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PREVALENCE OF FOOD INSECURITY AND KEY DEMOGRAPHICS OF THE HISPANIC POPULATIONS IN TWO RURAL WISCONSIN VILLAGES

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Jennifer Whitty

College of Science and Health
Health Education and Health Promotion

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PREVALENCE OF FOOD INSECURITY AND KEY DEMOGRAPHICS OF THE HISPANIC POPULATIONS IN TWO RURAL WISCONSIN VILLAGES

By Jennifer Whitty

We recommend acceptance of this thesis in partial fulfillment of the candidate's requirements for the degree of Master of Public Health in Community Health Education.

The candidate has completed the oral defense of the thesis.

Dr. Gary Gilmore, MPH, Ph.D., MCHES
Thesis Committee Chairperson — Date: Nov. 24, 2014

Dr. Michele Pettit, MPH, Ph.D., MCHES
Thesis Committee Member — Date: 11-26-14

Dr. Ryan A. McKelley, Ph.D., LP, HSP
Thesis Committee Member — Date: 11/26/14

Thesis accepted

Steven Simpson, Ph.D.
Graduate Studies Director — Date: 1/20/15

ABSTRACT

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This study investigated the prevalence of food insecurity in the Hispanic populations in two rural Wisconsin villages, as research has indicated some Hispanic populations have higher food insecurity prevalence than the general population. Two instruments, the Household Food Security Module and the Demographic and Socioeconomic Profile, were used to gather data about household food security status and household factors that might align with household food security status. Data were gathered from April through October, 2013. The results indicated a high food insecurity prevalence. Alignment between food security status and household factors was determined using cross tabulations. Household income, the presence of three or four children, being a single head of household, being a female head of household, specific field of employment (factory or farm work), and the use of food assistance programs aligned with household food security status.

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CHAPTER I

Introduction

In 2013, 14.3% of U.S. households, which equals 17.5 million households, experienced food insecurity (Coleman-Jensen, Gregory, & Singh, 2014). Households are considered food secure if "they had access at all times to enough food for a healthy, active life for all household members" (Coleman-Jensen, Gregory, & Singh, 2014, p. 2). Conversely, households experiencing food insecurity are those that have "had difficulty at some time during the year providing enough food for all their members due to a lack of resources" (Coleman-Jensen, Gregory, & Singh, 2014, p. v). Additionally, in households that are dealing with very low food security, one or more members of the household, at some point during the year, have had a reduced intake or skipped meals due to lack of resources (Coleman-Jensen, Gregory, & Singh, 2014). In 2013, 5.6% of U.S. households (i.e., 6.8 million households) experienced very low food security (Coleman-Jensen, Gregory, & Singh, 2014). These data are obtained annually by a supplement to the Current Population Study conducted by the U.S. Census Bureau. The Economic Research Service (ERS) of the United States Department of Agriculture (USDA) compiles and analyzes the data in order to study the prevalence and trends of food security in the United States. Data indicate that certain factors (e.g., poverty, household composition, and educational attainment) are associated with food insecurity.

Poverty has been found to be strongly associated with food insecurity. In the United States the federal poverty line (FPL) is determined by the Department of Health

and Human Services (DHHS) for the purpose of determining eligibility for government programs. For a family of four, the FPL in 2013 was $23,550 (DHHS, 2013). In homes where the household income was below the FPL, 42.1% of households experienced food insecurity. When considering households with incomes below 130% of the FPL, 38.9% were food insecure. Households where household income was less than 185% of the FPL were food insecure at a rate of 34.8%. Conversely, this percentage decreased to 6.7% of households being food insecure when the household income was found to be greater than 185% of the FPL (Coleman-Jensen, Gregory, & Singh, 2014).

In a report for the ERS (2014), Coleman-Jensen, Gregory, and Singh determined the following demographic groups had increased risk of food insecurity:

- 34.4% of households headed by a single woman with children experienced food insecurity within the recent 12-month period.
- 23.1% of households headed by a single man with children experienced food insecurity.
- 19.5% of households with children experienced food insecurity compared to the 11.9% of households without children.
- Some racial and ethnic minorities experienced higher than average rates of food insecurity. In 2013, 26.1% of black, non-Hispanic households and 23.7% of Hispanic households dealt with food insecurity, compared to 10.6% of white, non-Hispanic households.
- When looking at the population with regard to geographic region, the South (15.7%) and West (14.1%) experienced higher rates of food insecurity than the Midwest (13.6%) and the Northeast (12.4%).

Additionally, in the same ERS (2014) report, the researchers discussed the relationship between food security and participation in food assistance programs such as the Supplemental Nutrition Assistance Program (SNAP – formerly referred to as food stamps). The researchers noted that participants of food assistance programs generally experienced increased food security as a result of receiving program benefits. Additionally, it was generally the individuals and families who were struggling most with acquiring sufficient quantities of healthy food, and were thus more food insecure, who chose to participate in these programs. This leads to the paradox of higher rates of very low food security among food assistance program participants. For example, families with incomes of less than 130 percent of the FPL who received SNAP benefits during the 12 months prior to the study experienced very low food security at a rate of 23.9%. However, for families with incomes less than 130% of the FPL who did not participate in SNAP during the previous 12 months, the rate of very low food security was 10.9%. The researchers attributed this result, in part, to the self-selection of food insecure households into food assistance programs.

Investigations of food insecurity among Hispanic populations revealed evidence that food insecurity rates among certain segments of the population are much higher than the 23.7% that the ERS estimates. A study looking at migrant farmworkers in Georgia found that 62.8% of the Hispanic farmworkers that participated in the study were food insecure (Hill, Moloney, Mize, Himelick, & Guest, 2011). Researchers investigated the prevalence of food security in 460 farmworkers of which approximately 59% were H2-A workers. The H2-A program, a program of the United States Department of Labor, allows for the hire of foreign workers in the situation where U.S. citizens are not

available as employees. Hill, Moloney, Mize, Himelick, and Guest found that Hispanic migrant workers who were not hired under the H2-A program were 2.9 times more likely to be food insecure (67.15% of non-H2-A workers were food insecure), as they did not have the right to the basic requirements of the H2-A program which also included wage level requirements. Researchers in North Carolina who investigated food insecurity among migrant (i.e., migrate area to area for work) and seasonal (i.e., live in a fixed location and perform farm work as the seasons allow) Hispanic farmworkers found that 47.1% of the participant households were experiencing food insecurity (Quandt, Arcury, Early, Tapia, & Davis, 2004). As food insecurity rates for all U.S. households and for Hispanic households were 14.3% and 23.7%, respectively, in 2013 (Coleman-Jensen, Gregory, & Singh, 2014), these studies indicate that type of employment, specifically migrant and seasonal farm work, may increase the risk of food insecurity.

Researchers also have investigated the relationship between language usage (English versus Spanish) and food insecurity among Hispanic households. A study published in 2011 was designed to investigate if acculturation, defined as the "process of cultural adaptation that happens when groups of persons from different cultures come into continuous contact with each other" (Beck, Froman, & Bernal, 2005, p. 300) and social networks were associated with food security in a Puerto-Rican community in an inner city. Researchers found that, among the Puerto Rican female study participants (all were caregivers of at least one child one to eight years old), certain factors increased the likelihood of being food insecure (i.e., higher odds ratio of food insecurity). Unemployment, single parenting, lack of English speaking skills, rarely or never attending Hispanic cultural events, and food stamps not lasting the month were among

the factors that these researchers found to be significant (Dhokarh, et al., 2011). Gormon, Zearley, and Favasuli (2011) also investigated the relationship between acculturation and food security among low-income parents. They found that Spanish-speaking Hispanics had higher food insecurity, and reported more concern with their children's health, compared to English-speaking Hispanics.

English proficiency also was investigated in a study among recent Hispanic immigrants in Toronto, Canada. Researchers found the prevalence of food insecurity to be 56% in a cross-sectional, convenience sample of that population in 2008. Vahabi, Damba, Rocha, and Montoya (2011) determined that, within their sample, participants who used food banks and social assistance and had limited English speaking skills were associated with food insecurity.

There are growing Hispanic populations in various regions in Wisconsin (Applied Population Laboratory, 2014). The villages that were investigated in this study are located in two, largely rural counties in southwestern Wisconsin. Agriculture and manufacturing are two of the predominant job sectors in the counties. These counties, with a combined population of 74,446, have populations that predominantly are white (93.9% and 97.7%) with Hispanics comprising 3.7% and 1.3% of the population. Overall, the percentages of Hispanics in the counties, are lower than those for the state of Wisconsin (5.9%), and the U.S. (16.3%). The three villages that were investigated contain a higher proportion of Hispanics (7.3%, 14.8%, and 35.1%) than the counties' proportions. The combined population of Hispanics in the three villages comprises 20.2% of the overall combined population of those villages (U.S. Census Bureau, 2010).

This investigator has not found research regarding the food security status of Hispanic communities in the geographical location addressed by this study. The general lack of information regarding food security status of this growing population affirms the need for an exploratory study to be conducted.

Purpose

As noted previously, data from the Current Population Study indicate that food insecurity is a significant problem within the U.S. population. While Wisconsin had a lower estimated prevalence of food insecurity (11.6%) than the nation as a whole (14.3%), it has been noted that the Hispanic population experienced food insecurity at a significantly higher rate (23.7%) (Coleman-Jensen, Gregory, & Singh, 2014). Research indicates that segments of the Hispanic population are experiencing food insecurity at rates higher than what has been noted in the Current Population Study (Hill, Moloney, Mize, Himelick, & Guest, 2011; Quandt, Arcury, Early, Tapia, & Davis, 2004). Taking all of this information into account, the need exists to explore if additional Hispanic communities are experiencing rates of food insecurity that are significantly higher than the national average.

The purpose of this study was to assess the food security status of the Hispanic populations in three villages in rural southwestern Wisconsin. Additionally, factors that have been documented in other research as being associated with food insecurity such as household composition, food program usage, English proficiency, educational attainment, and employment were investigated to determine if these factors were also aligned with food security status among Hispanic residents in these communities.

Statement of the Problem

Three villages in rural southwestern Wisconsin are home to a growing population of Hispanics. According to the U.S. Census Bureau, in 2010, individuals of Hispanic ethnicity comprised 5.9% of the Wisconsin population. In contrast, Hispanic individuals comprised 7.3%, 14.8%, and 35.1% of the population in the three villages. One of the villages is located in Vernon County, which has a poverty rate (15.3%) that is significantly higher than both the State of Wisconsin poverty rate of 11.1% and the U.S. poverty rate of 13.5% (Curtis & Bartfeld, 2011). The other two villages are located in Monroe County which has a poverty rate (12.5%) that is not significantly different from either the state or federal rates. Given that the Hispanic population has a higher poverty rate than the national average and that these three villages have a higher proportion of Hispanic residents, the need exists to explore the extent of food insecurity within this population.

There is considerable research that indicates the numerous negative consequences that result from food insecurity. More recently, associations have been found between food insecurity and being overweight (Larson & Story, 2011), decreased adolescent male bone mass (Eicher-Miller, Mason, Weaver, McCabe, & Boushey, 2011), impaired social skill development in children (Howard, 2011), inadequate produce intake among elementary children (Grutzmacher & Gross, 2011), and decreased self-efficacy in diabetes management (Vijayaraghavan, Jacobs, Seligman, & Fernandez, 2011). Among Hispanic low-income pregnant women experiencing food insecurity, Hromi-Fielder, Bermudez-Millan, Segura-Perez, and Perez-Escamilla (2011) note an association between food insecurity and prenatal depressive symptoms. These findings add to the mounting

evidence of the negative consequences that food insecurity has on individuals and households.

Research Questions

The following research questions were investigated through this study:

1. What is the prevalence of food insecurity (low and very low) in the Hispanic populations of these three rural villages?
2. Is there an alignment between income and food security status in these populations?
3. Is there an alignment between household composition (e.g., presence of children, single adult, married couple) and food security status?
4. Is there an alignment between educational level and food security status?
5. Is there an alignment between type of employment and household food security status?
6. Is there an alignment between food program use (e.g., Supplemental Nutrition Assistance Program, Supplemental Nutrition Program for Women, Infants, and Children) and food security status?
7. Is there an alignment between English proficiency and food security status?
8. Is there an alignment between family and/or community garden usage and food security status?

Delimitations

- Research participants were recruited from the three rural villages in southwestern Wisconsin. Participants were delimited to residence in the zip code of one of the three villages. The three villages are similar in overall population size, rural

location, proximity to larger towns, and may have similar issues with food access that are observable, such as lack of a full service grocery store or supermarket.

- Food insecurity affects individuals from all racial and ethnic backgrounds. As indicated previously, this investigator is unaware of any studies that specifically investigate the food security status of the Hispanic population in rural communities in this geographical area. Therefore, for the purposes of this study, only individuals of Hispanic ethnicity were invited to participate.

Limitations

- There is no complete directory of the Hispanic population residing in these two communities. Without a reliable listing of the population being studied, random sampling of the population was not possible. The lack of a random sample limits generalizability of the research findings to other Hispanic communities outside the three villages being studied.
- It would stand to reason that an unknown proportion of individuals within the Hispanic community in the three villages may not have records (e.g., no available green card). With that consideration, there would be no effective way to get an accurate population count. The population estimates that the 2010 United States Census provides was the reference population for the purposes of this study, with the understanding that it most likely underestimates the true population count. The population information is located in the U.S. Census Bureau's DP-1 data file and was accessed using the U.S. Census Bureau's American FactFinder website (http://factfinder2.census.gov).

- Another limitation is that the data being collected through this study were self-reported by the study participants. Data accuracy is limited to the accuracy and honesty of the participants.
- As there is no way to gauge the differences among individuals who participated in the study and those who were either missed or opted out of the study, self-selection into the study might have created a difference in the study results to an unknown degree.

