

“Buckets of Fun!: Empowering low-income urban Native American youth to make nutritional changes through container gardening.”

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ABSTRACT

A pilot program to address some cultural and economic barriers to better health among low income Native Americans living in urban areas has been developed in conjunction with Indian Centers. This program is designed for children and at least one parent, to facilitate communication, transmission of cultural knowledge, and to reinforce positive food behaviors. Teaching components focus on access to nutritional, non-processed food and herbs, centering around container gardening. The program takes a social empowerment approach, providing tools for greater control over salt and fat intake. Follow-up interviews indicate an increased use of herbs and spices, combined with a decrease in salt, butter, and fat use in food preparation as a result of participation. This has important public policy implications and supports expanding programming at urban Indian Centers.

INTRODUCTION

In many indigenous cultures, traditional foods and medicines, gathering sites and practices, and the songs and rituals associated with planting and harvests are intertwined with health, spirituality, language, and life-ways. As a result of nutrition transition and urbanization, however, cultural knowledge and language use have been declining, along with the health status of American Indians and Alaska Natives (AIANs). To address this, many Native American nations have turned to their local institutions, such as reservation cultural centers and tribal colleges. Through these venues, they have instituted language revitalization projects or reclaimed traditional foods.

While it can be more difficult to create similar programs for AIANs living in urban centers, it is no less important. Part of the complexity is creating culturally sensitive, effective, and sustainable programming for a group of individuals with different spiritual and cultural backgrounds (James, 2004). The first step is to identify personal and cultural barriers to healthier food consumption and lifestyles (Companion, 2013b). The second step is developing educational modules to address the social, physiological, and ecological challenges that are impacting low income Native Americans living in urban areas.

This study presents the findings from such a pilot program. The central module revolves around nutritional education and container gardening. The program takes a social empowerment approach by providing participants with tools to take greater control over their food access, salt and fat intake, and physical health outcomes through the use of herbs for seasoning. The program extends that model to cultural continuance by facilitating communication between children and parents regarding cultural experiences and personal histories through exercises and activities.

BACKGROUND

Nutrition transition occurs when populations shift from being underweight and having a high prevalence of infectious diseases to a pattern of being overweight or obese and suffering from nutrition-related non-communicable diseases (Astrup, Dyerbery, Selleckm and Stender, 2007; Compher, 2006; Popkin and Gordon-Larsen, 2008). Driven by changing economic, social, and technological systems, this process moves populations away from nutritionally dense traditional foods, which are heavier in fiber, animal source proteins, and minerals (Kuhnlein and Receveur, 2007), to processed energy-dense convenience foods and sugar-rich beverages (Popkin, 2004). The consequences of this transition are a double burden upon the world's poor (Raschke and Cheema, 2007; Turner and Turner, 2008), indigenous people (Damman, Eide, and Kuhmlein, 2008; Foley, 2005; Kuhnlein and Receveur, 1996), and the AIAN population (Kuhnlein and Chan, 2000).

Gittlesohn et al. (2006) and Companion (2008) find that the nutritional transition is evident in reservation diets across the United States. These are high in fat, sugar, sodium, and prepackaged components. Greater exposure to mass media in the form of television has heightened the sedentary nature of leisure time but also increased the number of cultural food/consumption messages aimed at youth. This fosters an obesogenic culture of eating among young people (Stevenson, Doherty, Barnett, Muldoon, and Trew, 2007) and adults (Companion, 2013a).

Poverty limits access to healthful foods, making low socioeconomic status a powerful risk factor for poor health outcomes (Companion, 2008; Halpern, 2007). This can hasten nutrition transition. Inexpensive items suitable for stretching the quantity of a meal (e.g., potatoes, pasta, and rice) are purchased more frequently than are perishable fruits and vegetables, resulting in limited dietary variation (Companion, 2013b). Reliance on processed food leads to reservation diets dominated by simple carbohydrates and fats (Phillips and Finn, 2000; Taylor, Keim, and Gilmore, 2005; Taylor, Keim, Gilmore, Parker, and Delinder, 2006). This impacts health outcomes; studies demonstrate that the AIAN population exhibits nutrition-related health conditions such as obesity, Type 2 diabetes, heart disease, and hypertension at rates higher than the general United States population (Companion, 2008; Indian Health Service (IHS), 2009a; IHS, 2009b).

