



# FOOD INSECURITY IN RURAL UTAH:

## Identification of Nutrition Habits and Potential Barriers to Quality Nutrition and a Planning Framework for a Nutrition Intervention Program

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### Background

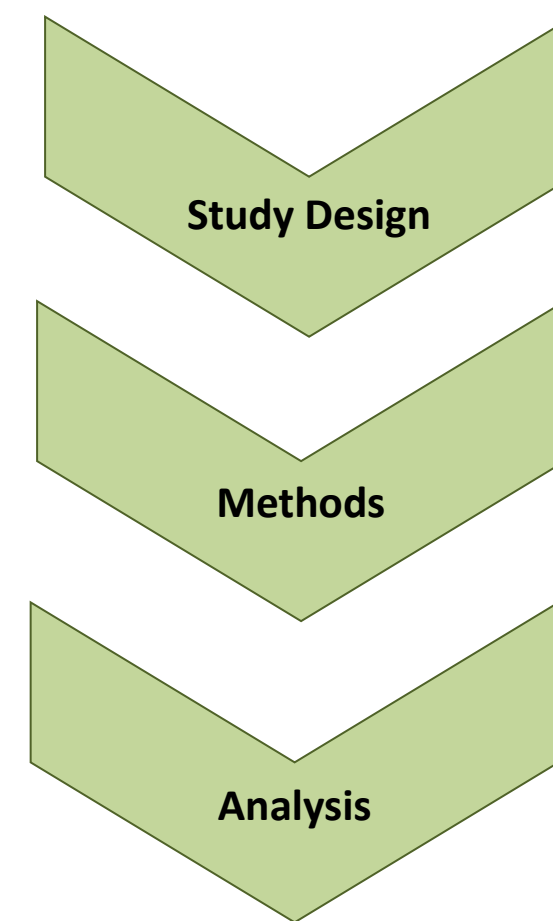
Food insecurity is the lack of access to enough quality food to allow for an active and healthy life. Food insecurity and malnutrition lead to adverse health outcomes including stunted growth, iron-deficient anemia, developmental delays, learning difficulties, decreased social skills, emotional and behavioral problems, obesity, diabetes, cardiovascular disease, and asthma.

Malnutrition occurs mainly in rural areas and worsens under conditions of extreme poverty. Millard County is one of the most poverty stricken counties in Utah, with 13% of the population (population 3,500) living in poverty. According to Utah's Behavioral Risk Factor Surveillance System (BRFSS), only 21.7% of households in Millard County consume two or more fruits per day and 15.34% of households consume three or more vegetables per day. Aside from fruit and vegetable consumption, there are a minimal amount of health status or health-related data available for Delta, Utah.

### Study Overview

#### Objectives:

- To examine the consumption of fresh fruits and vegetables, barriers for accessing, and the current need for increased access to healthy food in rural areas of Utah.
- To better understand the barriers for accessing fresh fruits and vegetables.
- Based on results, to then define an intervention/program that would be best supported in the community and therefore fit for recommendation.
- To provide additional statistical data which can be added to the BRFSS system.



**Study Design** Cross-sectional study design utilizing a survey based on BRFSS questions/ responses. 101 surveys were analyzed (n).

**Methods** By method of an in-person, self reported survey, the barriers needs and nutritional habits were identified from a sample population in Millard County, Utah. The survey identified current fruit and vegetable consumption, importance of fresh produce, ease of access to healthy food within the community and level of support for interventions aimed at increasing healthy food-related access and education in Millard County, Utah.

**Analysis** Using SAS version 9.1, unconditional logistic regression was used to estimate the odds ratio (OR) and a 95% confidence interval for the association between fruit and vegetable intake and the importance of fruit and vegetable intake in regards to age, gender and education. The choice of variables for the final multivariate logistic model was based on a 10% change in the OR. All tests for statistical significance were two-sided.