Assumptions

- The results of this research are based primarily on participant responses. Accurate, truthful responses to the study questions are required for the results to hold any validity. It was assumed that individuals who were willing to take part in the research study provided accurate answers to the best of their ability.
- Accuracy in the responses also depended on the ability of non-English speaking participants to communicate with the researcher. The survey instrument that was used to assess food security status was translated to Spanish, and a bilingual interpreter was used to communicate with non-English speaking participants. For the purposes of this study, it was assumed that the use of a bilingual interpreter alleviated the concerns that a language barrier would create, thus providing the accurate responses necessary for this study. However, it is possible that translational errors did occur (e.g., a participant's response was not interpreted correctly and thus incorrect data were written on the survey instrument).

Definition of Terms

Acculturation: Acculturation is a highly complex concept with no universally agreed upon definition. For the purposes of this research, acculturation referred to "a process of cultural adaptation that happens when groups of persons from different cultures come into continuous contact with each other. Acculturation is not, however, a linear process because it does not necessarily lead to assimilation and a loss of a person's ethnic identity" (Beck, Froman, & Bernal, 2005, p. 300).

Food insecurity: Households experiencing food insecurity are, at some point during the year, "unable to acquire adequate food for one or more household members because they had insufficient money and other resources for food" (Coleman-Jensen, Gregory, & Singh, 2014, p. 8). Food insecurity is further broken down into the two categories of low food security and very low food security.

Food security: The USDA defines food security as "access by all people at all times to enough nutritious food for an active, healthy life" (Coleman-Jensen, Gregory, & Singh, 2014, p.2). The Food and Agricultural Organization (FAO) of the United Nations defines it similarly as existing "when all people, at all times, have physical and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life" (FAO, 2006, p.1).

Low food security: Households experiencing low food security "have reported multiple indications of food access problems and reduced diet quality, but typically have reported few, if any, indications of reduced food intake" (Coleman-Jensen, Gregory, & Singh, 2014, p.4).

Very low food security: Households experiencing very low food security "have reported multiple indications of reduced food intake and disrupted eating patterns due to inadequate resources for food." In the majority of households that have very low food security, at least one member had been hungry at some point during the year, but did not eat because of lack of food resources (Coleman-Jensen, Gregory, & Singh, 2014, p.4).

CHAPTER II

At the World Food Summit in 1996, convened by the United Nations' Food and Agricultural Organization (FAO), food security was defined as existing "when all people, at all times, have physical and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life" (FAO, 2006, p. 1). The FAO described the four dimensions of food security: food availability, food access, utilization, and stability. Food availability encompasses the concept that not only is enough food available, but also that it is of good quality. Food access refers to an individual's ability to access food; this includes not only the act of physically being able to acquire the food, but also having the resources to get to and take ownership of the food. Within the dimension of food access is access to common resources for indigenous communities. Utilization largely encompasses the non-food capital needed for food security, including clean water and sanitation. Stability refers to a constant ability to acquire food that is not influenced by such variances as economic and climate issues (e.g., decreased income for seasonal farm workers, droughts) (FAO, 2006).

In the United States, the U.S. Department of Agriculture has a definition of food security that resembles that of the FAO: "access by all people at all times to enough nutritious food for an active, healthy life" (Coleman-Jensen, Gregory, & Singh, 2014, p. 2). Conversely, households experiencing food insecurity are, at some point during the year, "unable to acquire adequate food for one or more household members because they had insufficient money and other resources for food" (Coleman-Jensen, Gregory, &

Singh, 2014, p. 8). Food insecurity is further broken down into the two categories of low food security and very low food security. Households experiencing low food security "have reported multiple indications of food access problems and reduced diet quality, but typically have reported few, if any, indications of reduced food intake" (Coleman-Jensen, Gregory, & Singh, 2014, p. 4). In households experiencing very low food security, survey respondents "have reported multiple indications of reduced food intake and disrupted eating patterns due to inadequate resources for food" (Coleman-Jensen, Gregory, & Singh, 2014, p. 4). In the majority of households that have very low food security, at least one member had been hungry at some point during the year, but did not eat because of lack of food resources (Coleman-Jensen, Gregory, & Singh, 2014).

Measuring Household Food Security

The Current Population Survey (CPS) is an annual survey conducted by the U.S. Census Bureau. The CPS contains questions regarding employment, earnings, and demographics that are used to help describe the labor force and labor market in the United States (U.S. Census Bureau, 2014). The CPS respondent households comprise a representative sample of U.S. civilian households. Since 1995, a supplement to the CPS has included data about household food security, food spending and the use of food assistance programs. In 2013, 42,147 respondent households completed the food security supplement to the CPS. The Economic Research Service (ERS) of the U. S. Department of Agriculture (USDA) analyzes the data from the CPS and creates reports describing the food security situation for households in the United States for the year being considered (Coleman-Jensen, Gregory, & Singh, 2014).

The survey instrument used by the CPS is the U.S. Household Food Security Module (HFSM) (Bickel, Nord, Price, Hamilton, & Cook, 2000). First developed in 1995, this module has been tested extensively for internal validity, external validity, and reliability (Hamilton et al., 1997) and has continued to be reassessed over time to assure that users of the module are collecting the type and quality of data desired (Wunderlich & Norwood, 2006). The purpose of the module is to collect information regarding the following as a result of limited financial resources for food: anxiety about the household food supply, perceptions of the quality and quantity of the food in the household, any adjustments that have been made to the household food supply (either in quantity or quality), and instances of reduced food intake by the adults or children in the household (Bickel et al., 2000).

The HFSM contains 18 questions asking a respondent about specific food-related conditions that may have occurred within the past twelve months in the respondents' households. All questions are written to make sure that any condition that would be associated with food insecurity occurred as a result of limited financial resources for food. This process was achieved by including phrases such as "because we couldn't afford" or "because there wasn't enough money for food." Affirmative responses to the questions reveal that the indicated condition has occurred in the household in the past twelve months. The sum of the affirmative responses is used to determine the category of food security status for a household (Bickel et al., 2000).

Since the initial survey module, there have been some changes. However, the original configuration of 18 questions and the scale used to assign household food security status have remained the same. This method has allowed the results of the CPS

food security supplement to be compared over time (USDA, 2014). The most notable change in the HFSM was the designation of the food security statuses. In the original version of the HFSM, households were determined to be either food secure or food insecure. Food insecure households were further divided into the two subcategories of food insecurity without hunger and food insecurity with hunger. In households that were found to be food secure, there was little to no evidence of food insecurity issues. For households that were food insecure without hunger, there were multiple concerns about food supply and household members were employing different food management strategies, including purchasing lower quality foods, to cope. For food insecure households without hunger, food intake (the amount of food that was eaten) had either not changed or reduced slightly. For households that were food insecure with hunger, there were indicators that food intake for at least one member of the household was reduced to the extent that hunger was experienced (Bickel et al., 2000).

In 2006, an expert panel was assembled at the request of the Committee on National Statistics (CNSTAT) of the National Academies to review the HFSM and how it was being applied. As a result of the recommendations of the panel, the labels used to describe the levels of food security were changed, but the methods (i.e., HFSM and its scoring) remained the same. The general categories of food secure and food insecure remained the same. However, within the food secure designation, two subcategories were identified: high food security and marginal food security. Households that have high food security have no indicators of food insecurity issues. Households that have marginal food security have only one or two indicators of food insecurity. For households with marginal food security, there generally are no indications that the

amount of food being eaten has been reduced. Rather, anxiety exists about having sufficient food in the house. The two subcategories within food insecurity remained after the changes to the labels, but the names were changed to address the panel's concerns about the HFSM's ability to assess for the physiological sensation of hunger. The new subcategories were low food security (which replaced food insecurity without hunger) and very low food security (which replaced food insecurity with hunger) (USDA, 2014). Table 2.1 shows the comparison of the food security status labels both prior to and after the 2006 changes.

Prevalence of Food Insecurity

In 2013, an estimated 14.3% of households in the United States were food insecure. This percentage amounts to 17.5 million U.S. households. This figure includes the 5.6% of U.S. households (6.8 million) that had very low food security (Coleman-Jensen, Gregory, & Singh, 2014). While the majority of U.S. households were food secure, there were households of specific demographics that had higher prevalence of food insecurity than the overall population.

In a report for the ERS (2014), Coleman-Jensen, Gregory, and Singh determined the following demographic groups had increased prevalence of food insecurity:

- 42.1% of households with incomes below the federal poverty line were food insecure.
- 19.5% of households with children were food insecure, and when households contained children under the age of six, the food insecurity rate rose to 20.9%.

- Households with children that had a single female as head of household had a food insecurity prevalence of 34.4%. Single male heads of households with children had a lower prevalence of 23.1%.
- Some minority populations were experiencing food insecurity at a higher rate. Black, non-Hispanic households had a food insecurity prevalence of 26.1%, and Hispanics had a prevalence of 23.7%.

Table 2.1. USDA's labels and definitions describing the ranges of household food security. The table contains both the original labels and the newer designations after the 2006 CNSTAT expert panel recommendations (USDA, 2014)

	Subcategories		
	Old Label	New Label	Description of Household Condition
Food Security	Food Security	High Food Security	No reported indications of food-access problems or limitations
		Marginal Food Security	One or two reported indications of food access problems or limitations—typically of anxiety over food sufficiency or shortage of food in the house; little or no indication of changes in diets or food intake
Food Insecurity	Food Insecurity without Hunger	Low Food Security	Reports of reduced quality, variety, or desirability of diet; little or no indication of reduced food intake
	Food Insecurity with Hunger	Very Low Food Security	Reports of multiple indications of disrupted eating patterns and reduced food intake

In the same ERS report (2014), Coleman-Jensen, Gregory, and Singh identified the types of households that had food insecurity prevalence below the national average. Their findings were as follows:

- Families with children which were headed by a married couple had a household food insecurity prevalence of 12.8%.
- Households with more than one adult and no children had a food insecurity prevalence of 9.9%.
- Elderly person households had a food insecurity prevalence of 8.7%.
- White, non-Hispanic households had a food insecurity prevalence of 10.6%.
- Households with incomes that were above 185% of the federal poverty line had a food insecurity prevalence of 6.7%.

Food assistance programs such as the Supplemental Nutrition Assistance Program (SNAP, formerly known as food stamps), Special Supplemental Nutrition Assistance Program for Women, Infants, and Children (WIC), and Free and Reduced School Lunch Program were created to help families in need of food resources. Coleman-Jensen, Gregory, and Singh (2014) noted that participation in food assistance programs generally increased household food security. However, they also described a paradox whereby households that were using the food assistance programs had higher prevalence of food insecurity than households that did not use the programs. The researchers stated that the self-selection of the more food insecure into the food assistance programs explains, in part, this higher prevalence of food insecurity among households using the food assistance programs.

Among households that participated in SNAP, 54.2% were food insecure. Households that participated in WIC had a 42.3% prevalence of food insecurity, and among households utilizing the Free and Reduced School Lunch Program, the food insecurity prevalence was 49.7%. It is interesting to note that the household food

insecurity prevalence for households that were eligible for each of those three food assistance programs, but did not participate, were much lower (i.e., SNAP eligible: 26.6%, WIC eligible: 33.8%, Free and Reduced Lunch Program eligible: 26.8%) (Coleman-Jensen, Gregory, & Singh, 2014).

Recruiting mothers early in their pregnancy and supporting families so that they remain enrolled in WIC for as long as they are eligible may help to reduce the prevalence of food insecurity among households that are WIC eligible. There is some research to indicate that households that participate in WIC longer have reduced odds of food insecurity. Researchers of a longitudinal study done with WIC families in Massachusetts found that households with mothers who enrolled in WIC in their first trimester had a significantly lower prevalence of food insecurity with hunger postpartum than those who enrolled in their third trimester. Similarly, the longer children in a household were enrolled in WIC, the lower the risk of food insecurity. For every additional visit that was needed to continue enrollment, there was an 8% lower risk of household food security (Metallinos-Katsaras, Gorman, Wilde, & Kallio, 2011).

As noted previously, income strongly is associated with food security status. Researchers with the ERS investigated the relationship between food insecurity and unemployment, inflation, and the price of food (Nord, Coleman-Jensen, & Gregory, 2014). The researchers noted that the national prevalence of food insecurity just after the recession (2009-2010) was quite similar to the prevalence in 2012, even though the national unemployment rate had decreased.

Food insecurity data from the CPS and unemployment and inflation data from the U.S. Bureau of Labor Statistics were analyzed to determine if there was any association

between food insecurity and the other variables. The researchers found that with every 1% increase in the unemployment rate, there was an increase of 0.5% to the food insecurity prevalence. When considering inflation, with every 1% increase in inflation, there was a 0.5% increase in food insecurity prevalence. When investigating food prices, the researchers used the relative price of food which is the "annual average CPI-U for food divided by the annual average CPI-U for all goods and services" (Nord, Coleman-Jensen, & Gregory, 2014, p. 5), with CPI-U being the annual average percent change in the Consumer Price Index. With every 1% increase in the relative price of food, there was a 0.6% increase in food insecurity prevalence.

When the researchers calculated the decline in the unemployment rate from just after the recession (2009-10) to 2012 (1.65%), they estimated that the decline in unemployment alone should have been accompanied by a 0.9% decrease in food insecurity prevalence. However, they noted that when inflation and the price of food were taken into account, the food insecurity prevalence estimated by their calculations (14.7%) was close to the actual prevalence in 2012 (14.5%) (Nord, Coleman-Jensen, & Gregory, 2014). These estimates indicate that a gain in employment alone may not be enough to increase food security for a household. Employment that provides sufficient income to overcome the effects of inflation and the cost of food is needed. As their research indicates a strong association between food insecurity and the price of food, families that participate in SNAP would be aided by timely increases in SNAP benefits to coincide with increases in the price of food.

Evidence of the Effects of Food Insecurity in Households

Food insecurity has been found to be associated with multiple negative conditions for households and individuals. There is some evidence that indicates that persistent food insecurity is associated with poorer health outcomes for children. Ryu and Bartfeld (2012) analyzed data from the Early Childhood Longitudinal Study – Kindergarten Cohort. The Early Childhood Study –Kindergarten Cohort used a nationally representative sample of children who were tracked for nine years (Kindergarten through eighth grade). Ryu and Bartfeld examined the food insecurity patterns in the children's households and the parents' rating of the child's health status in Kindergarten (baseline), third grade, fifth grade, and eighth grade. Children in households with limited exposure to food insecurity (two or fewer years in which food insecurity was determined) appeared to have no greater odds of negative health status. However, children in households that were determined to be food insecure in three of the observation years were found to have 92% increased odds of poorer reported health status. In households that were food insecure in all four of the observation years, there was a 209% increased odds that the child would have poorer reported health status.

