Investigation of an urban farm intervention for a low income Hispanic population with multiple risk factors for diabetes

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Abstract
Prevalence of obesity and diabetes in the U.S. are of epidemic proportions. With many theories regarding the causes of the obesity epidemic, there is increasingly the perspective that fewer people involved in, and aware of, how food is grown is a relevant factor. Several different studies have explored how engaging with agricultural production changes perspectives on food and food behaviors. However, studies of the effects of engaging in urban agriculture on food consumption and chronic disease risk factors are limited.

Context: New Haven is a post-industrial, urban community, with high levels of food insecurity, diabetes, and obesity. • Seven percent food insecure of the 169 towns in Connecticut • New Haven County has highest food insecurity in the state (13.6%). • Obesity rate is 26.7%. • Diabetes prevalence is 8.3%.

Approach: New Haven Farms is a multi-level urban farm intervention to reduce nutrition related disease in a low-income, primarily Hispanic community.

Methods
Eligibility: (a) income within 200% of the federal poverty level and (b) two or more risk factors for diabetes.
Recruitment: Participants were recruited through referral from clinicians during a monthly clinic, at a local community health fair, and at local community events
Measurement: Food security status was collected using a 17-item low food security tool. Weekly survey to report on use of previous week’s food basket.
Intervention/Treatment: The 16-week comprehensive urban farm intervention included nutrition education, cooking, and gardening education and a weekly share of produce.
Weekly Produce Shares: On average, the weekly shares contained 38.5 cups of raw, cleaned, ready to eat produce. Vegetables made up a majority of the produce (86%) with fruit making up 14% of the produce over the entire season. On average, the shares provided 5.5 cups of vegetables for the duration of the intervention.

Results: Daily Fruit and Vegetable Consumption (Figure 1)
• Increased daily intake of fruits and vegetables by an average of 0.86 ± 0.25 servings (p=0.002)
• Significantly more daily servings of:
  o Vegetables (+0.75 servings, p=0.038)
  o Whole grains (+0.121 servings, p=0.024)
  o Green salad (+0.157 servings, p=0.014)
  o Fruit (+0.31 servings, p=0.034)
• No significant changes in daily servings of any other foods reported.

Results: Food Insecurity
According to the Food and Agriculture Organization (FAO), food security “exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life.” (World Food Summit 1996)

Pre and post intervention assessment of food security status shows a
• 21% percentage point decrease (from 32.4% to 11.4%) with P-value of p=0.0002 in the proportion of households where adults members needed to cut the size of meals or skip meals because there wasn’t enough money for food.
• 22.7 percentage point decrease (from 70.6% to 47.8%) of households with P-value of p=0.002 in the proportion of member households relying on only a few kinds of low-cost food to feed children because they were running out of money to buy food.
• 26.9 percentage point decrease (from 41.7% to 14.8%) with P-value of p=0.001 in the proportion of households where children were not eating enough because the family couldn’t afford enough food.
• 21.7 percentage point decrease from 29.1% to 7.4% with P-value of p=0.005 in the proportion of households that had to cut the size of the children’s meals because there wasn’t enough money for food.

Conclusions
Research concerning the dietary and health effects of urban agriculture is scarce. This pilot program aimed to test the impact of local access to high quality fruits and vegetables (F&V) in combination with a nutrition and cooking education component that supports F&V intake.
• New Haven Farms Fresh Produce Prescription Program increased fruit and vegetable consumption by .86 servings per day for individual members.
• F&V consumption of other members of the household may also have increased, as food tends to be shared within the household.
• Food insecurity was reduced in both adults who took part in the program as well as in the children who reside with them.

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