There are similar trends in urban AIAN health (Companion, 2013b; Urban Indian Health Institute, 2008). Some studies attribute health outcomes, in part, to difficulties in achieving a low-cost, nutritious diet in urban settings as a result of the "urban food deserts" (Companion, 2010; Companion, 2013b; Drenowski, 2007; Zenk, Schultz, Hollis-Neely, Campbell, Holmes, Watkins, Nwankwo, and Odoms-Young, 2005b; Zenk, Schultz, Israel, James, Bao, and Wilson, 2005a). Others (Ard, Fitzpatrick, Desmond, Sutton, Pisu, Allison, Franklin, and Baskin, 2007; Companion, 2013b; Hawkes, 2008; Hseih, 2004; Lake and Townshend, 2006) find that food consumption is impacted by the social ecology of place. In urban zones, lack of or limited access to full-service grocery stores or farmer's markets, combined with low availability of transportation, compels families to stock-up on non-perishable items. As a result, consumption of processed foods increases, displacing fresh fruit and vegetables from diets. An important component in the food environment is children; they have a tremendous influence on food shopping and preparation patterns (Chase, Reicks, Smith, Henry, and Reimer, 2003; Companion, 2013b; Damman, Eide, and Kuhnlein, 2008; Foley, 2005; Hargreaves, Schlundt, and Buchowski, 2002;

James, 2004; Mueller, Pearson, Muller, Frank, and Turner, 2010; Rashke and Cheema, 2007; Stevenson et al., 2007; Wiig and Smith, 2008). Marketing strategies aimed at children contribute to the obesogenic environment by enhancing “pester power” (Lake and Townshend, 2006). Stevenson et al. (2007) maintain that the social rewards of fast food consumption are increased through pop culture references to advertising (celebrities, etc.) and the promotion of cultural images through the ads themselves.

The desire to conspicuously consume brand name products and foods and to shun traditional foods is related to social comparison and the pressure to fit in and conform to those people with whom we compare ourselves (Mueller et al., 2010). Damman et al. (2008) find that indigenous youth associate traditional foods with shame, stigma, and backwardness. The researchers attribute their changes in preference to an obesogenic environment that includes schools, which advance acculturation pressures at an institutional level, peer pressure at an individual level, and the media. They find that the media promotes “western images and ideals of the ‘good life,’ including food commercials” (147). Ads instruct children how to act and what to eat to succeed in ‘modern youth culture.’

Rationale for the Pilot Program

Respondents in Companion’s study (2013b) voiced a desire for nutrition education programs. They also suggested that urban Native American community centers (hereafter, “Indian Centers”) could do more to address their constraints to healthier eating. Demonstration classes with food tastings were requested to help expand knowledge of cooking techniques and use of spices. These tastings should also include children, who have a disproportionate impact on food purchasing and preparation behaviors (Companion, 2013b; Jilcott, Laria, Evenson, and Ammerman, 2008).

Addressing the social ecology in which participants will be applying lessons from the modules is significant for positive long-term outcomes. Social ecology models, including Cockerham’s Healthy Lifestyle Theory (2005) or Frohlich, Corin, and Potvin’s Collective Health Lifestyles (2001), recognize that biology, genetics, or medical models only represent one set of influences that impact health outcomes. An individual’s health status is also influenced by interactions of broad social and economic trends, physical environment, cultural forces, and social relationships (Cassel, 2010; Larson and Story, 2009). Delormier, Frohlich, and Potvin (2009) expand upon this, focusing on food and eating as a social practice rather than an individual behavior, noting that “eating patterns form in relation to other people, alongside everyday activities that take place in family groups, work, and school” (217).

Based on these findings, two educational modules that address food behavior in urban environments have been developed; the first is for children and at least one parent, the second is for adults only (Companion, 2013a). The adult program includes components to involve the entire household. Program modules focus on skill development and capacity building to empower individuals to take greater control over aspects of their social ecology. They also seek to link nutrition and food choices to tradition, culture, and spirituality. Studies show that this increases the transmission of cultural knowledge, the revitalization of cultural practices, reaffirms a positive collective identity (e.g., “Healthy O’odham People”), and helps to establish and reinvigorate social ties (Companion, 2008).