There also is evidence that eating patterns and nutrient intake are different among youth in food insecure households. Grutzmacher and Gross (2011) determined that children in low-income food insecure households in Maryland ate breakfast less often than children in food secure households. Children in food insecure households that had very low food security ate breakfast less often than children in food insecure households that had low food security. The researchers did find that children in households with low food security reported eating more fruit than children in households with high and

marginal food security. There was no explanation provided as to why this might have occurred. Children who did not participate in the school nutrition programs and whose households had low or very low food security status reported significantly fewer days of breakfast eaten during the week than all the other children. Additionally, children in households with very low food security and who did not participate in the school nutrition programs had lower vegetable intakes than the other children. These results indicate that school nutrition programs have a protective effect on food intake for children in food insecure households (Grutzmacher & Gross, 2011).

When specifically considering calcium intake among youth, researchers from Purdue University compared youth in households where it was determined that the children were experiencing food insecurity to households where the youth were food secure by using data from the NHANES survey. They determined that male youth ages 8-11 were 2.5 times more likely to report inadequate daily servings of dairy foods daily from a food insecure household versus a food secure household. The male youth also were 2.3 times more likely to report a calcium intake that was below the estimated average requirement for their age. The same male youth from food insecure households, ages 8-11, were found to have lower bone mineral content when compared to their counterparts in food secure households. No associations were found in the youth females ages 8-19 or the youth males ages 12-19 (Eicher-Miller, Mason, Weaver, McCabe, & Boushey, 2011).

The relationship of social capital, "a perceived sense of social trust and community reciprocity" (Walker, Holben, Kropf, Holcomb, & Anderson, 2007, p. 1989), and health with food insecurity was studied by Walker et al. The researchers surveyed

WIC participants in Athens County, Ohio. Participants received a mailed survey that included the Household Food Security Module, a question on perceived health status (poor, fair, good, very good, excellent), and a validated 7-item survey that measured social capital. The prevalence of food insecurity in the sample of WIC participants who returned the survey was 52.6%. The researchers found perceived health status and social capital to be negatively associated with food insecurity.

Child Development

Howard (2011) also drew data from the Early Childhood Longitudinal Study – Kindergarten Cohort. For this study, Howard investigated the relationship between food security and social skill development. The measures of social skill development were taken from questionnaires that children's teachers completed during first, third, and fifth grades. Howard found that children who experienced food insecurity had indicators of poor social skills encompassing self-control, attentiveness, and task persistence. These three skills are of great importance for students to be successful in the classroom. The researcher did note that social skills regarding interpersonal relationships or externalizing behaviors (i.e., arguing, fighting) did not appear to be associated with food insecurity. Howard reported that female students' scores for self-control and approaches to learning (i.e., attentiveness, eagerness to learn, organization, flexibility, learning independence) were negatively affected during the time period that coincided with household food security. Some male students also had issues with self-control and approaches to learning. However, it was only male students whose household had transitioned from food insecurity in first grade to food security in third grade who had social skills scores that were negatively affected. Male students' social skills scores were not affected during

the period of time when food insecurity was reported for the household. For male students who were food insecure in first grade, the difference in social skills scores was significant at the third grade observation.

Rural Populations and Food Insecurity

Families in rural communities may experience food insecurity differently than urban populations. In a study investigating factors associated with food insecurity in rural families with children, 225 participants from 13 states were interviewed once a year for three years. Participant families all received some source of formal assistance from a food assistance program, social services agency, or community agency and reported high levels of awareness of the community resources available to them. Overall, study participants self-reported good food and finance skills and 45.8% reported some education beyond high school. Even with the high awareness of assistance programs, good food and finance skills, and relatively high educational levels, 51.1% of participants were food insecure at the first interview (Hanson & Olson, 2012).

Of the 225 participants, 23.6% were persistently food insecure all three years. Participants at risk for depression, participants reporting three or more health conditions, and participants with less than a high school level of education were more likely to have persistent food insecurity than those not at risk of depression or with higher educational attainment. The authors acknowledged that their sample of rural families was not representative of all rural families as a whole (their samples represented the racial and ethnic composition of the states that were included in the study). However, they found it important to note that they found a high prevalence of food insecurity even though

families were well-connected to formal and informal support systems (Hanson & Olson, 2012).

A large sample of rural and urban women in Texas took part in a study that investigated the relationship between household food insecurity and health-related quality of life (Sharkey, Johnson, & Dean, 2011). The researchers were interested in participants' responses regarding general overall health, physical health (i.e., physical illness and injury) during the previous 30 days, and mental health and those health-related quality of life variables' relationship with household food insecurity. Random digit dialing was used to recruit participants. Once consent to participate was given, participants received a mailed survey. The completed surveys were representative of the demographics of the population (i.e., rural versus urban distribution, households with income below the poverty threshold). However, nonwhites and individuals with less than a 9th grade education were underrepresented, and women and older adults were overrepresented.

Sharkey, Johnson, and Dean considered only the 1,367 women participants who completed the survey. The researchers noted that there was a higher prevalence of food insecurity among the rural participants versus the urban participants. Rural women who had an educational attainment of less than 12 years, were not employed full-time, or were food insecure were associated with an increased risk of fair-to-poor general health, poor physical health, and frequent mental stress. Additionally, having income that was poverty level or low-income (less than 200% of the federal poverty line) was associated with an increased risk of poor physical health for rural women. Urban women had an increased risk of poor physical health and frequent mental health when living in food

insecure households. Urban women also had an increased risk of poor physical health when their educational attainment was less than 12 years or if the household was low-income. Urban women of nonwhite race/ethnicity or who were employed less than full-time had an increased risk of fair-to-poor general health.

While the results of the study by Sharkey, Johnson, and Dean cannot be generalized to all rural and urban female populations, it did illuminate the probable differences in the relationship between food insecurity and health-related quality of life variables among rural and urban populations. It would stand to reason that the effects of food insecurity on women's health could vary by geographical location of residence (rural versus urban).

Housing Insecurity and Food Insecurity

Cutts et al. (2011) conducted a study investigating housing insecurity with children under the age of three, which was determined by crowding (greater than two individuals per bedroom or greater than one family per residence) or moving more than two times within the previous year. This cross-sectional study took place in seven metropolitan medical centers that served primarily diverse, low-income patients. These medical centers were located throughout the United States. Data were collected between 1998 and 2007. In all, the data from 22,069 caregivers of children under the age of three were considered to determine if housing insecurity was associated with food insecurity, child health status, developmental risk, and weight.

Of the households represented by the respondents, 46% had housing insecurity (41% experienced crowding and 5% experienced multiple moves). Household food insecurity was present in 9% of the housing secure families, 12% of the families with

crowding, and 16% of the families with multiple moves. Crowding and multiple moves were found to be significantly associated with household food insecurity with multiple moves having a stronger risk of food insecurity. Multiple moves also were significantly associated with caregivers' report of fair or poor child health status, developmental risk, and lower weight for age (Cutts et al., 2011).

Effective diabetes self-management is imperative for individuals with diabetes to prevent negative outcomes such as neuropathy and vision loss. Part of ensuring healthy blood sugar levels requires that individuals are able to afford healthy foods. In a study investigating the relationship among food insecurity, housing insecurity, and diabetes management self-efficacy in low income adults, researchers used data from the Immigration, Culture and Health Care (ICHC) study which collected data from an interviewer-led survey and medical records in the San Francisco Bay area and Chicago. All participants had to be 18 years or older, have diabetes, and self-identify as Mexican-American, African American, or non-Hispanic White (Vijayaraghavan, Jacobs, Seligman, & Fernandez, 2011).

Researchers ordered the housing characteristics from the most to least food insecure: owning a home, living with family, renting an apartment, renting a room, and lacking a usual place to live. Researchers reported a trend among the 711 participants, where the more housing insecure individuals also had a higher prevalence of food insecurity. As housing insecurity increased, mean diabetes self-efficacy scores decreased. The researchers had hypothesized that food insecurity was a mediator in the association between housing insecurity and diabetes self-management self-efficacy. They reported that food insecurity explained 26-32% of the association between housing

insecurity and diabetes self-management. Food insecurity was highly prevalent in the sample with 45.7% of the overall sample being food insecure and 100.0% of the individuals lacking a usual place to live being food insecure (Vijayaraghavan et al., 2011).

Food Insecurity and Obesity

Obesity and food insecurity are both multi-faceted issues and researchers have found difficulty in coming to a consensus on the relationship between the two. Larson and Story (2011) conducted a review of the literature on food insecurity and weight status for the period of 2000-2010. In the majority of studies considering children, food insecurity, and weight status, no association was found between food insecurity and overweight. There were a small number of studies in which researchers reported an association between food insecurity and an increased risk of being overweight in children. Conversely, there were a small number of studies that found that children in food insecure households had a decreased risk of being overweight.

In the same review of the literature, Larson and Story (2011) found that the majority of research indicated that there was no association between food security and weight status in adult men. However, there were a couple of studies that indicated food insecurity may be associated with a higher body mass index for men. In one of these studies, the researchers found that the relationship was not linear; male participants with marginal food security had a higher mean body mass index than participants with high food security. Conversely, the male participants with low food security had a lower mean body mass index than the participants with high food security.

When Larson and Story (2011) reviewed the research that considered the relationship between food insecurity and weight status in women, the majority of the studies revealed a relationship between the variables. While evidence from the research did indicate that food insecurity was associated with a higher body mass index for women, Story and Larson commented that there was little evidence in the research that food insecurity was associated with weight gain over time in the longitudinal studies that were analyzed.

When considering the effects of food assistance program participation, child food insecurity, and weight status in children, recent research has indicated there might be an association between food program usage and weight status in food secure children, but not with food insecure children. Researchers used data from the 2007-2008 NHANES survey to investigate if food security status, food assistance program use and weight status were associated. The researchers found that food assistance program use of children who were food secure was associated with higher body mass index scores, but there was no association with children who were food insecure (Kohn, Bell, Grow, & Chan, 2013).

Research that investigated the relationship between the use of specific food assistance programs (i.e., SNAP, WIC, Free and Reduced School Meals) and weight status also was reviewed by Larson and Story (2011). They noted no relationship between receiving SNAP assistance and increased risk of obesity with children in the cross-sectional studies they analyzed. However, the researchers noted the longitudinal studies revealed a higher risk of being overweight with a longer duration of SNAP

participation among particular groups (i.e., girls younger than twelve years, young daughters of obese mothers, and preschool children living in cities with high food prices).

While the literature revealed limited evidence to suggest receiving SNAP assistance increased the risk of obesity among men, the literature regarding women showed vastly different results. Nine of ten studies reviewed indicated an association between receiving SNAP assistance and the risk of obesity in women (Larson & Story, 2011). However, more recent research (Jilcott, Wall-Bassett, Burke, & Moore, 2011) suggests that the level of SNAP benefits received may play a role in the relationship between obesity and SNAP participation. The researchers found a relationship between higher body mass index and food insecurity among women when households received less than $150 per household member. However, no statistically significant relationship was found between food insecurity and higher body mass index among women when households received $150 or more per household member. The researchers suggested that with more financial resources available for food, women may be able to make healthier food choices and decrease the risk of overweight when participating in SNAP.

The majority of cross-sectional and longitudinal studies considered by Larson and Story (2011) did not show evidence that participation in WIC was associated with child obesity. Of the seven studies that were reviewed, one cross-sectional study provided evidence of increased risk of obesity among non-Hispanic white children, one longitudinal study with a nationally representative sample provided evidence of decreased risk of obesity with WIC participation, and the remaining studies revealed no evidence of an association between obesity and participation in WIC.

Larson and Story also reviewed four studies that considered the association between the risk of obesity and participation in the National School Lunch Program (NSLP). Two of the studies showed no evidence of relationship between risk of obesity and participation in the NSLP. The other two studies provided evidence that NSLP participation was associated with healthy weight status, particularly among low-income students.

Produce Availability

A study was done in Arizona that investigated how much shoppers spent for every 1000 kilocalories of food (i.e., energy cost of food). The researchers found that education and income were associated with the energy cost of the food purchased. When considering household income and the energy cost of food, the researchers found a linear relationship. For each multiple of the FPL, an additional $0.26 was spent for every 1000 kilocalories of food (i.e., households with an income of 300% of the FPL spent $0.52 more for every 1000 kilocalories than households with an income of 100% of the FPL). Also, those with at least a baccalaureate degree spent $1.05 more for every 1000 kilocalories of food compared to participants with no college education. Lower energy cost was associated with food purchases that were higher in total fat and lower in protein, vegetables, and fiber (Appelhans et al., 2012). These findings suggest that low-income households might not be acquiring the amount of produce necessary for good health.

The Farmers' Market Nutrition Program offered to WIC participants provides participants with vouchers to spend for fresh fruits and vegetables at local farmers markets. A study in Ohio investigated whether participation in the Farmers' Market Nutrition Program was associated with food security status or produce intake.

Participating in the Farmers' Market Nutrition Program was not associated with increased food security when compared with WIC participants who did not take part in the Farmers' Market Nutrition Program. The researchers did find that the daily number of servings of vegetables was significantly greater among study participants who took part in the Farmers' Market Nutrition Program (Kropf, Holben, Holcomb, & Anderson, 2007). The researchers were not able to determine if the higher vegetable intake among participants in the Farmers' Market Nutrition Program was due to the awareness and affordability of the fresh produce that participation in the program allowed or if it was due to self-selection of the more diet conscious participants into the program.

