, was formed and awarded $1.02 million over three years from AmeriCorps. SVHC organizations used14 full-time and 32 quarter-time AmeriCorps members to increase access to healthy food and nutrition education through school, community and home gardens with a focus on low-income communities.

Youth learn about everything that makes a garden grow, including soil and worms.

Left: AmeriCorps members teach youth proper gardening techniques. Right: AmeriCorps members demonstrate to youth how they distribute food at a farm stand.

Interventions

Garden Creation

- Develop and maintain space to use for growing produce and garden-based education.

Produce Distribution

- Distribute produce through sales at local farm stands, farmer's markets, and Community Supported Agriculture programs, and donate produce to local food banks and volunteers.

Education

- Conduct garden and farm-based one-time workshops and field trips for youth and adults. Topics include cooking, nutrition, and gardening basics.
- Provide ongoing garden-based education of eight or more hours of curriculum, which is integrated into elementary and middle school classes, after school programs, and leadership programs for high school students.

Evaluation Questions

To what extent was the SVHC successful in increasing

- the number of community and school garden sites?
- availability of fresh produce in the targeted communities?
- knowledge about gardening, sustainable food systems, nutrition and healthy behaviors?
- youth consumption of fruits and vegetables?

Evaluation Methods

Program documentation of outputs

- Track the pounds of food produced and distributed, and the numbers of gardens built, workshops and field trips held, and individuals who participate.

Surveys

- One-time workshop and field trips: post-surveys assess knowledge and perceptions about the quality and utility of the intervention.
- Garden-based education (at least 8 hours of curriculum): pre and post surveys measure the students' knowledge of where their food comes from, and fruits and vegetable consumption.

Results

From October 1, 2009 through September 30, 2010, the SVHC achieved the following results:

- 11 new school gardens.
- Over 32,225 pounds of food produced, one-third of which was donated to food banks, schools, and volunteers.
- 8,600 youth and adults participated in 350 farm and garden field trips and one-time workshops.
- 2,800 youth received ongoing education through more than 1,000 workshops.
- 73.8 percent of field trip participants had increased knowledge about where the food they eat comes from (N=130), and 77.9 percent said they knew more about what kinds of food were healthy or unhealthy (N=131).
- Older youth who participated in ongoing garden-based education showed statistically significant increases in knowledge of the distance food travels and the types of food grown locally, positive attitudes toward eating fruits and vegetables, and an increase in the amount of fruits and vegetables consumed during a typical day (see Table 1, and Figures 1 and 2).

Table 1

Measure	Score	Observed Range	N=	Mean Change	Sig (2-tailed)
On a daily basis, how many times do you eat vegetables?	0=0 times 1=1 time 2=2 times 3=3 times 4=4 or more times	0 to 4	370	0.211	.001
On a daily basis, how many times do you eat fruit?		0 to 4	366	0.126	.028
I know what foods are grown around here.	1=A lot 2=Some 3=A little 4=Don't know	1 to 4	374	-0.350	.000
I know what kinds of foods grow in different seasons.		1 to 4	372	-0.185	.001
I know what crops are grown in this region.		1 to 4	348	-0.388	.000
I know what distance foods travel before they get to me.		1 to 4	349	-0.404	.000

Discussion

Ongoing workshop participants from kindergarten through the third grade showed no statistically significant knowledge or behavior changes pre- to post-intervention. Revisions have been made to the younger child surveys to improve validity and reliability of the survey measures.

The SVHC met its targets in increasing attitudes, knowledge, and most notably in the amounts of fruit and vegetables that older youth consume on a daily basis.

The results of these interventions must be interpreted with some caution because the SVHC were able to survey only a partial sample of those who participated, rather than 100 percent of participants.

Figure 1

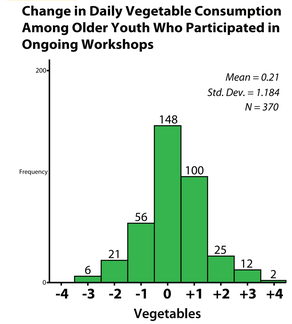
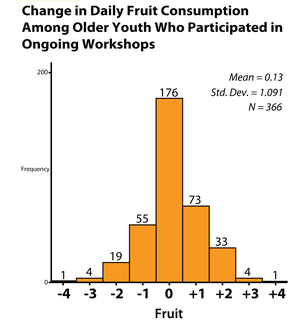


Figure 2



Conclusion

The work of SVHC has resulted in:

- An increase in the number and quality of community and school gardens in low-income neighborhoods.
- An increase in production and distribution of fresh produce in high need areas.
- Positive changes in knowledge, attitudes, and behavior related to healthy eating and gardening among project participants.

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