The vehicle for nutrition education is container gardening. This is appropriate for several reasons. First, Companion (2013b) finds a lack of familiarity with herbs and spices and a heavy reliance on butter, lard, salt, sour cream, and ketchup in daily food preparation. Second, workshops on gardening, along

with cooking demonstrations and tastings can be accommodated at any urban Indian Center with a kitchen and meeting space. Third, cooking and food represent significant emotional ties to place and history, so spirituality and emotional health can be integrated into a broader educational platform in individual and tribally specific ways.

The emotional and spiritual healing qualities of gardening are demonstrated in multiple studies (Armstrong, 2000; Teig, Amulya, Bardwell, Buchenau, Marshall, and Litt, 2009). Kingsley, Townsend, and Henderson-Wilson (2009) and Hale et al. (2011) find that urban community gardens impart a sense of connection to nature and traditional, cultural history. Gardens provide a sense of purpose and direction, while also furnishing a sense of accomplishment that reinforces personal and social empowerment (Armstrong, 2000; Hale et al., 2011; Kingsley et al., 2009).

Gardens also contribute to a community's social capital by improving social networks, organizational capacity, collective efficacy, civic engagement, and community pride (Armstrong, 2000; Brown and Jameton, 2000; Companion, 2013a; Hale et al., 2011; Teig et al., 2009). They promote environments that are supportive of healthy food behaviors through sustained social interaction (Hale et al., 2011; Kingsley et al., 2009). Armstrong (2000) believes community gardens are particularly important for health promotion in minority communities, noting that they provide social support and emphasize informal networks, thereby "encouraging interpersonal, peer-to-peer tactics for promoting change" (325).

METHODS

Four urban Indian Centers in the mid-western portion of the United States hosted the pilot programs. All are located in low-income, inner city areas and have food pantries. All have client bases that struggle with hunger and nutrition-related health issues. Center staff requested assistance with program development and evaluation to address community needs, resulting in two programs that focus on social and personal empowerment. The first is for adults only (Companion, 2013a). The second, and focus of this paper, is for children and at least one parent.

Container gardening is the hub around which the educational modules are constructed. Nutrition and health messages are incorporated into the weekly program. The gardens are designed specifically for indoor, urban environments, as no participants had access to a patio or balcony. Because plant maturation time does not map onto programming, all participants are provided with started plants. The buckets always contain tomatoes, two kinds of chilies, cilantro, and chives. Other contents vary, based on preference and availability. Window sill herb gardens containing basil, dill, parsley, sweet marjoram, cilantro, and chives are also provided.

As the focus of the program is empowering participants to have greater control over their food environment, the children are assigned sets of tasks. They are responsible for maintaining their plants. All participants are given information about watering and light needs, along with pruning and basic plant care. Children and their participating parents are trained to use the container contents. They learn the fundamentals of food preparation (basic knife and kitchen skills, basic cooking techniques, and kitchen sanitation practices) and the use of herbs. The children are responsible for cleaning up after themselves in the kitchen.

Each child personalized their own bucket with paint and glitter glue to build a stronger connection to their project. They were asked to document, through photography or other art mediums, the progress of the growth. These pictures were displayed in a “Growing Gallery” in public space at the Centers. Where possible, grade school teachers were involved in the process to incorporate program information into classroom curricula. This helped students earn extra credit for art and science.

Since a core program goal is sustainable behavioral modification, demonstrations and tastings are an essential component of the program. All foods used in the demonstrations were provided by the Centers and were easily available in urban food deserts on a low-income budget. Special attention was paid to preparing foods that were most likely to be found in the food pantry distribution bags, including all types of potatoes.

Center kitchens were used to create multiple recipes of commonly consumed foods using the herbs (cooked and raw). This allowed participants to learn the flavors and cooking techniques, while reducing salt and added fats. Incentive-based “contests” were offered throughout the program to encourage participants to incorporate the lessons from the workshop into their home routines. Participants were sent home with a bag of ingredients and asked to work with their families to create new recipes. These were shared and voted on during meetings. All “contestants” received a bottle of herbs or spices. The winners received a live herb plant (rosemary, mint, thyme, oregano, and Thai basil).

Additional incentives were used to keep the children engaged. For example, those with perfect attendance received an apron. All others received a paper chef’s hat. Time was set aside for them to decorate these with glitter glue and permanent markers.