In addition to food assistance programs, community gardens have the ability to provide fresh produce to food insecure households. Carney et al. (2012) used a community-based research approach to address food insecurity for Hispanic residents in a rural community in Oregon. Forty-two Hispanic families participated in the study. Each family was provided with the necessary supplies to grow a home garden. The families were further supported with resources, such as educational meetings and printed materials, as well as a social network that was formed so that the families could communicate ideas and issues with each other. Participants were questioned both before and after the gardening season if they were "concerned that food would run out before more money was available to buy more" (Carney et al., 2012, p. 876). Prior to the growing season, 31.2% of the participants were either "sometimes" or "frequently" concerned about the food supply. After the growing season, 3.1% of the participants reported being concerned about the food supply. The reported vegetable intake of both adults and children also increased after the growing season.

Hispanic Populations and Food Insecurity

Investigations of food insecurity among Hispanic populations revealed evidence that food insecurity rates among certain segments of the population are much higher than the 23.7% that the ERS estimates. A study of migrant farmworkers in Georgia found that 62.8% of the Hispanic farmworkers that participated in the study were food insecure (Hill, Moloney, Mize, Himelick, & Guest, 2011). Researchers investigated the prevalence of food security among 460 farmworkers of which approximately 59% were H2-A workers. The H2-A program, a program of the United States Department of Labor, allows for the hire of foreign workers in the situation where U.S. citizens are not available as employees. Transportation to and from the country of origin, housing, and food are requirements that the H2-A program has for employers. Hill, Moloney, Mize, Himelick, and Guest found that Hispanic migrant workers who were not hired under the H2-A program were 2.9 times more likely to be food insecure (67.15% of non-H2-A workers were food insecure), as they did not have the right to the basic requirements of the H2-A program which also included wage level requirements. Researchers in North Carolina who investigated food insecurity among migrant (i.e., migrate area to area for work) and seasonal (i.e., live in a fixed location and perform farm work as the seasons allow) Hispanic farmworkers found that 47.1% of the 102 households were experiencing food insecurity (Quandt, Arcury, Early, Tapia, & Davis, 2004). As food insecurity rates for all U.S. households was 14.3% and for Hispanic households was 23.7% in 2013 (Coleman-Jensen, Gregory, & Singh, 2014), these studies indicate that type of employment, specifically migrant and seasonal farm work, may increase the risk of food insecurity.

Researchers also have investigated the relationship between language usage (English versus Spanish) and food insecurity among Hispanic households. A study published in 2011 was designed to investigate if acculturation, defined as the "process of cultural adaptation that happens when groups of persons from different cultures come into continuous contact with each other" (Beck, Froman, & Bernal, 2005, p. 300) and social networks were associated with food security in a Puerto-Rican community in an inner city. Researchers found that, among the 200 Puerto Rican female study participants (all were caregivers of at least one child one to eight years old), certain factors increased the likelihood of being food insecure (i.e., higher odds ratio of food insecurity). Unemployment, single parenting, lack of English-speaking skills, rarely or never attending Hispanic cultural events, and food stamps not lasting the month were among the factors that these researchers found to be significant (Dhokarh et al., 2011). Gormon, Zearley, and Favasuli (2011) also investigated the relationship between acculturation and food security among 339 low-income participants with children. They found that Spanish-speaking Hispanics had higher food insecurity, and reported more concern with their children's health, compared to English-speaking Hispanics.

English proficiency also was investigated in a study among recent Hispanic immigrants in Toronto, Canada. Researchers found the prevalence of food insecurity to be 56% in a cross-sectional, convenience sample of that population in 2008. Study participants had emigrated within the previous five years from Latin America, were 20 years old or older, and were the individuals within their households in charge of food purchases. Vahabi, Damba, Rocha, and Montoya (2011) determined that within their

sample, participants who used food banks and social assistance and had limited English speaking skills were associated with food insecurity.

Researchers conducted a study in northern California to explore the relationship between diabetes and poverty with a sample of 15 low-income Hispanic participants using surveys and focus groups. Food security was not measured directly with any validated instrument. However, all the participants reported using food assistance (i.e., food pantries, SNAP). When questioned about the amount and quality of the food in their homes, 73.3% reported that they had sufficient quantity, but not quality, of food, and 13.3% reported that they frequently did not have enough food (Chaufan, Davis, & Constantino, 2011). All of the participants had incomes less than 170% of the federal poverty line, and 60% were at or below the federal poverty line.

Chaufan, Davis, and Constantino also evaluated four local stores (two local grocery stores, a convenience store, and a chain supermarket) to see if participants would be able to purchase the foods necessary to fulfill the Thrifty Food Plan market basket. The Thrifty Food Plan was designed to model a nutritious, inexpensive meal plan that individuals who rely on SNAP benefits would be able to follow (USDA, 1999). The Thrifty Food Basket contains the listing of the food items necessary to follow the Thrifty Food Plan. The ERS created the Food Store Survey to use as a tool to determine the cost to follow the Thrifty Meal Plan at a particular location. Researchers also can determine if locations are missing particular food items with regards to the Thrifty Food Basket (Cohen, 2002).

The researchers determined that the chain supermarket was able to fill all but one item in the Thrifty Food Basket. It generally had the lowest prices for the food items, but

was the least accessible to the study participants. The other three stores were closer to the participants. Additionally, participants reported being able to find the types of Hispanic foods they desired and/or Spanish-speaking employees at these three locations. However, many (18.39-26.44%) of the items from the Thrifty Food Basket were missing (Chaufan, Davis, & Constantino, 2011).

When Chaufan, Davis, and Constantino calculated the cost of the Thrifty Food Plan, they substituted in the price of the item from the supermarket chain for any items missing at the other three locations. The supermarket chain location was 3% lower than the USDA's Thrifty Food Plan cost. However, the participants preferred to go to the other three locations due to geography (transportation to the supermarket chain store was an issue) and cultural preference. The researchers determined that the Thrifty Food Plan cost at the three local locations was from 14% to 31% higher than the USDA's Thrifty Food Plan cost. The researchers noted that if the USDA's Thrifty Food Plan cost is standard and reasonable, the Thrifty Food Plan Basket in the participants' neighborhood was too expensive.

Hispanic Populations in Southwestern Wisconsin

In the United States, 16.3% of the total population is Hispanic. While Wisconsin has a lower percentage of Hispanic residents (5.9%) than the United States as a whole, southwestern Wisconsin is home to a growing number of Hispanic individuals and families. In 2000, Monroe County had 740 Hispanic residents. By 2010, the Hispanic population in Monroe County had grown to 1661 residents. Neighboring Vernon County had 186 Hispanic residents in 2000. This population grew to 394 Hispanic residents in 2010 (U.S. Census Bureau, 2010).

In Monroe and Vernon Counties, 3.7% and 1.3% of the populations were Hispanic, respectively, as of the 2010 Census. Within each of the counties there were towns and villages where much of the Hispanic population was concentrated. Specifically, there was a three-village region, which overlapped the two counties that contained a high proportion of Hispanic residents. The Hispanic populations, by percent of the total population in the three villages, were 35.1%, 14.8%, and 7.3% (U.S. Census Bureau, 2010).

County level food insecurity prevalence is not available from the Current Population Study. However, poverty and food insecurity are strongly associated (Coleman-Jensen, Gregory, & Singh, 2014). During the time period of 2008 to 2012, the estimated prevalence of poverty in the United States was 14.9% according to results from the American Community Survey (Curtis, Bartfeld, & Lessen, 2014). Additionally, the prevalence of poverty in Wisconsin, Monroe County, and Vernon County were 12.5%, 15.0%, and 15.2%, respectively (Curtis, Bartfeld, & Lessen, 2014). In comparison, the household food insecurity prevalence in the United States and Wisconsin were 14.3% and 11.6%, respectively, in 2013 (Coleman-Jensen, Gregory, & Singh, 2014).

While there was no information about food insecurity at the county level, the Food Research and Action Center conducted a survey to assess food hardship by congressional district. Food hardship was measured by the answer to a single question investigating if households had difficulty purchasing sufficient food within the past year. Both Monroe and Vernon County share a congressional district, and were found to have a food hardship prevalence of 10.5% during the time period of 2011 to 2012 (Curtis, Bartfeld, & Lessen, 2014).

Summary

Food insecure households are those where one or more household members have seen changes in the quality or quantity of food as a result of limited food resources. Food insecurity has been found to be strongly associated with income, and also is associated with Black or Hispanic race and ethnicity, single parent households, educational attainment, and use of food assistance programs. Table 2.2 provides a summary of the prevalence of household food insecurity in select populations.

Food insecurity has been found to be associated with lower intake of vegetables and fruits, decreased intake of some nutrients, decreased bone mass in adolescent males, overweight in women, and poor social skill development in children. Housing insecurity, as measured by multiple moves or crowding, also has been found to be associated with food insecurity.

It has been noted that the Hispanic population has a higher prevalence of food insecurity than the overall U.S. population, with some studies finding an even higher prevalence among specific populations of Hispanics. It is unknown what the food insecurity prevalence was for the Hispanic populations in the two counties in southwestern Wisconsin. However, taking into consideration the Hispanic ethnicity and high poverty rates in the region, food insecurity potentially could be an issue for many Hispanic individuals and families.

Table 2.2. Summary of the prevalence of household food insecurity in select populations

Population	Prevalence of Household Food Insecurity	Literature Source
United States	14.3%	
• Households with incomes below the Federal Poverty Line	42.1%	
• Households with incomes above 185% of the Federal Poverty Line	6.7%	
• White, non-Hispanic households	10.6%	
• Black, non-Hispanic households	26.1%	
• Hispanic households	23.7%	
• Households with children	19.5%	
• Households with children under the age of six	20.9%	
• Households with more than one adult and no children	9.9%	
• Elderly person households	8.7%	
• Households headed by a married couple	12.8%	
• Single male head of households	23.1%	
• Single female head of households	34.4%	
• Households that received SNAP benefits	54.2%	
• Households that participated in WIC	42.3%	
• Households participating in Free/Reduced School Lunch Program	49.7%	
Wisconsin	11.6%	Coleman-Jensen, Gregory, & Singh, 2014
Rural families receiving formal assistance (food assistance, social services, &/or community agency services)	51.1% (at first interview) 23.6% (persistently over 3-year period)	Hanson & Olson, 2011
Migrant Hispanic farmworkers in Georgia	62.8%	Hill, Moloney, Mize, Himelick, & Guest, 2011
Hispanic farmworkers in North Carolina	47.1%	Quandt, Arcury, Early, Tapia, & Davis, 2004
Hispanic families participating in a gardening project	31.2% Prior to gardening season 3.1% After harvest season	Carney et al., 2012

CHAPTER III

Introduction

This study investigated the prevalence of food insecurity in the Hispanic communities residing in three rural villages in Southwestern Wisconsin. Additionally, information about demographic and socioeconomic factors was collected to determine if there was an alignment between those factors and household food security status. Factors such as household composition, food program usage, English proficiency, educational attainment, and employment were assessed to investigate if there were any alignments between these factors and food security status.

The participants who were sampled were all Hispanic residents of three villages in rural Southwestern Wisconsin with a combined population of 1,696 according to the 2010 U.S. Census (U.S. Census Bureau, 2010). Additionally, 343 Hispanic residents in the three villages were noted on the 2010 census, which comprised 20.2% of the villages' overall population.

Sample Selection

As there was not a complete directory of the Hispanic households in the villages visited during the study, a convenience sample was taken. The participants for the convenience sample were recruited from a variety of different local sites in the villages where members of the Hispanic households might visit. These sites were chosen to help ensure a greater distribution of participants from throughout the entire region being

investigated. Within the villages, a local church, medical clinic, mobile food pantry, and a Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) clinic served as the sites where participants were recruited. These participants were surveyed at the gathering site. Additionally, the interpreter who resided in one of the villages and a community member in another village identified potential participants. These participants were surveyed either in their homes or in a park located in one of the villages.

Initially, two villages were the focus of the investigation. During discussions with community leaders, the investigator was informed that Hispanics in a third neighboring village should be considered to participate in the investigation. The three villages are close geographically, share a common school district, and individuals from these communities have similar work opportunities. After IRB approval was received, the investigator attempted to recruit participants from the third village as well.

Survey Development

Food security status was measured using the USDA Household Food Security Module (HFSM), which is an 18-item questionnaire (Beck, Nord, Price, & Hamilton, 2000). Appendix A contains the HFSM. This is a valid and reliable tool that is used extensively to measure household food security status. It was first used in the 1995 Current Population Study where it went through extensive statistical analyses to ascertain validity and reliability (USDA, 1997). The module has continued to be examined to assure validity over time. Notably, in 2006, the National Research Council assembled a panel to reassess the module (Wunderlich & Norwood, 2006). After the assessment, the panel provided recommendations for the module that ultimately led to changes in the

wording of the food security statuses. Previously, the statuses were food secure, food insecure without hunger, and food insecure with hunger. Households are now characterized as having high food security, marginal food security, low food security, and very low food security. While the scale used to characterize the food security of the household has not changed, the designations have changed, so trends can be assessed over time. For the purpose of this study, the validated Spanish translation of the U.S. Food Security Module was used with individuals who were more comfortable answering questions in the Spanish language (Harrison, Stormer, Herman, & Winham, 2003) (Appendix B).

The Spanish instrument was developed and validated by use of a six-step process. Researchers first gathered the eight known Spanish-language versions of the HFSM that other studies or researchers had used, and did a word-by-word comparison of each of the 18 questions on the questionnaire. A focus group comprised of low-income Spanish-speaking adults who were born in Mexico and Central America was provided with the HFSM questions from all eight Spanish-language versions with the researchers' comparisons. This focus group was then asked to select the best two or three options for each question. Additional focus groups were held, which were homogeneous with respect to the nation or region of birth of the Spanish-speaking focus group members. These focus groups looked at the two or three options the first focus group selected, and were asked to choose the one best option or change the wording so that it best asked the question desired. After the second round of focus groups, the researchers created an instrument utilizing all the feedback from the focus groups. The researchers also had a professional translator and three other certified translators create a separate,

professionally translated version of the HFSM, which was referred to as the "professional instrument." A final focus group, involving participants who had not been a part of the initial focus groups, was then administered both the professional and focus group-derived instruments. Focus group participants were asked to indicate which instrument they preferred and why. Both the professional and focus group-derived instruments also were back-translated to English to compare against the original HFSM. Results of both the focus group and the back-translation of the instrument indicated that the focus group derived instrument was the preferred instrument (Harrison, Stormer, Herman, & Winham, 2003).

