Navajo Gardening Survey: Why Garden?

Deina M. Barton

SREP 2012
Population: 2,250
- Water flows through the rocks
- Within the Navajo Nation Reservation
- Chinle Service Unit area
Community-based participatory research

- Community assessment data
  - “Assess [a] family’s interest, resources, activities, barriers, and attitudes relating to gardening as a means of addressing nutrition and physical activity to improve health outcomes”

Complete: 30 face to face surveys for the Navajo Gardening, Nutrition, and Wellness project, within the Tsaile/Wheatfields community.
Demographics

**Age**

<table>
<thead>
<tr>
<th>Age Group</th>
<th>% of Population</th>
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<tbody>
<tr>
<td>Under 18</td>
<td>40%</td>
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<tr>
<td>18-24</td>
<td>14%</td>
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<tr>
<td>25-44</td>
<td>22%</td>
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<tr>
<td>45-64</td>
<td>17%</td>
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<tr>
<td>65+</td>
<td>6%</td>
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**Employment**

<table>
<thead>
<tr>
<th>Status</th>
<th># of Population</th>
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<tbody>
<tr>
<td>Not in LF</td>
<td>688</td>
</tr>
<tr>
<td>Unemployed</td>
<td>49</td>
</tr>
<tr>
<td>Employed</td>
<td>376</td>
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US Census Bureau
Needs Statement

- Community Needs
  - 52.8% of Navajo adults, ages 18-64 reported to living a sedentary lifestyle.
  - 46.2% of Navajo adults (18-64) who were reported to be obese.
  - 60.5% of Navajo people deemed overweight or obese in the Chinle Service Unit (CSU) area.
  - 8.1% diabetes prevalence rate of CSU.

Navajo CHSA 2005
Needs Statement (contin.)

• In the Navajo Health and Nutrition Survey, interviewers obtained single 24-h diet recalls from 946 non-pregnant participants age 12-91. *Fruits and vegetables* were each consumed less than once per day per person.

  (Lombard, 2007)

• “The number of reported cases of Type-2 diabetes in the Navajo increased from one person out of 6000 in 1937 to 21-23% of the population aged 20 years and older in 1997, or more than 4 times the rate found in the general US population.”

  (Will, 1997)
• “Denver-area community gardeners consume an average of 5.7 servings of fruits and vegetables a day, compared to 4.6 servings for home gardeners and 3.9 servings for non-gardeners, the team found.”

(Talbott, 2008)

• “A recent study conducted at the Tulane School of Public Health and Tropical Medicine and the Harvard School of Public Health has provided further proof to this assertion, having revealed that one's risk of type 2 diabetes may be reduced by consuming more whole fruits and green leafy vegetables on a daily basis.”

(Chow, 2009)
“There is evidence that women tend to spend equal or greater amounts of time gardening compared to men.”

(Armstrong, 2000)

“The principle agro-climate barrier to growing fruits and vegetables on the Navajo nation is limited water resources. For example, mean annual rain fall in the northeastern portion of the reservation is low (208mm). Crop irrigation is almost exclusively achieved using river, reservoir, or ground water and, in some cases, must be trucked in containers to homesteads.”

(Lombard, 2006)
Hypothesis 1

- People who garden consume more fruits and vegetables than people who do not garden.

Hypothesis 2

- Individuals who garden have a higher physical activity rate than non-gardeners.
Hypothesis 3

- Women are more likely to participate in gardening activities than men.

Hypothesis 4

- People who have running water in their homes are more likely to have gardens.
Methods

The program’s design was a cross-sectional study and an attempt was made to have the sample match the population in terms of gender, age structure, employment, and use of food supplement programs (WIC, tribal food distribution, or food stamp program).

Participants were selected from-
- Their homes within the community
- Tsaile/Wheatfields Chapter House
- Tsaile Fina Store
- Tsaile Health Center
- Dine College campus

Eligibility requirements:
- Ages 18+
- Navajo ethnicity
- Resides in Tsaile/Wheatfields community
Data Collection

- Data collection through face to face survey - *Navajo Gardening Survey*
- 30 face to face surveys were conducted in the Tsaile/Wheatfields community
- 2 staff members who were fluent in Navajo to help with translations
- At most home visit we were able to view the participant’s gardens - we took notes and asked questions regarding their gardening techniques
5. Please list all fruits and vegetables consumed on a typical day.