All educational modules are developed in collaboration with Indian Center staff to address their population’s needs and to ensure that the program is culturally sensitive. The findings from Companion’s (2013b) survey also inform the construction of modules. The program groups meet for three to four hours on Saturday afternoons for ten weeks. Local nutrition and fitness experts and gardeners conduct the educational components. A flier was included in food pantry bags to advertise the program. Participants were signed up on a first-come basis.

To allow participants to develop strong ties, maximum participation was set at ten children. As sustainable behavioral change is much more difficult in the face of opposition or lack of cooperation, parents were required to be involved in the program. One parent had to attend all the sessions, and the entire family was asked to be present for the food demonstrations and tastings.

Forty-two children, ages 7 – 11, from thirty households participated. Twenty-eight parents attended every session and eleven additional parents attended sporadically. Three households had three children in the program; six had two children in the program. All parents had more than one child under 18 living in their household.

Initial surveys were administered to gather demographic information, reasons for participation, and seven-day food recall information (refer to Table 1). Surveys took 45-50 minutes to administer. To monitor and evaluate the impact of the program, interviews were conducted at the five-week mark, the close of the program, and six months after the program conclusion. Questions are posed in a semi-structured format. Interviews average 25-35 minutes, but can take longer. The mid-term survey focuses on overall impressions of the program, the utility and accessibility of educational material, interest in

and engagement with the educational modules, quality of instructors, and adoption of course objectives. The closing interview focuses on the attainment of program objectives: have they been met, do participants feel satisfied that the program is helping them meet those objectives, are they likely to continue to use the information provided in the program, etc. The follow-up survey focuses on sustainability of behaviors learned in the course and the continued use of information provided. All interviews were conducted and transcribed by the author. Major themes were identified using Corbin and Strauss' (2008) inductive, grounded theory.

Table 1: Participant Household Characteristics (N=30)

	<i>Households</i>	
<i>Employment status</i>		
Currently Unemployed	n=17	57%
Underemployed (Feel job does not meet education or skill sets)	n=12	40%
Meaningfully Employed (Feel skilled, getting paid well, have benefits)	n=1	3%
<i>Food Access</i>		
Live within 2 blocks of full-service grocery store	n=0	0%
Live within 1 mile of full-service grocery store	n=0	0%
Own a car	n=0	0%
Can reach a grocery store in one bus route	n=7	23%
Take the bus to the grocery store	n=16	53%
Once per month/occasionally	n=4	13%
Every two weeks	n=9	30%
Every week	n=3	10%
Have access to a ride to full service grocery store		
Once a month/occasionally	n=22	73%
Every two weeks	n=5	17%
Every week	n=1	3%
Rely on local shops for most food	n=6	20%
Fill in meals with \$ menu/fast food		
Weekly	n=24	80%
Twice per week	n=5	17%
Three or more times per week	n=2	7%
<i>Food Constraints</i>		
Ever used a food pantry		100%
Ever used Indian Center pantry		100%
Currently receiving Food Stamps	n=20	67%
Household experienced food shortage in past month		100%
Skipped a meal in last week due to lack of resources	n=26	87%
Reduced portion size in last week due lack of food		100%
<i>Household Structure</i>		
Children (under 18) currently residing in household		100%

FINDINGS

Baseline

Significant for fostering ownership in any program is an adaptable framework. A preliminary survey was conducted to identify nutritional patterns that could be addressed through the program. The survey and the seven-day food recall found that repetition and blandness of meals is a consistent issue. Diets are dominated by starches and simple carbohydrates. For example, some form of potatoes (often boxed) or pasta (e.g., Ramen, Spaghetti-Os, and boxed “Helper”) are consumed daily. Grits and instant rice dishes are also common.

While adults expressed frustration and boredom with the repetition, they were concerned about changing foods or preparation styles out of fear of waste, which they could not afford. As in previous studies (see Companion, 2013b), children in the program had a significant impact on food preparation and shopping choices. All parents report that their children are very vocal about food they do not like. To ease household stress, parents only shop for foods their children already like.

To “flavor things up,” parents report using large quantities of butter/oleo, salt, pepper, and fats on a daily basis. When provided with a checklist of herbs and spices (see Table 2), parents report using onions (dried, fresh, or powdered), garlic (powdered or garlic salt mix), chili powder, and red pepper flakes frequently (at least three times per week). Cilantro, cumin, basil, thyme, sage and oregano are used on occasion (once per week) or rarely (once per month). The parents reported a limited knowledge of herbs and spices and were disinclined to experiment, since they did not know how their family would accept new flavors.