A second instrument, the Demographic and Socioeconomic Profile survey, was developed by the investigator to collect the demographic and socioeconomic data. The investigator reviewed current research regarding food insecurity and key predictors of food insecurity to compile the list of variables, such as poverty, household composition, and food program use (Coleman-Jensen, Nord, Andrews, & Carlson, 2011), to include in this study. After determining the items to include in the questionnaire, the investigator created a draft Demographic and Socioeconomic Profile survey. The instrument then underwent content validation using a method described by Gilmore (1974). The draft instrument was given to five individuals, jurors, who worked within the region where the investigation was conducted, and were considered to be knowledgeable about both the topic being researched and the population being studied. The jurors were asked to rate the degree to which each question on the instrument assessed the information that the investigator intended to gather. The rating scale was as follows: 1= not at all, 2= barely, 3= moderately, 4= well, 5= very well. The jurors also were provided with a space after

each question to offer comments. The mean rating for each of the questions was then calculated. A mean of greater than 3.5 plus expert commentary was deemed a sufficient indication of content validity. The mean rating for each of the instrument items ranged from 4.5 to 5 indicating that the draft instrument had sufficient content validity. Some minor changes to the wording of the instrument items were completed in response to juror comments. The completed instrument was then translated into Spanish by one of the two interpreters that assisted with the investigation, and reviewed by two bilingual individuals (one a native Spanish speaker of Latino origin) to assure accurate translation. Appendix C contains the draft Demographic and Socioeconomic Profile, the instructions provided to the jurors, the final instrument, the instrument translated to Spanish, and the list of jurors.

Data were collected on household composition, with number and age of household members recorded, since factors such as the presence of children and single parent households have been shown to be associated with food insecurity (Coleman-Jensen, Gregory, & Singh, 2014). Food insecurity and poverty also have been noted to be associated in the literature (Coleman-Jensen, Gregory, & Singh, 2014), so household income was taken.

The use of government food programs and food pantries have been found to be associated with food insecurity in past research (Coleman-Jensen, Nord, Andrews, & Carlson, 2011; Vahabi, Damba, Rocha, & Montoya, 2011). Therefore, information on food program (e.g., Supplemental Nutrition Assistance Program, WIC, Free/Reduced School Lunch) and food pantry use was obtained through the survey. Participants were

asked to note if any member of their household had used any of these food resources in the past 12 months.

English proficiency, measured by self-reported use of the English language, also has been linked to food insecurity among Hispanic individuals (Dhokarh et al., 2011; Gormon, Zearley, & Favasuli, 2011; Vahabi, Damba, Rocha, & Montoya, 2011). Participants were questioned if they spoke Spanish and English or Spanish only. Another factor that has been linked to food security status is educational attainment (Quandt et al., 2004). Participants were asked to report if they had achieved a high school education (secondary school) or greater, or if they had completed less than a high school level equivalent of education.

Being unemployed (Dhokarh et al., 2011) has been shown to be associated with household food security status. Information on specific employment characteristics was gathered as the literature has indicated that some Hispanic farmworkers have a higher prevalence of food insecurity (Hill, Maloney, Mize, Himelick, & Guest, 2011; Quandt, Arcury, Early, Tapia, & Davis, 2004). Participants in this research were asked if they were employed, and if so, in what field of work.

Survey Implementation

Flyers describing the study were distributed to the sampling sites prior to the investigator administering the surveys using IRB authorized instruments in the region (Appendix D). Workers at the various sample sites were asked to share information regarding the study to potential participants both prior to and during the time that data were being collected. Once data collection had begun, the investigator and interpreter

asked participants to inform other potential participants about the study and refer the investigator to potential participants, if possible.

Participants were eligible if they self-identified as being Hispanic, were an adult male or female who could serve as a representative of the household, and their residence was in one of the three zip codes of the villages. The researcher, along with a bilingual interpreter, provided potential participants with informed consent information (purpose of the study, data collection procedures, risks and benefits of participating) both verbally and in written form. The written form was available in both Spanish and English and potential participants were given the choice of their preferred language (Appendix E). Potential participants also were informed that they would receive a small gift of a culturally appropriate food item at the end of the survey. Once the investigator received consent to participate from an individual, the survey instruments were completed on-site. At the completion of the survey, all participants were offered the gift of the food item. Two participants declined the gift.

A pamphlet (Appendix F) with information about available local food resources was made available to all interested participants. The purpose of the resource was to aid families potentially experiencing issues with food insecurity. The investigator compiled a listing of the available food programs, food pantries, and community centers that included locations of the resources, hours of operation, and other pertinent information. The listing was then translated into Spanish. The resulting handout had the information in English on one side and in Spanish on the other.

Protection of Human Subjects

In March 2013, initial approval for this study was received from the Institutional Review Board of the University of Wisconsin – La Crosse to ensure the safety of all participants in the study. After some discussion with additional community leaders, a third village was identified as being connected with the original two villages. The three villages are close geographically, share a common school district, and individuals from these communities have similar work opportunities. In May 2013, the Institutional Review Board approved an updated proposal that included the intent to recruit participants from the third village.

Data Collection

Data were collected from April through October, 2013 using the two survey instruments and an informal interview. The surveys and in-person interviews were administered with both the investigator and one of two bilingual interpreters. The investigator recruited participants at specific sites where members of the Hispanic community might be found (e.g., local church, medical clinic, mobile food pantry, and WIC clinic) in two of the villages. A specific gathering site for members of the Hispanic community was not able to be identified in the third village. Additional participants were identified by community members.

The Household Food Security Survey and the Demographics and Socioeconomic Profile survey were discretely administered on-site or in the home to ensure privacy of answers after participants provided consent to participate. The decision to use the English or Spanish form was dependent on the participant's preference of language. Additionally, an informal interview was conducted with each participant as the

investigator encouraged participants to provide comments about the topics being addressed by the survey instruments.

Data Analysis

After participants completed the 18-item Household Food Security Module, the responses were scored. Following the scoring guidelines in the *Guide to Measuring Household Food Security (Revised 2000)* (Bickel, Nord, Price, & Hamilton, 2000), responses in the affirmative (i.e., "often true," "sometimes true") were given a value of 1. Responses in the negative (i.e., "never true") were given a value of 0. The sum of the affirmative responses was then compared against the food security scale, which was researched and developed to include the full range of households' possible food security statuses. In this scale, a score of 0 indicated no issues of food insecurity, whereas a score of 10 indicated the most severe form of food insecurity. The scale is divided into four food security statuses: high, marginal, low, and very low food security. Households with the status of high or marginal food security are considered food secure. Conversely, households with low or very low food security status are considered food insecure (ERS, 2012).

Respondents of households with children answered all 18 questions, whereas those from households without children answered 10 questions. Therefore, the cutoff points for the varying levels of food security were different for the two types of households (See Table 3.1). For example, a household containing a single mother and her two children that had a score of 13 would be classified with the more severe form of food insecurity, very low food security. This information, along with the other data from the surveys, was entered into SPSS Version 22 for descriptive analysis.

Table 3.1. Food security status levels corresponding to number of affirmative responses on the USDA Household Food Security Module

Number of Affirmative Responses		Food Security Scale Values	Food Security Status Level
(Out of 18) Households with Children	(Out of 10) Households without Children		
0	0	0.0	High Food Security
0	0	0.0	Marginal Food Security
1		1.0	
	1	1.2	
2		1.8	
	2	2.2	
3		2.4	Low Food Security
4		3.0	
	3	3.0	
5		3.4	
	4	3.7	
6		3.9	
7		4.3	
	5	4.4	
8		4.7	Very Low Food Security
	6	5.0	
9		5.1	
10		5.5	
	7	5.7	
11		5.9	
12		6.3	
	8	6.4	
13		6.6	
14		7.0	
	9	7.2	
15		7.4	
	10	7.9	
16		8.0	
17		8.7	
18		9.3	

Note: Table adapted from the *Guide to Measuring Household Food Security (Revised 2000)* (Bickel, Nord, Price, Hamilton, & Cook, 2000) with changes to reflect the updated wording and food security status divisions (ERS, 2012).

Household food security status (high food security, marginal food security, low food security, very low food security) served as the dependent variable. Data from the

Demographic and Socioeconomic Profile (i.e., household composition, employment characteristics, English proficiency, educational attainment, garden availability, use of food assistance programs, and household income) served as the independent variables. Descriptive statistics were calculated for the demographic data. Additionally, prevalence of the household food security status classifications was determined for each of the independent variables. Cross tabulations were then conducted to assess if there was an alignment between the household food security statuses and the independent variables. Cross tabulation is a descriptive statistical procedure that summarizes compared variables (StatSoft, Inc., 2013). This procedure was chosen as it would allow the investigator to assess for alignment between variables. Inferential statistical procedures were deemed inappropriate given the limited number of respondents in the convenience sample. Table 3.2 lists the investigation's research questions, along with the corresponding survey items from the Household Food Security Module and Demographic and Socioeconomic Profile, and statistical analysis procedures that were used.

Table 3.2. Research questions with corresponding items from the Household Food Security Module (HFSM) and the Demographic and Socioeconomic Profile (DSP), and statistical analysis procedure

Research Question	Corresponding Survey Items	Statistical Analysis Procedure
What is the prevalence of food insecurity (low and very low) in the Hispanic populations of these three rural villages?	HFSM	Frequency Count
Is there an alignment between income and food security status in these populations?	HFSM, DSP - income	Cross tabulation
Is there an alignment between household composition and food security status?	HFSM, DSP – presence of children	Cross tabulation
	HFSM, DSP – number of children	Cross tabulation
	HFSM, DSP – children under age six	Cross tabulation
	HFSM, DSP – marital status	Cross tabulation
	HFSM, DSP – single female head of household	Cross tabulation
Is there an alignment between educational level and food security status?	HFSM, DSP – educational attainment	Cross tabulation
Is there an alignment between type of employment and household food security status?	HFSM, DSP – employment	Cross tabulation
Is there an alignment between food program use (e.g., Supplemental Nutrition Assistance Program, Supplemental Nutrition Program for Women, Infants, and Children) and food security status?	HFSM, DSP – use of food assistance	Cross tabulation
Is there an alignment between English proficiency and food security status?	HFSM, DSP – English proficiency	Cross tabulation
Is there an alignment between family and/or community garden usage and food security status?	HFSM, DSP – garden availability	Cross tabulation

CHAPTER IV

Introduction

This study investigated the prevalence of food insecurity in the Hispanic communities residing in three rural villages in southwestern Wisconsin. Additionally, demographic and socioeconomic data were collected to determine if there was an alignment between those data and household food security status. Factors such as household composition, food program usage, English proficiency, educational attainment, and employment were assessed to investigate if there were any alignments between these factors and food security status.

Qualitative data obtained from participants from all three villages were included in the results discussion. However, one of the villages had a very small pool of respondents ($n = 2$), and it was decided that the data obtained from the Demographic and Socioeconomic Profile and the Household Food Security Module from that village would not be included in the data analysis. With only two participants, data from that village would not be helpful in describing the demographic, socioeconomic, or food security status of other Hispanics that resided in that village. In addition, by not including the data from those participants, skewing the results of the other two villages or overstating the conditions and implications of households within the third village was avoided.

Participants

In order to take part in the study, participants needed to self-identify as being Hispanic, be the adult male or female representative of the household, and reside within the zip code of one of the three villages being investigated. The participants for the convenience sample were recruited from a diversity of local sites where members of the Hispanic households might visit. Participants were recruited from the following gathering locations in the villages: mobile food pantry, medical clinic, church, and WIC clinic. Flyers were distributed in advance of the visit, and employees at those locations were encouraged to share information about the study with potential participants both prior to and on the day of the visit. Additional participants were identified and recruited by the interpreter that resided in one of the villages and by a community member who volunteered to introduce the investigator to Hispanic residents in his community. Potential participants were informed of the purpose of the study by the investigator with the help of the interpreter as needed. Potential participants were then questioned to make sure they were eligible, and were provided with an Informed Consent form to sign in their preferred language. Surveys were then administered immediately on site.

In all, 32 potential participants were identified. Of these, three refused to participate immediately. These potential participants were being recruited at the church and mobile food pantry in one of the villages. No information was able to be gathered on these three individuals to ascertain if they would have qualified to be participants. One community member that was recruited at her home declined to participate. An additional three individuals were identified by the interpreter and community member as being

potential participants, but either were not home at a scheduled meeting time or did not show up to a scheduled meeting location.

Thus, of the 32 potential participants, 25 individuals willingly participated in the investigation. Table 4.1 indicates the locations from where participants were recruited and surveyed. The number of participants recruited from each village were as follows: Village 1: 10, Village 2: 13, Village 3: 2.

The community member who volunteered to help recruit other community members aided the investigator in approaching four of the participants. The interpreter that resided in one of the other villages was able to connect the investigator with five of the participants. Several participants were noticeably uneasy while answering the survey questions. When the community member who assisted with identifying participants, or the interpreter who resided in one of the villages was present during the survey administration, overall ease and openness of participants increased.

Table 4.1. Recruitment locations and number of study participants ($n = 23$) who completed surveys at each location in two rural villages in southwestern WI, 2013

Recruitment Location	Participants Recruited
Medical Center	0
Mobile Food Pantry	1
Church	1
WIC Clinic	7
Home (either participant's or friend/family's home)	12
Park	2

General demographics of the study participants were obtained. The percentage of participants who were between the ages of 30 to 39 was 60.9% ($n = 14$). Additionally, 26.1% ($n = 6$) were between the ages of 20 to 29, 8.9% ($n = 2$) were between the ages of 40 to 49, and 4.3% ($n = 1$) were between the ages of 50 to 59. The majority (87.0%, $n =$

20) of the participants were female, with 13.0% ($n = 3$) being male. In 15 (65.2%) households, the respondents were married or living with an adult partner, whereas in eight (34.8%) households, the respondents were single. Twelve (52.2%) of the participants were employed at the time of the survey, and 11 (47.8%) were unemployed. Of the participants that reported being employed, six (50%) worked on a farm, four (33.3%) worked in a factory, one (8.3%) worked in meat packing, and one (8.3%) served as an interpreter. Twenty-one (91.3%) participant households had children. Sixteen of the 23 (69.6%) respondent households had at least one child under the age of five in the household (Table 4.2).

