

Changes in Availability of Healthy Food in Homes of Participants in TX Sprouts, a School-Based Gardening, Nutrition, and Cooking Program



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Background

- 20% of elementary-age children have obesity in the U.S. The rates are even higher among Hispanic children.
- Consuming fruits and vegetables and limiting intake of sugar-sweetened beverages (SSBs) can reduce the risk of obesity.
- The home food environment is a powerful factor in a child's dietary choices and intake. Though parents generally control the home food environment, a child's food preferences may also play a role.
- School-based garden interventions often increase knowledge and preference for vegetables among students. Yet few studies have reported the effects of a school-based garden intervention on the availability of vegetables and SSBs in the home environment.

Objective

- This study evaluated whether TX Sprouts intervention compared to the control resulted in increased availability of vegetables and decreased availability of SSBs in the child's home environment.

TX Sprouts

- The study enrolled 16 elementary schools in the greater Austin area serving primarily low-income, Hispanic children and their families.
- Schools were randomized to TX Sprouts intervention (n=8) or control (delayed intervention, n=8) for one academic year.
- The TX Sprouts intervention:
 - Built an edible garden at each school
 - Taught 18 in-school gardening, nutrition, and cooking lessons to all 3rd-5th grade students by paid educators
 - Formed Garden Leadership Committees at each intervention school, comprised of interested stakeholders
 - Taught 9 parent classes after school and on weekends

- 96% of the students attended each class, and approximately 7% of the parents attended the parent classes.



Methods

- At pre and post, parents answered questions about sociodemographics, grocery shopping, and home food availability, which asked how often the following items were available in the home the previous week:

- Fruit Juice
- Vegetable Juice
- Fresh Vegetables
- Canned, Frozen, or Dried Vegetables
- Salad
- Cut up vegetables easy for child to reach
- Soft drinks and SSBs



- Linear regression was used to evaluate the change in healthy food available in the home between intervention and control using a composite score (a numeric summation of participants' responses to each item) and the Likert score for each item.

Results

Analytic Sample, n=895. Among the 3302 students enrolled in TX Sprouts, 2882 of their parents completed the pre-study survey, and 1153 completed post. Of those parents, 895 (n=414 intervention, n=481 control) completed the home food-availability question both pre and post.

Figure 1. Consort Diagram

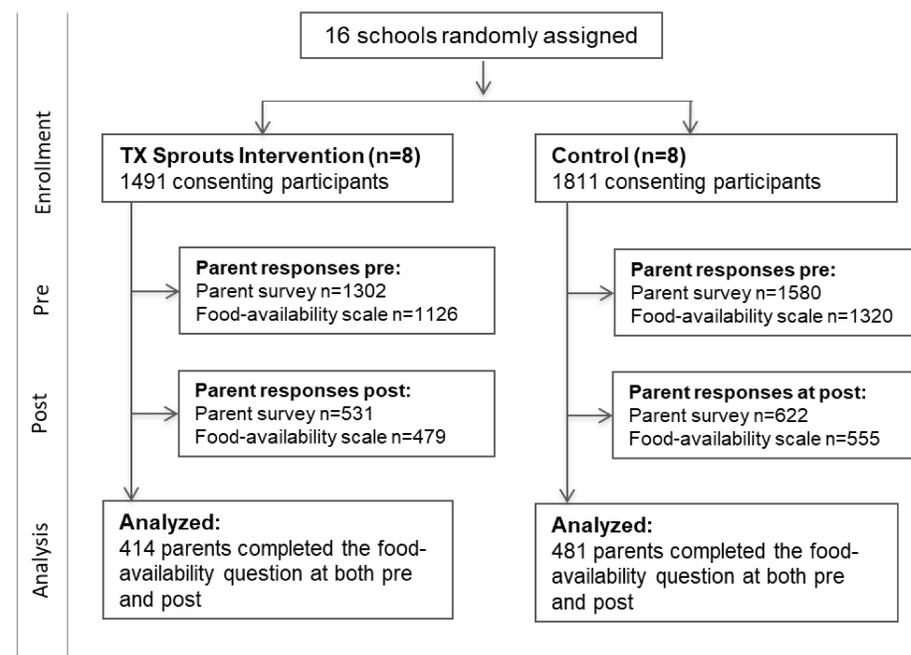


Table 1. Demographic and other characteristics of the intervention and control provide by parent surveys