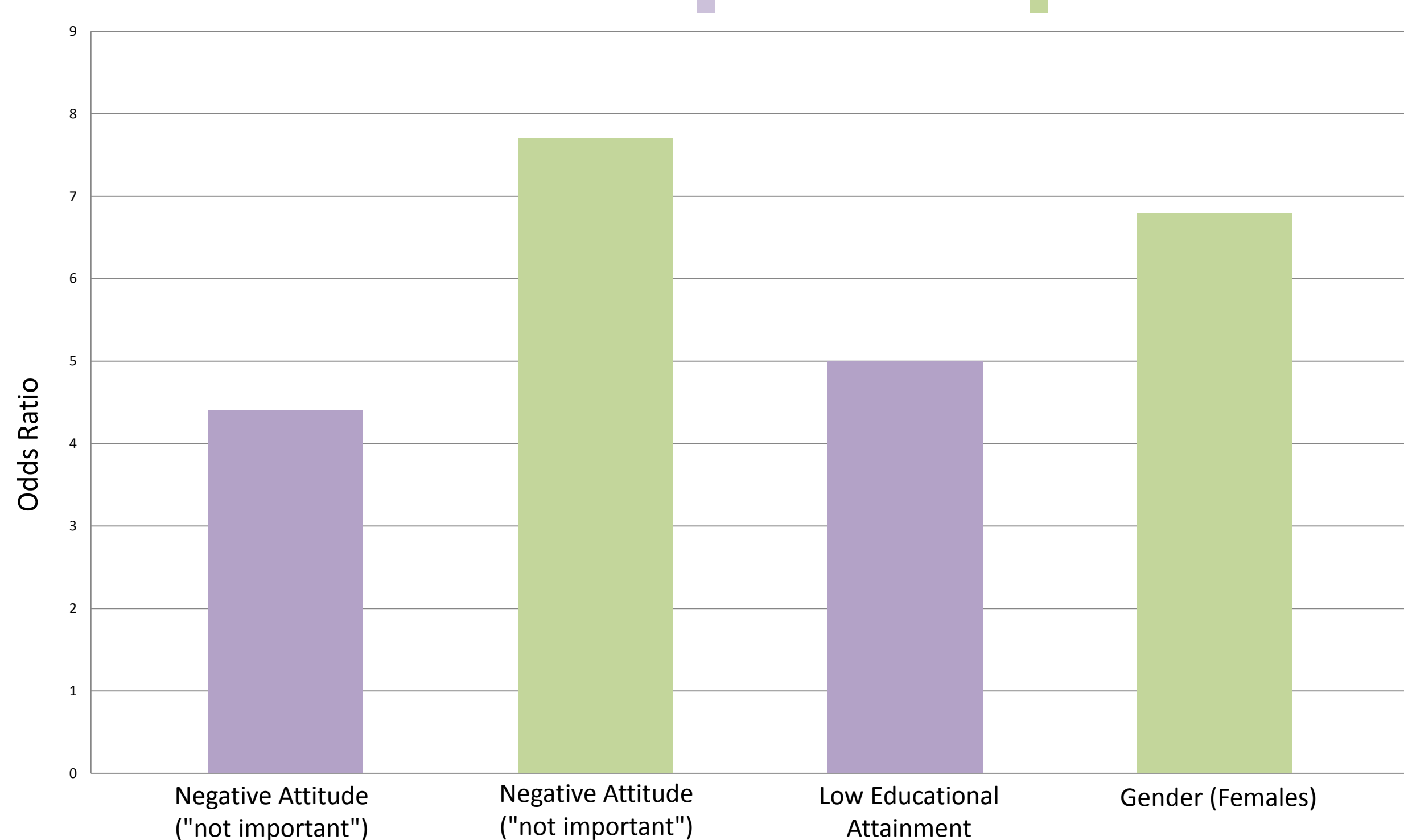
### Study Population Demographic Information Millard County, UT, 2014

	Totals	Proportion
<b>Gender</b>		
Males	36	35.60%
Females	65	64.40%
<b>Age</b>		
18-50	45	44.50%
51+	56	55.50%
<b>Income</b>		
Low (\$29,999 & below)	20	19.80%
Mid (\$30,000-\$60,000)	29	28.70%
High (\$61,000 & above)	52	51.50%
<b>Education</b>		
Some High School or Less	35	34.65%
Some College or Higher	66	65.35%
<b>Marital Status</b>		
Single/Other	31	30.70%
Married	70	69.30%

### Results

Low fruit and vegetable consumption was inversely related to a positive attitude toward nutrition. Conversely, level of education was not an indicator of adequate fruit and vegetable consumption. Overall, a support for community gardens was identified and is favored by younger, female individuals.

Factors related to Low Fruit and Vegetable Intake



Those with adequate vegetable consumption are five times more likely to support a community garden.



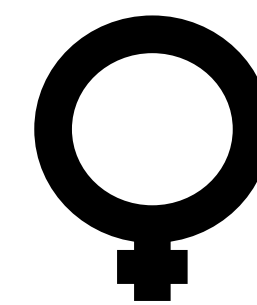
85% of all respondents support a farmer's market in their area.



Those with adequate fruit consumption are 24 times more likely to support a home delivery and education intervention.



Those with an education status of some high school or less are more likely to not consume adequate amounts of fresh fruits and vegetables than those at a higher education level.



❖ Females were more likely to support a community garden than males and individuals 51 years and older.  
❖ Females are more likely to have low vegetable consumptions than males.

### Conclusions and Recommendations

#### Conclusions

- ❖ Creating enabling environments and conditions for people to create and maintain their own healthy food is an important step in addressing the issue of food insecurity and malnutrition in rural areas.
- ❖ This study supports the importance of involving communities as a whole rather than focusing on individual prevention and promotion tactics.
- ❖ Through communication, collaboration and the sharing of fresh fruits and vegetables, families can utilize and consume healthy food.
- ❖ Providing these resources through a sharing process is an innovative concept in both Millard County and other rural areas throughout the country.
- ❖ Successful results of this recommended project can lead to the promotion and development of similar programs throughout other rural areas of Utah and the United States

#### Recommendations

- ❖ Data suggests establishing a system to support the development and utilization of community gardens as well as a communication network specific to sharing existing community resources. Additionally, this intervention should incorporate the improvement of individual's attitudes towards nutrition.
- ❖ Further investigation on how and why nutrition habits and attitudes differ between genders.
- ❖ Further assessment of the community systems which support proper nutrition (including nutritional resources within the community).