Table 4.2. Demographics of study participants ($n = 23$) for two rural villages in southwestern WI, 2013

Characteristic		n	Percentage
Age	20-29	6	26.1%
	30-39	14	60.9%
	40-49	2	8.9%
	50-59	1	4.3%
Gender	Male	3	13.0%
	Female	20	87.0%
Marital Status	Married/Adult Partner	15	65.2%
	Single	8	34.8%
Children Present in Household	Yes	21	91.3%
	No	2	8.7%
Children Under Age 6 Present	Yes	16	69.6%
	No	7	30.4%
Participant Employment	Unemployed	11	47.8%
	Farm	6	26.1%
	Factory	4	17.4%
	Meat Packing	1	4.3%
	Interpreter	1	4.3%

Results

Food security is defined by the USDA as "access by all people at all times to enough nutritious food for an active, healthy life" (Coleman-Jensen, Nord, Andrews, & Carlson, 2011, p. i). In contrast, members of households who are food insecure have had difficulty or uncertainty in acquiring enough food for members of the household at some point during the most recent twelve months (ERS, 2011). The following discussion describes the household food security status (food secure: high or moderate food security OR food insecure: low or very low food security) of participant households in the two villages. In Chapter I, research questions were proposed to investigate the prevalence of food insecurity in the villages as well as to compare food security status in relation to demographic and socioeconomic factors. The following discussion details the data that were obtained for each research question and examines the implications of that data.

RQ 1: What is the prevalence of food insecurity (low and very low food security) in the Hispanic populations of the two rural villages?

The prevalence of food insecurity (low and very low food security) among study participants from the two villages combined ($n = 23$) was 69.6% (Table 4.3). Of the participants surveyed, 56.5% ($n = 13$) of the households were found to have low food security and 13% ($n = 3$) of the households were found to have very low food security. Additionally, 30.4% ($n = 7$) of the participants were found to be food secure (17.4%, $n = 4$: marginal security; 13%, $n = 3$, high food security).

Table 4.3. Percentages of participant households in each food security status ($n = 23$) for two rural villages in southwestern WI, 2013

Household Food Security Status	Frequency	Percent	Cumulative Percent
Very Low	3	13.0	13.0
Low	13	56.5	69.6
Marginal	4	17.4	87.0
High	3	13.0	100.0
Total	23	100.0	

The prevalence of food insecurity found in the participant households was substantial. Figure 4.1 illustrates the large proportion of the participant households with food insecurity issues. As the figure indicates, over half (56.5%, $n = 13$) of participants reported their households as having low food security, with an additional 13% ($n = 3$) of the households experiencing the more severe status, very low food security.

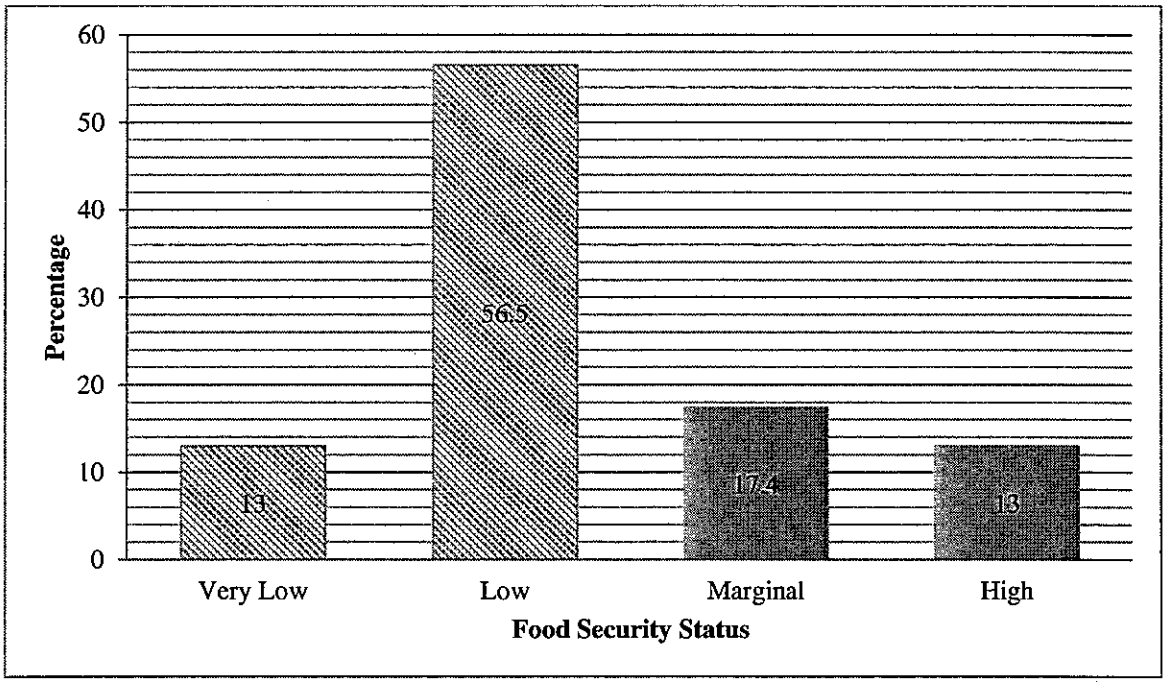

Figure 4.1. Percentages of participants according to household food security status in two rural villages in southwestern Wisconsin, 2013.

The responses of the participants were then compared from Village 1 versus Village 2 (Table 4.4). Overall, the majority of participant households from both villages were found to have food insecure status. Sixty percent ($n = 6$) of participant households from Village 1 were found to be food insecure (low and very low food security). Within Village 1, 50% ($n = 5$) of participant households were found to have low food security, and 10% ($n = 1$) were found to have very low food security. Four (40%) participant households were found to have marginal food security. In Village 2, 76.9% ($n = 10$) of the participant households were food insecure. Of those households, 61.5% ($n = 8$) were experiencing low food security, and 15.4% ($n = 2$) were experiencing very low food security. In the remaining three (23.1%) participant households in Village 2, the respondents reported no food security issues and were found to have a high food security status.

Table 4.4. Cross tabulation of participants from Village 1 and Village 2 for household food security status according to village in two rural villages in southwestern Wisconsin, 2013

		Household Food Security Status				Total
		Food Insecure		Food Secure		
		Very Low	Low	Marginal	High	
Village 1	Count	1	5	4	0	10
	% within Village	10.0%	50.0%	40.0%	0.0%	100.0%
Village 2	Count	2	8	0	3	13
	% within Village	15.4%	61.5%	0.0%	23.1%	.100.0%
Total	Count	3	13	4	3	23
	% of Total	13.0%	56.5%	17.4%	13.0%	100.0%

The two villages varied in the households with marginal food security (Village 1, $n = 4$; Village 2, $n = 0$) and high food security (Village 1, $n = 0$; Village 2, $n = 3$). However, the difference in being assigned to marginal or high food security according to the Household Food Security Module is the difference of one or two affirmative answers (ERS, 2012). High food security households will have zero affirmative answers, whereas marginal food security households will have one or two affirmative answers. These two categories often are combined to represent food secure households, as is done in the Current Population Study (Bickel, Nord, Price, & Hamilton, 2000; ERS, 2012). When utilizing the Household Food Security Module, food secure households are those that "show no or minimal evidence of food insecurity" (Bickel, Nord, Price, Hamilton, & Cook, 2000, p. 11) which equates to answering zero to two of the questions affirmatively.

Therefore, when considering the number of participant households that were food secure (Village 1, $n = 4$; Village 2, $n = 3$), the results are quite similar.

Both villages had participant households experiencing food insecurity (low and very low food security) at a high percentage. The two villages also were similar with their proportions of households that had low food security and very low food security. Overall, Village 1 had 60% ($n = 6$) households that were food insecure and Village 2 had 76.9% (n = 10) households that were food insecure. Of those households in the two villages experiencing food insecurity, the villages were quite similar in the proportion reporting very low food security. Village 1 had one (10%) participant household and Village 2 had two (15.4%) participant households found to have very low food security.

The prevalence of household food insecurity in the combined sample of the two villages was substantial as over two thirds of the households were food insecure. Additionally, when considering the villages separately, participant households from each village had a high prevalence of food insecurity. The majority of participant households in both villages were food insecure.

RQ 2: Is there an alignment between income and food security status in this population?

The study participant sample had a high proportion of households that were below poverty according to the 2013 federal poverty guidelines (HHS, 2013). Eighteen of the 23 (78.3%) participant households had incomes that were below federal poverty guidelines. Three (16.7%) of the households that were below poverty were food secure. The remaining 15 (83.3%) households that were below poverty were food insecure. Of these food insecure households, 66.7% ($n = 12$) had low food security and 16.7% ($n = 3$)

had very low food security. Five of the 23 (21.7%) participant households had incomes that were above poverty. Of the households that had incomes above poverty, four (80%) were food secure (Table 4.5).

Table 4.5. Cross tabulation of household income and household food security status of participants in two rural villages in southwestern Wisconsin, 2013

			Household Food Security Status				Total
			Food Insecure		Food Secure		
			Very Low	Low	Marginal	High	
Household Income	Below Poverty	Count	3	12	1	2	18
		% within Income	16.7%	66.7%	5.6%	11.1%	100.0%
	Above Poverty	Count	0	1	3	1	5
		% within Income	0.0%	20.0%	60.0%	20.0%	100.0%
Total		Count	3	13	4	3	23
		% of Total	13.0%	56.5%	17.4%	13.0%	100.0%

The household incomes were then compared for Village 1 versus Village 2 (Table 4.6). Forty percent ($n = 4$) of Village 1 participant households had household incomes that were above federal poverty guidelines, and 60% ($n = 6$) that were below federal poverty guidelines. In Village 2, 7.7% ($n = 1$) of participant households had household incomes above federal poverty guidelines, and 92.3 % ($n = 12$) of participant households were below federal poverty guidelines.

Village 1 had four (40%) participant households where the household income was above poverty level. Of these four households, three (75%) were food secure with a

marginal food security status and one (25%) was food insecure with a low food security status. Village 2 had only one participant household above poverty level. This household was food secure with a high food security status.

Table 4.6. Cross tabulation of household income and household food security status, with village differentiation, of two rural villages in southwestern Wisconsin, 2013

				Household Food Security Status				Total
				Food Insecure		Food Secure		
				Very Low	Low	Marginal	High	
Household Income	Above Poverty	Village 1	Count	0	1	3	0	4
			% from households above poverty	0.0%	25.0%	75.0%	0.0%	100.0%
		Village 2	Count	0	0	0	1	1
			% from households above poverty	0.0%	0.0%	0.0%	100.0%	100.0%
	Below Poverty	Village 1	Count	1	4	1	0	6
			% from households below poverty	16.7%	66.7%	16.7%	0.0%	100.0%
		Village 2	Count	2	8	0	2	12
			% from households below poverty	16.7%	66.7%	0.0%	16.7%	100.0%
Total			Count	3	13	4	3	23
			% of Total	13.0%	56.5%	17.4%	13.0%	100.0%

Of the six households in Village 1 where the household income was below federal poverty guidelines, only one (16.7%) was food secure with a marginal food security status. The other five households were food insecure, with 4 (66.7%) households having low food security status and one (16.7%) household having very low food security. In Village 2, twelve (92.3%) participant households had incomes that were below federal

poverty guidelines. The majority of these households were food insecure with eight (66.7%) households having low food security and two (16.7%) households having very low food security. Only two (16.7%) of the households which were below federal poverty guidelines in Village 2 were food secure with high food security status.

Over three quarters of the participant households had incomes that were below federal poverty level. There did appear to be a trend with poverty aligning with food insecurity as the large majority of participant households with incomes below poverty level were food insecure. When considering the villages separately, the trend of poverty aligning with food insecurity continued. The majority of participant households with incomes below poverty level were food insecure in each village.

RQ 3: Is there an alignment between household composition (e.g., presence of children, marital status, single adult female head of household) and food security status?

Factors of household composition were investigated to assess for alignment between food security status and those factors. Data on presence, number, and age of children in participant households were gathered to assess if food security status aligned with any of those factors.

The majority (91.3%, $n = 21$) of participant households included children. With such a high participant household count that included children, the prevalence of food insecurity among these households was quite similar to that of the overall sample pool of the two villages. Of the participant households with children present, a large proportion was food insecure (households with low or very low food security status). 57.1% ($n =$ 12) of the participant households with children present had low food security, and 14.3%

($n = 3$) of the households had very low food security. Six (28.6%) participant households with children present were found to be food secure. 14.3% ($n = 3$) of households with children present had marginal food security, and 14.3% ($n = 3$) of households with children present had high food security. There were only two participant households without children. One household had low food security and the other had marginal food security (Table 4.7).

Table 4.7. Cross tabulation of household food security status and the presence of children in a household for participants in two rural villages in southwestern Wisconsin, 2013

			Household Food Security Status				Total
			Food Insecure		Food Secure		
			Very Low	Low	Marginal	High	
Children Present in Household	Yes	Count	3	12	3	3	21
		% from households with children	14.3%	57.1%	14.3%	14.3%	100.0%
	No	Count	0	1	1	0	2
		% from households without children	0.0%	50.0%	50.0%	0.0%	100.0%
Total		Count	3	13	4	3	23
		% of Total	13.0%	56.5%	17.4%	13.0%	100.0%

When the data regarding food security status and the presence of children in the household were differentiated by village, the results were similar to the combined data as

there were only two (8.7%) participant households without children and both households were from Village 1 (Table 4.8).