	Intervention (n= 414) n (%) or mean (± SD)	Control (n=481) n (%) or mean (± SD)	p-value ^a
Age	37.2 (6.55)	37.1 (6.95)	0.942
Female	389 (94.0%)	437 (90.9%)	
Race/Ethnicity			0.579
Hispanic or Latino	263 (63.5%)	306 (63.6%)	
White (not Hispanic)	108 (26.1%)	114 (23.7%)	
Black or African American	29 (7.00%)	38 (7.90%)	
Other or more than one race	13 (3.14 %)	18 (3.74%)	
Highest Level of Education			0.024*
College degree or higher	91 (22%)	122 (25.4%)	
Some college	99 (23.9%)	102 (21.2%)	
High school diploma or GED	100 (24.2%)	82 (17.0%)	
No high school diploma or GED	112 (27.1%)	164 (34.1%)	
Employment status			0.004*
Full time or more	235 (56.8%)	248 (51.6%)	
Part-time	62 (15.0%)	47 (9.77%)	
Retired/not working outside home	105 (25.4%)	168 (34.9%)	
Participate in SNAPs Benefits	136 (32.9%)	159 (33.1%)	0.948
Child Eligible for free/reduced Lunch:	276 (66.7%)	315 (65.5%)	0.235
Child's Grade:			0.018*
3rd	108 (26.1%)	165 (34.3%)	
4th	150 (36.2%)	167 (34.7%)	
5th	156 (37.7%)	149 (31.0%)	

^a p-value for difference between groups from chi-square tests or independent t-tests.

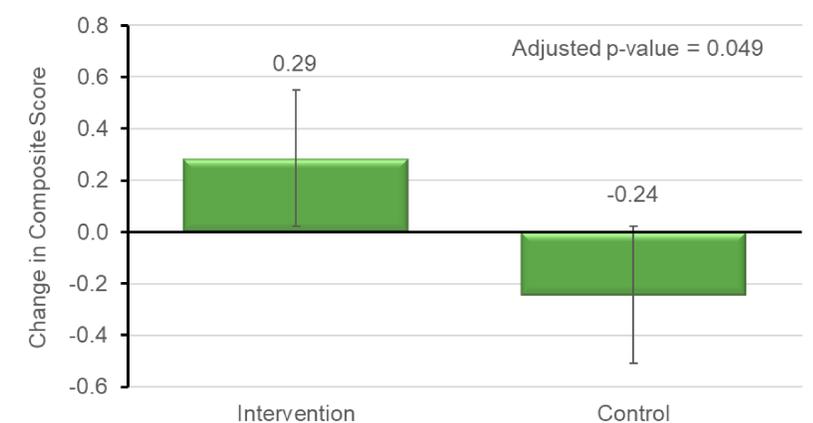
Results

Table 2. Effect of TX Sprouts on home food environment using linear regression

Variable	Intervention (n=414)		Control (n= 481)		Adjusted ¹ p-value
	Pre Mean ± SD	Change Mean ± SD	Pre Mean ± SD	Change Mean ± SD	
Composite Score	11.7 (3.19)	0.29 (3.07)	12.0 (3.38)	-0.24 (3.19)	0.049*
Fruit Juice ²	1.20 (1.06)	0.15 (1.05)	1.09 (1.04)	0.23 (1.04)	0.451
Vegetable Juice	0.80 (0.95)	0.04 (1.01)	1.01 (1.10)	-0.23 (1.19)	0.001*
Fresh Vegetables	2.27 (0.85)	0.03 (0.94)	2.36 (0.84)	-0.10 (0.89)	0.128
Canned, Frozen, or Dried Vegetables	2.00 (1.03)	-0.02 (1.10)	1.95 (1.08)	-0.07 (1.06)	0.593
Salad	1.95 (0.97)	-0.03 (0.98)	2.02 (0.96)	-0.08 (0.95)	0.819
Cut up vegetables, easy to reach	1.84 (1.07)	-0.07 (1.16)	1.96 (1.01)	-0.15 (1.12)	0.641
Soft drinks or SSBs	1.65 (0.96)	0.19 (0.91)	1.61 (0.96)	0.16 (1.00)	0.486

¹ Adjusted for parent's education, work status, and child's grade, which differed significantly between intervention and control, and for eligibility for free or reduced lunches and SNAP participation, which often correlate with the home food environment.
² Fruit juice and SSBs were coded "never" = 3 and "all of the time" = 0; all other items were coded with "never" = 0.

Figure 2. Change in availability of healthy food at home by intervention and control



Discussion

- TX Sprouts improved the home food environment compared to control. Because few parents attended the parent sessions, this result suggests that the school-based garden intervention improved the home food environment through the children.
- Marketing research confirms that children have meaningful influence over their parents' grocery store purchases. This is particularly true in Hispanic families, where parents are likely to co-shop with their children.
- Over two-thirds of TX Sprouts participants also co-shopped, which may explain the increased availability of healthier food in the intervention homes.
- Further research is warranted to evaluate ways to further empower children to influence the availability of vegetables in their homes. Marketing research on this subject could be instructive in future interventions.

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