By far, the most common condiment is ketchup. It is used on eggs, as a filling for sandwiches, on mashed potatoes, and as a dip for potato chips and chicken nuggets. To get an estimate of added salt and ketchup to daily meals, children were asked to track the number of shakes of salt and the number of squeezes of ketchup they used at home per item. This averaged to 3.6 tablespoons of ketchup per item on the plate, adding 72 calories, 684 mg of sodium (28% of daily values), and 14.4 sugar carbs (3.6% of daily value¹). Based on the seven day food recall, these values must be multiplied by 4.3 to get the average daily value of ketchup consumption. The children were adding approximately ¼ of a teaspoon of salt (581.25 mg of sodium or ¼ of the USDA’s recommended daily allowance (RDA)) to each item on their plates (eggs, potatoes, vegetables, meat). This is in addition to salt used in food preparation.

The initial program goal was to replace one day’s worth of ketchup per week with a pico de gallo made from container contents, which the children could tailor to their own tastes (hot vs. mild). This would increase consumption of fresh vegetables and dietary fiber, while reducing sugar and salt intake. Two tablespoons of the pico de gallo has approximately 5 calories, 15 mg of sodium (<1% RDA), 2 grams of total carbohydrates (<1% RDA), and 1 gram of sugar carbohydrates. This represents a significant nutritional savings over ketchup, which contains 40 calories for two tablespoons. However, it has 375 mg of sodium (16% RDA), 7.9g total carbs, and 7.9g sugar carbs (3% RDA²).

¹ All nutritional values provided by Calorieking.com, accessed 6/3/10, and based on Heinz tomato ketchup.

² Nutritional values provided by Calorieking.com, accessed 6/3/10.

Multiple recipes for bean dips, which provide dietary fiber and protein, were also developed as an alternative to ketchup. These dips can be consumed with fresh vegetables or chips for a more nutritious and filling snack. They can also be used to top potatoes or along-side meat dishes.

Table 2: Frequency of Spice Use in Home food Preparation

<i>Spice, Herb, or Fat</i>	<i>% Daily</i>	<i>% Frequently (>3 per week)</i>	<i>% Occasionally (≈ 1 per week)</i>	<i>% Rarely (>1 per month)</i>	<i>% Never</i>
Basil			26.7 (n=8)	43.3 (n=13)	30.0 (n=9)
Bay Leaves					100
Black pepper	100				
Butter/Oleo	100				
Chili powder		100			
Cilantro				20.0 (n=6)	80.0 (n=24)
Coriander					100
Cumin			13.3 (n=4)	30.0 (n=9)	56.7 (n=17)
Dill					100
Garlic		47.0 (n=14)	53.0 (n=16)		
Ginger					100
Lard	100				
Marjoram					100
Onion		100			
Oregano			0.7 (n=2)	43.3 (n=13)	50.0 (n=15)
Paprika					100
Parsley					100
Red Pepper		100			
Rosemary				36.7 (n=11)	63.3(n=19)
Sage			0.7 (n=2)	36.7 (n=11)	56.7(n=17)
Salt	100				
Thyme				40.0 (n=12)	60.0 (n=18)
Turmeric					100
Total N = 30					

Follow-up Survey

Food Preparation

The follow-up survey indicates that, of the 42 child participants, 33 (79%) were still making the bean dips and homemade pico de gallo on a regular basis. This continued into the winter months when their tomatoes were no longer producing. They used canned tomatoes along with their own chilies and herbs.

The majority of the parents (86%) responded positively to the messages of responsibility incorporated into the program. They liked that the children signed a contract to clean their messes and to take care of their own plants. They felt that tying program participation in with some of their school lessons provided extra motivation to be responsible. These parents also report feeling that their children had more confidence as a result of participating. Woman 9 commented, “My daughter really likes to make her own salsa. She is really proud that she knows how to do it! I hear her tell some of her friends, ‘No, I made that!’”

An unexpected result of program participation across parents and the children seems to be a small amount of weight loss. In the follow-up survey, participants were asked if they felt there had been any positive outcomes from the program. Despite no one reporting actively dieting during the course of the program, self-reports from the twelve children who eliminated their ketchup intake more than two days per week suggests a small amount of weight loss (average of 4.7 pounds) since the program started. Of the twenty-one children who removed ketchup from their diet at least three days per weeks, participants reported an average weight loss of 6.2 pounds.