<table>
<thead>
<tr>
<th>Time</th>
<th>Quantity eaten</th>
<th>Detail of food</th>
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</table>

**PHYSICAL ACTIVITIES:** Please list the main physical activities that you participate in **during a typical week**.

<table>
<thead>
<tr>
<th>Physical Activity</th>
<th>Hours Spent Weekly</th>
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GARDENER
1. Please select all statements that best describe your interest(s) in gardening.
   a. I garden as a hobby or recreational activity
   b. I garden for profit and selling what I produce
   c. I garden to produce food for myself and family members
   d. Other  If other, please describe on the line below

_________________________________________________________

7. Do you have running water at the home mentioned in question 5?
   a. Yes
   b. No
Results: Tsaile/Wheatfields

Employment by Gender
1- Employed  2- Retired  3- Unemployed  4- Student

1= Female  2= Male

Gender

- Female: 53%
- Male: 47%

12 females, 10 males

Male: 5 employed, 1 retired, 5 unemployed, 3 students
Female: 1 employed, 2 retired, 1 unemployed, 1 student
Gardening Interest

1- Did not garden
2- Thought about it, but did not
3- Made preparations, but did not
4- Garden 1yr
5- Garden for several years

- 1: 27%
- 2: 40%
- 3: 13%
- 4: 13%
- 5: 7%
Nutrition

- Female: 8 servings, 8 servings, 0 servings, 0 servings
- Male: 4 servings, 6 servings, 3 servings, 1 serving

Categories: 0-3 servings, 4-7 servings, 8-11 servings, 11.5 servings
Fruit & Vegetable Consumption

<table>
<thead>
<tr>
<th>Servings</th>
<th>Non-gardener</th>
<th>Gardner</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-3 servings</td>
<td>7</td>
<td>5</td>
</tr>
<tr>
<td>4-7 servings</td>
<td>10</td>
<td>4</td>
</tr>
<tr>
<td>8-11 servings</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>11.5+ servings</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>
Individual Issues

- Lack of time: 11 Yes, 19 No
- Physical ability: 2 Yes, 28 No
- Lack of support: 4 Yes, 26 No
Environmental Issues

<table>
<thead>
<tr>
<th>Issue</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Space Available</td>
<td>4</td>
<td>26</td>
</tr>
<tr>
<td>Pest</td>
<td>5</td>
<td>25</td>
</tr>
<tr>
<td>Weeds</td>
<td>5</td>
<td>25</td>
</tr>
<tr>
<td>Low Temp</td>
<td>1</td>
<td>29</td>
</tr>
<tr>
<td>Animals</td>
<td>12</td>
<td>18</td>
</tr>
</tbody>
</table>
Money Related Issues

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>7</td>
<td>23</td>
</tr>
<tr>
<td>Tools</td>
<td>3</td>
<td>27</td>
</tr>
<tr>
<td>Irrigation systems</td>
<td>3</td>
<td>27</td>
</tr>
<tr>
<td>Fencing materials</td>
<td>7</td>
<td>23</td>
</tr>
<tr>
<td>Gas</td>
<td>1</td>
<td>29</td>
</tr>
</tbody>
</table>
Results: Total Survey Participants

- **110** completed surveys overall
  - 30 completed surveys for Tsaile/Wheatfields
    - 26 completed surveys for Hogback
    - 27 completed surveys for Lukachukai
    - 27 completed surveys for Shiprock
Based on the p-value of **0.059**, my hypothesis was not supported. The probability of Gardeners’ consuming more F & V was not significant.
Based on the p-value of **0.498** my hypothesis was not supported. The probability of people who garden work out more than non-gardeners is not significant.
Based on the p-value **0.705**, my hypothesis was not supported. The probability of females gardening more than males proved to be not significant.
Based on the p-value 0.876 my hypothesis was not supported. The probability of people with running water in their homes were more likely to have gardens was not significant.
Limitations

- Time constraints
  - We had 3 weeks to conduct 30 surveys

- Sample size
  - Relatively low sample size that covered 2 areas

- Translation of survey questions for the participant

- Translation of survey answers for the interviewer

- Under or over reporting

- Representativeness
Conclusions

✓ **Hypothesis 1:** Based on the p-value of 0.059, my hypothesis was not supported. The probability of Gardeners’ consuming more F & V was not significant, although it was relatively close.

✓ **Hypothesis 2:** Based on the p-value of 0.498 my hypothesis was not supported. The probability of people who garden work out more than non-gardeners is not significant.

✓ **Hypothesis 3:** Based on the p-value 0.705 my hypothesis was not supported. The probability of females gardening more than males proved to be not significant.

✓ **Hypothesis 4:** Based on the p-value 0.876 my hypothesis was not supported. The probability of people with running water in their homes were more likely to have gardens was not significant.
Recommendations

✓ Provide better understanding of survey questions
✓ Have a fluent Navajo speaker at every survey
✓ Translate entire survey into Navajo

❖ Create monthly gardening workshops geared towards gardeners and non-gardeners
❖ Have a Navajo translator at the workshops
❖ Create a weekly farmer’s market within community to provide a beneficial way to alter food environment
References


- Navajo CHSA 2005


- US Census Bureau  www.census.gov
Acknowledgements

- **SREP 2012 Program**
  - Dr. Mark Bauer
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  - Tristin Moone
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  - Dexter Leuppe
  - Dr. Brendan Clark

- **Tsaile/Wheatfields Community**
  - Tsaile/Wheatfields Chapter House
  - Chapter House Officials
  - Elders at the Free Lunch Program