Table 4.8. Cross tabulation, with village differentiation, of household food security status and the presence of children comparing two rural villages in southwestern Wisconsin, 2013

				Household Food Security Status				Total
				Food Insecure		Food Secure		
				Very Low	Low	Marginal	High	
Children Present in Household	Yes	Village 1	Count	1	4	3	0	8
			% from households with children	12.5%	50.0%	37.5%	0.0%	100.0%
		Village 2	Count	2	8	0	3	13
			% from households with children	15.4%	61.5%	0.0%	23.1%	100.0%
	No	Village 1	Count	0	1	1	0	2
			% from households without children	0.0%	50.0%	50.0%	0.0%	100.0%
		Village 2	Count	0	0	0	0	0
			% from households without children	-	-	-	-	-
Total			Count	3	13	4	3	23
			% of Total	13.0%	56.5%	17.4%	13.0%	100.0%

The number of children present in the household also was assessed to see if there was alignment between an increasing number of children in the household and food security status. In participant households with two or fewer children, the proportion of households that were food secure and food insecure were fairly even. Participant households with no children were evenly distributed between being food secure and insecure (secure $n = 1$; insecure $n = 1$). Participant households with one child were divided with two (40.0%) households being food insecure and three (60.0%) households being food secure. Participant households with two children were similarly divided with two (50.0%) households being food insecure and two (50.0%) being food secure. It was when the number of children in participant households increased to three or four that the majority of households were found to be food insecure. For example, in participant households with three children, six (85.7%) households were found to be food insecure and one (14.3%) was food secure. All five participant households with four children were food insecure (Table 4.9).

A similar trend was found when looking at the data according to village (Table 4.10). For both villages, when participant households contained zero, one, or two children, food secure and food insecure participant households were roughly proportional. As is seen in Table 4.10, there were small numbers in each data cell as a result of the small pool of participants. However, a general trend of roughly equal numbers of food secure and food insecure households was noted.

When the number of children included in the household increased to three and four children, both villages had an increase in household food insecurity. All four households of Village 1 with three or four children present were food insecure with low

food security status. In Village 2 when considering households with three or four children, seven out of eight (87.5%) participant households were food insecure.

Table 4.9. Cross tabulation of household food security status and the number of children in the household of participants in two rural villages in southwestern Wisconsin, 2013

			Household Food Security Status				Total
			Food Insecure		Food Secure		
			Very Low	Low	Marginal	High	
Number of Children in Household	0	Count	0	1	1	0	2
		% from households with no children	0.0	50.0	50.0	0.0	100.0
	1	Count	1	1	2	1	5
		% from households with 1 child	20.0	20.0	40.0	20.0	100.0
	2	Count	0	2	1	1	4
		% from households with 2 children	0.0	50.0	25.0	25.0	100.0
	3	Count	2	4	0	1	7
		% from households with 3 children	28.6	57.1	0.0	14.3	100.0
	4	Count	0	5	0	0	5
		% from households with 4 children	0.0	100.0	0.0	0.0	100.0
Total		Count	3	13	4	3	23
		% of Total	13.0%	56.5%	17.4%	13.0%	100.0%

Table 4.10. Cross tabulation of household food security status and the number of children with village differentiation of participants from two rural villages in southwestern Wisconsin, 2013

				Household Food Security Status				Total
				Food Insecure		Food Secure		
				Very Low	Low	Margin -al	High	
Number of Children Present in Household	0	Village 1	Count	0	1	1	0	2
			% from households with no children	0.0	50.0	50.0	0.0	100.0
		Village 2	Count	0	0	0	0	0
			% from households with no children	0.0	0.0	0.0	0.0	100.0
	1	Village 1	Count	1	0	2	0	3
			% from households with 1 child	33.3	0.0	66.7	0.0	100.0
		Village 2	Count	0	1	0	1	2
			% from households with 1 child	0.0	50.0	0.0	50.0	100.0
	2	Village 1	Count	0	0	1	0	1
			% from households with 2 children	0.0	0.0	100.0	0.0	100.0
		Village 2	Count	0	2	0	1	3
			% from households with 2 children	0	66.7	0.0	33.3	100.0
	3	Village 1	Count	0	2	0	0	2
			% from households with 3 children	0.0	100.0	0.0	0.0	100.0
		Village 2	Count	2	2	0	1	5
			% from households with 3 children	40.0	40.0	0.0	20.0	100.0
	4	Village 1	Count	0	2	0	0	2
			% from households with 4 children	0.0	100.0	0.0	0.0	100.0
		Village 2	Count	0	3	0	0	3
			% from households with 4 children	0.0	100.0	0.0	0.0	100.0
Total			Count	3	13	4	3	23
			% of Total	13.0%	56.5%	17.4%	13.0%	100.0

The presence of children under the age of six did not appear to align with participant household food security status (Table 4.11). Five of sixteen (31.3%) participant households that did have children present under the age of six were food secure. Eleven of the sixteen (68.8%) participant households with young children were food insecure. Households without children under the age of six had similar findings.

Two of seven (28.6%) participant households without children under the age of six were food secure and the remaining five (71.4%) were food insecure.

Table 4.11. Cross tabulation of household food security status and the presence of child(ren) under the age of six in a household of participants in two rural villages in southwestern Wisconsin, 2013

			Household Food Security Status				Total
			Food Insecure		Food Secure		
			Very Low	Low	Marginal	High	
Children Under Age 6 Present in Household	Yes	Count	2	9	2	3	16
		% from households with children <6 years	12.5%	56.3%	12.5%	18.8%	100.0%
	No	Count	1	4	2	0	7
		% from households without children <6 years	14.3%	57.1%	28.6%	0.0%	100.0%
Total		Count	3	13	4	3	23
		% of Total	13.0%	56.5%	17.4%	13.0%	100.0%

When considering the villages separately to assess if there was an alignment between participant household food security status and the presence of children under the age of six, there were insufficient participant numbers to determine alignment. Village 2 had only one participant household that did not contain children under the age of six, so there were insufficient numbers of households without children under the age of six to compare against the twelve households in Village 2 that did contain children under the

age of six. In Village 1, the participant counts for each category (presence or no presence of children under the age of 6) also were small. Four (40.0%) participant households in Village 1 included children who were under the age of six. These households were divided evenly between low food security status ($n = 2$) and marginal food security status ($n = 2$). The other six (60.0%) participant households in Village 1 did not include children under age 6. One-third ($n = 2$) of these households were food secure with marginal food security. The remaining two-thirds ($n = 4$) of participant households without children under the age of six were food insecure with three (75.0%) having low food security and one (25.0%) having very low food security (Table 4.12).

Table 4.12. Cross tabulation of household food security status and the presence of children under the age of six with village differentiation of participant households in two rural villages in southwestern Wisconsin, 2013

				Household Food Security Status				Total
				Food Insecure		Food Secure		
				Very Low	Low	Marginal	High	
Child(ren) Under Age 6 Present in Household	Yes	Village 1	Count	0	2	2	0	4
			% from households with child(ren) < 6 years	0.0%	50.0%	50.0%	0.0%	100.0%
		Village 2	Count	2	7	0	3	12
			% from households with child(ren) < 6 years	16.7%	58.3%	0.0%	25.0%	100.0%
	No	Village 1	Count	1	3	2	0	6
			% from households without child(ren) < 6 years	16.7%	50.0%	33.3%	0.0%	100.0%
		Village 2	Count	0	1	0	0	1
			% from households without child(ren) < 6 years	0.0%	100.0%	0.0%	0.0%	100.0%
Total			Count	3	13	4	3	23
			% of Total	13.0%	56.5%	17.4%	13.0%	100.0%

Study participants also were questioned to determine their marital status (single or married/living with a partner) (Table 4.13). Of the eight participants who indicated they

were single, seven (87.5%) were food insecure (low or very low food security status). Seventy-five percent ($n = 6$) of the participants who were single ($n = 6$) lived in households that had low food security status. Very low food security status was determined for one (12.5%) household where the respondent was single. One (12.5%) participant household where the respondent was single had high food security.

Table 4.13. Cross tabulation of household food security status and marital status of participants in two rural villages in southwestern Wisconsin, 2013

			Food Security Status				Total
			Food Insecure		Food Secure		
			Very Low	Low	Marginal	High	
Marital Status	Single	Count	1	6	0	1	8
		% from single participant	12.5%	75.0%	0.0%	12.5%	100.0%
	Married/ Living with Partner	Count	2	7	4	2	15
		% from married / living with partner	13.3%	46.7%	26.7%	13.3%	100.0%
Total		Count	3	13	4	3	23
		% of Total	13.0%	56.5%	17.4%	13.0%	100.0%

In the participant households where a respondent indicated he or she had a spouse or partner, there was a higher proportion of food secure households (marginal and high food security status) than in households headed by a participant who was single. In households containing a married couple or partner, 13.3% ($n = 2$) of the households had high food security and 26.7% ($n = 4$) had marginal food security. An additional 46.7%

(n =7) of the households with a married couple or partner had low food security, and 13.3% (n = 2) had very low food security.

When considering the responses from participants in Village 1 compared to Village 2 regarding marital status and household food security, the villages had similar trends among households headed by single individuals (Table 4.14). Village 1 had three (30.0%) participant households headed by single individuals. All three of these households were food insecure. Two (66.7%) had low food security and one (33.3%) had very low food security. In comparison, Village 2 had five (38.5%) participant households that were headed by single individuals. Four (80.0%) of these households were food insecure with low food security. The remaining household headed by a single individual was food secure with high food security.

When considering participant households where the respondent was married or living with a partner, in Village 1 the respondents were almost evenly split with four (57.1%) participant households being food secure and three (42.9%) being food insecure. In Village 2 participant households where the respondent was married or living with a partner, there were greater issues with food insecurity. Two of eight (25.0%) participant households in Village 2 were food secure, and the remaining six (75.0%) households were food insecure. This ratio of food insecurity in participant households in Village 2 with respondents who were married or living with a partner (3 food insecure: 1 food secure) was similar to that of the single respondent households (4 food insecure: 1 food secure).

Table 4.14. Cross tabulation with village differentiation of household food security status and marital status comparing participants from two rural villages in southwestern Wisconsin, 2013

				Household Food Security Status				Total
				Food Insecure		Food Secure		
				Very Low	Low	Marginal	High	
Marital Status	Single	Village 1	Count	1	2	0	0	3
			% from single respondent	33.3%	66.7%	0.0%	0.0%	100.0%
		Village 2	Count	0	4	0	1	5
			% from single respondent	0.0%	80.0%	0.0%	20.0%	100.0%
	Married/ Living with Partner	Village 1	Count	0	3	4	0	7
			% from married/ living with partner	0.0%	42.9%	57.1%	0.0%	100.0%
		Village 2	Count	2	4	0	2	8
			% from married/ living with partner	25.0%	50.0%	0.0%	25.0%	100.0%
Total			Count	3	13	4	3	23
			% of Total	13.0%	56.5%	17.4%	13.0%	100.0%

When specifically considering households where the respondent was a single female, the results were very similar to those of households with single individuals overall (Table 4.15). These results were similar because there were a total of eight (34.7%) participant households headed by single individuals, and of those eight, six (75.0%) were headed by females. All six of the participant households headed by single females were food insecure. Five (83.3%) of the participant households had low food security and one (16.7%) had very low food security. The participant households that

were not headed by a single female had food security status proportions that were similar to the proportions of the overall participant sample pool. When considering the participant households that were headed by a single female, it was noted that all the households included children.

Table 4.15. Cross tabulation of household food security status and presence of a single female as head of household with participants from two rural villages in southwestern Wisconsin, 2013

			Household Food Security Status				Total
			Food Insecure		Food Secure		
			Very Low	Low	Marginal	High	
Single female head of household (HOH)	Yes (household headed by single female)	Count	1	5	0	0	6
		% from single female HOH	16.7%	83.3%	0.0%	0.0%	100.0%
	No (household headed by other than single female)	Count	2	8	4	3	17
		% from not a single female HOH	11.8%	47.1%	23.5%	17.6%	100.0%
Total		Count	3	13	4	3	23
		% of Total	13.0%	56.5%	17.4%	13.0%	100.0%

Table 4.16 shows the proportion of food secure and insecure participant households for each village when considering the presence of a single female head of household. The two villages were very similar in that all participant households with single females as head of household were food insecure. Village 1 had one (50.0%) participant household that had low food security and one (50.0%) that had very low food security with participant households headed by single females. Village 2 had four participant households headed by single females and all four had low food security.

Table 4.16. Cross tabulation with village differentiation of household food security status and presence of a single female as head of household with participants from two rural villages in southwestern Wisconsin, 2013

				Household Food Security Status				Total
				Food Insecure		Food Secure		
				Very Low	Low	Marginal	High	
Single Female Head of Household (HOH)	Yes (household headed by single female)	Village 1	Count	1	1	0	0	2
			% from single female HOH	50.0%	50.0%	0.0%	0.0%	100.0%
		Village 2	Count	0	4	0	0	4
			% from single female HOH	0.0%	100.0%	0.0%	0.0%	100.0%
	No (household headed by other than single female)	Village 1	Count	0	4	4	0	8
			% from not a single female HOH	0.0%	50.0%	50.0%	0.0%	100.0%
		Village 2	Count	2	4	0	3	9
			% from not a single female HOH	22.2%	44.4%	0.0%	33.3%	100.0%
Total			Count	3	13	4	3	23
			% of Total	13.0%	56.5%	17.4%	13.0%	100.0%

There were two households, one in each of the two villages, which had a single male as the head of household. In Village 1, the household had low food security and did not have any children present. In Village 2, the household had high food security and did have children present.

There was an overall trend for food insecurity to align with the presence of children in participant households. However, all except two (8.7%) participant

households contained children so the proportion of food insecure to food secure participant households was quite similar to the overall sample proportion. When considering the villages separately, the trend of household food insecurity in alignment with the presence of children continued. However, once again, the majority of participant households in each village contained children, so the prevalence was similar to the overall sample for each village.

When considering if there was an alignment between number of children in the household and food insecurity, there was a trend for increased food insecurity in households with three or four children. This trend was true for both the combined sample and when the villages were considered separately. However, there appeared to be no alignment for the presence of a child under the age of six and household food insecurity in either the combined sample or the samples differentiated by village.