These reports were confirmed through separate interviews with the parents. Though never asked about health or weight issues, many parents volunteered that their children had lost weight, as had other members of their family. They attributed the loss to dietary changes. While this cannot be scientifically correlated with program participation, the children who did report it were excited that a simple change could make a difference. They report looking forward to making other changes. Thirty-three children signed up for the next phase of gardening to get more plants.

Of the nine children who did not continue to make their own pico de gallo, two reported that they had not taken care of their plants and they had died. Another child’s plants had been destroyed by a pet. These three children signed up for the next phase of bucket gardening. The remaining six children cited time constraints (school work, transportation issues, parents’ work schedules), ennui (“Mom made me clean up my own dishes and I didn’t want to,” “I just didn’t feel like it”), and family resistance as their main reasons for not continuing. None of these children signed up for the next phase.

Parent/Child Connections

According to the baseline survey, very few children participated in cooking at home and were passive receptors of meals. One program goal, then, was to get parents and children working together in the kitchen. This helps to mutually reinforce positive food behaviors and increases the likelihood of sustainable changes at the household level. It also demonstrates that the changes do not add a significant amount of work to daily routines or have a negative impact on food purchasing power.

It also helps open the doors of communication. Parents were asked to share their memories of cooking, food preparation, gardening, gathering, and/or traditions with their children. This fosters a connection to family history and culture through food.

Parents who engaged in food preparation with their children reported mostly positive experiences with the program (n=27 or 90%). These parents also noted that working with their children on program goals and lessons at home had a positive impact on the entire family. Participants shared what they were learning with other children in the household. States Woman 8, “My oldest son [non-program participant] is always after me ‘No mom! That’s too much salt!’ And [program participant]: ‘Maybe

you should put some basil in that!’ [laughs] It’s actually a pain at times, but I really like how into this they are!”

Three adult participants rated the program negatively. This primarily resulted from children who had violated the contract for cleaning up after themselves in the kitchen. One parent felt that the program had created an additional burden in the form of more dishes/cleaning and more preparation time for foods. She states, “Really, I think this was a pain in the ass. It is hard enough for me to do all the things that I do and struggle to pull things together. I don’t need my kids harping on me for how I cook now too.”

The remaining parents felt that working in the kitchen with their children provided a chance to connect in a way that they hadn’t before. Because there were no distractions from television or video games (a program rule), they had to focus on food tasks and each other. As a result, parents reported that the children were sharing actual information about what they did that day or at school.

Parents also report feeling more comfortable sharing stories about their own childhood experiences with cooking. Eight out of twenty-seven (39.6%) talked about hunting or gathering wild foods or about types of traditional foods. States Woman 3,

“My son was really freaked out about the thought of eating rabbit meat...a few years ago, his class had a rabbit. He really didn’t like the idea at all. But, I told him how important cooking foods were in certain ways and how important catching food was and how little good food we really had. You know? Rabbit stew was a treat to us!”

Others talked about having to make do with commodity rations (63%). States Women 11, “I was pretty leery about doing this at first. But, I followed the talking card suggestion one night when we were making a batch of potatoes. I just kinda started in with what my moms would do to potatoes and... how we used to make shapes in our mashed like sand castles.” Woman 9 notes, “I was telling my daughters about what we used to make with Spam. They were laughing... We had a lot of fun. ‘Eeeew!’ They were making faces and stuff and teasing me about the hundred and one ways to cook Spam. They were coming up with funny names for the stuff my mom used to make. It was nice to have a chance to laugh together.”

Having a chance to talk to their kids about their heritage in a practical way gave some parents a sense of pride (59%), which they hoped would impact their children. States Woman 4,

“I love the smell of cooking sage and thyme, you know? We used to have some sage plants in the back. We used some for cooking and some for ceremonial things like medicine pouches. So, when we were cooking...I followed the talking card and talked about that...My kids like the idea of medicine pouches...I told them we could make some at home. One of my kids gets picked on. I think having that will make him feel a bit more special rather than different. Does that make sense? It’ll give him something to hold onto for confidence – that he carries a piece of his ancestors and culture with him.”

Sometimes, these conversations created feelings of anger or shame for both the children and the parents (30%) when discussing living on commodities or food pantry donations. States Woman 2,

“My kids, I think they feel bad about our situation sometimes. They don’t say nothing to me, but I can tell by little things they say. Like, sometimes they talk about their friends at school and what they got. Like, take-out a lot. They are always asking for treats. And in the store. ‘Mom can we buy this? Mom, can we buy this?’ They look real disappointed when I have to tell them no. It is hard on them when we are short and I can’t buy them the things they like.”

However, these parents saw this as an opportunity to talk about hard work and survival. So, overall, most of the parents felt that the experiences they had were positive. States Woman 14,

“You know, sometimes I know my son feels bad about our neighborhood and where we live. I think all the talk in the class about how to make do with what you’ve got and how to make it better... I think it motivates him. I want him to do real well and stay in school so he can have things better. I think this helps him see a way to take some control. To give him some direction. To help him feel in charge of some of his choices.”

Overall, parents reported feeling that their children might be more receptive to trying some new foods and recipes as a result of program participation. Participation also improved their comfort level with using herbs and spices. At the six-month follow up survey, parents were provided with the same questions regarding herb and spice use (see Table 3) as at the baseline. Results show a marked increase in the frequent use of herbs grown in the window sill garden (basil, dill, cilantro, parsley, marjoram). Other ingredients, such as cumin, sage, thyme, and rosemary, were also incorporated into meals on a more frequent basis. Garlic salt, which was used frequently at the baseline, was replaced with fresh or powdered garlic. While all report still using salt daily and butter/oleo and lard frequently, respondents unanimously report greatly reduced quantities used in food preparation.

Table 3: Frequency of Spice Use in Home food Preparation

Spice, Herb, or Fat	% Daily	% Frequently (>3 per week)	% Occasionally (≈ 1 per week)	% Rarely (>1 per month)	% Never
Basil		100			
Bay Leaves			40.0 (n=12)	60.0 (n=18)	
Black pepper	100				
Butter/Oleo*		100			
Chili powder		100			
Cilantro		90.0 (n=27)	10.0 (n=3)		
Cumin		40.0 (n=12)	46.7 (n=14)	13.3 (n=4)	
Dill		70.0 (n=21)	13.3 (n=4)	16.7 (n=5)	

Garlic		73.3 (n=22)	26.7 (n=8)		
Garlic Salt					100
Lard*			53.3 (n=16)	23.3 (n=7)	23.3 (n=7)
Marjoram		46.6 (n=14)	36.7 (n=11)	16.7 (n=5)	
Onion		100			
Oregano		53.3 (n=16)	46.7 (n=14)		
Parsley		56.7 (n=17)	43.3 (n=13)		
Red Pepper		100			
Rosemary			73.3 (n=22)	26.7 (n=8)	
Sage		13.3 (n=4)	76.7 (n=23)	10.0 (n=3)	
Salt	100**				
Thyme		20.0 (n=6)	56.6 (n=17)	23.3 (n=7)	
Total N = 30					

* All participants noted a reduction in the quantity of fats added to recipes when used.

** While all participants indicated that they added some salt to food each day, 100% of participants noted that they had dramatically reduced the quantities of salt that they were using in food preparation.

CONCLUSION

While this study represents an initial foray into sustainable food behaviors with low-income, urban Native Americans, the results are promising. The majority of adult participants have reduced their use of salt and fats in the food preparation process and have increased their knowledge and use of herbs and spices. This may reduce the repetition of and boredom with meals, thereby diminishing the desire to indulge in a variety of snack foods. Children have become more familiar with the process of growing foods and are more involved in the kitchen. They have reduced the amount of ketchup consumed on a weekly basis. All of these small changes at the household level may have a long-term impact on health outcomes.

The results from this pilot program have important implications for health care providers and public policy makers. Providing funding for the expansion of urban Indian Center facilities so that they can have kitchens or creating targeted development grants to allow centers to purchase cookware, food, and other resources for more types of programs can expand nutritional and health outreach into an underserved community. Programming initiatives to improve the nutritional content of shopping trips that conform to low-income budgets and neighborhood food availability can also have a significant community impact.

Collaborating with Center staff can help to ensure that program modules are culturally sensitive and relevant. This can increase the likelihood of attaining sustainable, positive outcomes. It can also help to increase community awareness of nutrition-related risk factors and help improve the community's cultural health capital. Taken together, this type of programming can help to mitigate some of the negative health outcomes associated with low income diets.

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