There was a trend for alignment with single status and food insecurity in both the combined sample and the samples differentiated by village. All of the households headed by a single individual except one (12.5%) were found to be food insecure. When considering households specifically headed by a female (26.1%), all of the households were food insecure.

RQ 4: Is there an alignment between respondent educational level and food security status?

Participants were asked to report the number of years of school that they had completed. When considering the number of years of school completed and food security status for the combined sample pool of the two villages, there did not appear to be any alignment. When reviewing the cross tabulation of these two variables (years of school

completed and food security status), the cell counts were small as a result of the small sample size and did not provide enough information to assess for alignment (Table 4.17).

Table 4.17. Cross tabulation of respondent years of school completed and household food security status for participants in two rural villages in southwestern Wisconsin, 2013

		Household Food Security Status				Total
		Food Insecure		Food Secure		
		Very Low	Low	Marginal	High	
Completed some primary school (grades 1-6)	Count	0	3	1	0	4
	% from some primary	0.0%	75.0%	25.0%	0.0%	100.0%
Completed all primary school	Count	0	3	2	1	6
	% from all primary	0.0%	50.0%	33.3%	16.7%	100.0%
Completed some secondary school (grades 7-9)	Count	1	0	0	0	1
	% from some secondary	100.0%	0.0%	0.0%	0.0%	100%
Completed all secondary school	Count	0	2	0	0	2
	% from all secondary	0.0%	100.0%	0.0%	0.0%	100.0%
Completed some preparatory school (grades 10-12)	Count	0	1	0	0	1
	% from some preparatory	0.0%	100.0%	0.0%	0.0%	100.0%
Completed all preparatory school (grades 10-12)	Count	2	4	0	0	6
	% from all preparatory	33.3%	66.7%	0.0%	0.0%	100.0%
Completed any post-preparatory education	Count	0	0	1	2	3
	% from any post-prep	0.0%	0.0%	33.3%	66.7%	100.0%
Total	Count	3	13	4	3	23
	% of total	13.0%	56.5%	17.4%	13.0%	100.0%

Table 4.18. Cross tabulation with village differentiation of years of school completed and food security status for participants in two rural villages in southwestern Wisconsin, 2013

			Household Food Security Status				Total
			Food Insecure		Food Secure		
			Very Low	Low	Marginal	High	
Completed some primary school (grades 1-6)	Village 1	Count	0	1	1	0	2
		% from some primary	0.0%	50.0%	50.0%	0.0%	100.0%
	Village 2	Count	0	2	0	0	2
		% from some primary	0.0%	100.0%	0.0%	0.0%	100.0%
Completed all primary school	Village 1	Count	0	1	2	0	3
		% from all primary	0.0%	33.3%	66.7%	0.0%	100.0%
	Village 2	Count	0	2	0	1	3
		% from all primary	0.0%	66.7%	0.0%	33.3%	0.0%
Completed some secondary school (grades 7-9)	Village 1	Count	0	0	0	0	0
		% from some secondary	-	-	-	-	-
	Village 2	Count	1	0	0	0	1
		% from some secondary	100.0%	0.0%	0.0%	0.0%	100.0%
Completed all secondary school	Village 1	Count	0	2	0	0	2
		% from all secondary	0.0%	100.0%	0.0%	0.0%	100.0%
	Village 2	Count	0	0	0	0	0
		% from all secondary	-	-	-	-	-
Completed some preparatory school (grades 10-12)	Village 1	Count	0	0	0	0	0
		% from some preparatory	-	-	-	-	-
	Village 2	Count	0	1	0	0	1
		% from some preparatory	0.0%	100.0%	0.0%	0.0%	100.0%
Completed all preparatory school	Village 1	Count	1	1	0	0	2
		% from all preparatory	50.0%	50.0%	0.0%	0.0%	100.0%
	Village 2	Count	1	3	0	0	4
		% from all preparatory	25.0%	75.0%	0.0%	0.0%	100.0%
Completed any post-preparatory education	Village 1	Count	0	0	1	0	1
		% from any post-prep	0.0%	0.0%	100.0%	0.0%	100.0%
	Village 2	Count	0	0	0	2	2
		% from any post-prep	0.0%	0.0%	0.0%	100.0%	100.0%
Total		Count	3	13	4	3	23
		% from total	13.0%	56.5%	17.4%	13.0%	100.0%

Table 4.18 shows the cross tabulation, with village differentiation, of years of school completed and household food security status of participants in the two villages. When considering the two villages separately, there was no obvious trend which may have been, in part, a result of the small cell counts. In Village 1, food secure households were present only within households where the respondent completed some or all of primary school ($n = 3$, 30.0%) and when the respondent reported any post-preparatory education ($n = 1$, 10.0%). For Village 2, food secure households were present where the respondent competed primary school ($n = 1$, 7.7%) and any post-preparatory education ($n = 2$, 15.4%).

There was no apparent trend for alignment between educational attainment and household food security status in either the combined sample of the two villages or in either of the samples differentiated by village. This inability to assess for alignment is likely due to the small sample size which created low cell counts when the data were analyzed using cross tabulations.

RQ 5: Is there an alignment between type of employment and household food security status?

Respondents were questioned if they were employed, and if so, in what field of work. Employment status, employed or unemployed, did not appear to align with household food security status in the combined sample of the two villages (Table 4.19). Similarly, there appeared to be no alignment between household food security status and employment status when considering the villages separately (Table 4.20). The results of the data do not show the expected effects of unemployment, with the resulting limited resources for food. This surprising result may be due to the fact that the respondent's

employment status was captured in the data, and a spouse or partner's employment was not. If there was an employed spouse or partner in the household, additional resources to acquire food would be available.

Table 4.19. Cross tabulation of household food security status and participant employment in participants of two rural villages in southwestern Wisconsin, 2013

			Household Food Security Status				Total
			Food Insecure		Food Secure		
			Very Low	Low	Marginal	High	
Employ-ment Status	Employed	Count	2	6	2	2	12
		% from employed	16.7%	50.0%	16.7%	16.7%	100.0%
	Unem-ployed	Count	1	7	2	1	11
		% from unemployed	9.1%	63.6%	18.2%	9.1%	100.0%
Total		Count	3	13	4	3	23
		% of Total	13.0%	56.5%	17.4%	13.0%	100.0%

Table 4.20. Cross tabulation, with village differentiation, of household food security status and participant employment status comparing participants in two rural villages in southwestern Wisconsin, 2013

				Household Food Security Status				Total
				Food Insecure		Food Secure		
				Very Low	Low	Marginal	High	
Participant Employment Status (Yes= employed; No= unemployed)	Yes	Village 1	Count	1	2	2	0	5
			% from employed	20.0%	40.0%	40.0%	0.0%	100.0%
		Village 2	Count	1	4	0	2	7
			% from employed	14.3%	57.1%	0.0%	28.6%	100.0%
	No	Village 1	Count	0	3	2	0	5
			% from unemployed	0.0%	60.0%	40.0%	0.0%	100.0%
		Village 2	Count	1	4	0	1	6
			% from unemployed	16.7%	66.7%	0.0%	16.7%	100.0%
Total			Count	3	13	4	3	23
			% of Total	13.0%	56.5%	17.4%	13.0%	100.0%%

Specific fields of employment had higher rates of food insecurity (low and very low food security status). Of participants who reported being employed on a farm, five of six (83.3%) households were food insecure. Four (66.7%) households of participants employed on farms had low food security, and one (16.7%) had very low food security. Three of four (75.0%) households where the participant reported working in a factory were food insecure. Two of those households had low food security status and one had very low food security status. Working in a meat packing facility and as an interpreter each were reported by one participant. Both of the households associated with these participants were food secure (Table 4.21).

Table 4.21. Cross tabulation of household food security status and field of employment of participants in two rural villages in southwestern Wisconsin, 2013

			Household Food Security Status				Total
			Food Insecure		Food Secure		
			Very Low	Low	Marginal	High	
Field of Employ-ment	Unemployed	Count	1	7	2	1	11
		% from unemployed households	9.1%	63.6%	18.2%	9.1%	100.0%
	Farm	Count	1	4	1	0	6
		% from farm households	16.7%	66.7%	16.7%	0.0%	100.0%
	Factory	Count	1	2	0	1	4
		% from factory households	25.0%	50.0%	0.0%	25.0%	100.0%
	Meat Packing	Count	0	0	1	0	1
		% from meat packing households	0.0%	0.0%	100.0%	0.0%	100.0%
	Interpreter	Count	0	0	0	1	1
		% from interpreter households	0.0%	0.0%	0.0%	100.0%	100.0%
Total		Count	3	13	4	3	23
		% of Total	13.0%	56.5%	17.4%	13.0%	100.0%

When considering the two villages separately, the small sample size made it difficult to determine alignment (Table 4.22). The one household in Village 1 with a respondent working on a farm was food secure; whereas in Village 2, all five households with a respondent working on a farm were food insecure. Conversely, in Village 1, all

three households with respondents working in a factory were food insecure, and in Village 2, the one household with a respondent working in a factory was food secure.

There was no apparent alignment between employment status (i.e., employed, unemployed) and food security status for neither the combined sample of the two villages nor the samples differentiated by village. Since only the respondent's employment status was requested, the data obtained by the survey would not have captured a partner or spouse's employment that would have provided income for food resources. There was an alignment between increased food insecurity prevalence and employment in both factories and farms.

Table 4.22. Cross tabulation of household food security status and participant employment status comparing two rural villages in southwestern Wisconsin, 2013

				Household Food Security Status				Total
				Food Insecure		Food Secure		
				Very Low	Low	Mar-ginal	High	
Field of employ-ment	Unem-ployed	Village 1	Count	0	3	2	0	5
			% from unemployed households	0.0%	60.0%	40.0%	0.0%	100.0%
		Village 2	Count	1	4	0	1	6
			% from unemployed households	16.7%	66.7%	0.0%	16.7%	100.0%
	Farm	Village 1	Count	0	0	1	0	1
			% from farm households	0.0%	0.0%	100.0%	0.0%	100.0%
		Village 2	Count	1	4	0	0	5
			% from farm households	20.0%	80.0%	0.0%	0.0%	100.0%
	Factory	Village 1	Count	1	2	0	0	3
			% from factory households	33.3%	66.7%	0.0%	0.0%	100.0%
		Village 2	Count	0	0	0	1	1
			% from factory households	0.0%	0.0%	0.0%	100.0%	100.0%
	Meat Packing	Village 1	Count	0	0	1	0	1
			% from meat packing households	0.0%	0.0%	100.0%	0.0%	100.0%
		Village 2	Count	0	0	0	0	0
			% from meat packing households	-	-	-	-	-
	Interpret -er	Village 1	Count	0	0	0	0	0
			% from interpreter households	-	-	-	-	-
		Village 2	Count	0	0	0	1	1
			% from interpreter households	0.0%	0.0%	0.0%	100.0%	100.0%
Total			Count	3	13	4	3	23
			% of Total	13.0%	56.5%	17.4%	13.0%	100.0%

RQ 6: Is there an alignment between food program use (e.g., Supplemental Nutrition Assistance Program, Supplemental Nutrition Program for Women, Infants, and Children) and food security status?

Participants were asked if their households utilized any food assistance programs in the past year, specifically Food Share (Supplemental Nutrition Assistance Program in Wisconsin), Special Supplemental Nutrition Program for Women, Infants, and Children (WIC), free or reduced school lunches, and local food pantries. Participant households that did utilize one or more food assistance programs had a higher prevalence of food insecurity (low or very low food security status) than participant households that did not utilize the food assistance programs (Table 4.23). Of the participant households that utilized one or more food assistance programs, 61.1% ($n = 11$) had low food security and 16.7% ($n = 3$) had very low food security. The remaining participant households utilizing food assistance programs were food secure (11.1%, $n = 2$, marginal food security; 11.1%, $n = 2$, high food security).

Table 4.23. Cross tabulation of household food security status and food assistance program use by participants in two rural villages in southwestern Wisconsin, 2013

			Household Food Security Status				Total
			Food Insecure		Food Secure		
			Very Low	Low	Marginal	High	
Food Assistance (FA) Program Use	Used 1 or more FA programs	Count	3	11	2	2	18
		% from used FA programs	16.7%	61.1%	11.1%	11.1%	100.0%
	Did not receive food assistance	Count	0	2	2	1	5
		% from did not use FA programs	0.0%	40.0%	40.0%	20.0%	100.0%
Total		Count	3	13	4	3	23
		% of Total	13.0%	56.5%	17.4%	13.0%	100.0%

Participant households that did not utilize food assistance programs were mostly food secure. Sixty percent ($n = 3$) of the participant households that did not use food assistance were food secure. The remaining 40% ($n = 2$) were food insecure with low food security status.

The purpose of food assistance programs is to aid households to become more food secure. While this appeared to be at odds with the data from this investigation, the relationship between food security status and food assistance program use is complicated, and this has been noted in the literature (Coleman-Jensen, Gregory, & Singh, 2014). Food security status was measured over the last twelve-month period. Specific food assistance program use and periods of food insecurity issues did not necessarily overlap in occurrence.

When considering the differentiated data of the two villages, the use of food assistance programs and food security status aligned similarly between the two. In Village 1, 33.3% ($n = 2$) of participant households who used food assistance programs were food secure with marginal food security status. Fifty percent ($n = 3$) of the participant households who used food assistance programs had low food security status and 16.7% ($n = 1$) had very low food security status. The results from Village 2 were similar in that 16.7% ($n = 2$) of the participant households who used food assistance programs were food secure with high food security status. Of the participant households in Village 2 that used food assistance programs and were food insecure, 66.7% ($n = 8$) had low food security and 16.7% ($n = 2$) had very low food security (Table 4.24).

In Village 1, there were four participant households that did not use food assistance programs. These were split evenly between low food security status and

marginal food security status. The one participant household in Village 2 that did not use food assistance programs had high food security status.

Table 4.24. Cross tabulation, with village differentiation, of household food security status and food assistance program use comparing participants in two rural villages in southwestern Wisconsin, 2013

				Household Food Security Status				Total
				Food Insecure		Food Secure		
				Very Low	Low	Marginal	High	
Food Assistance Program Use (Yes = used 1 or more programs; No = did not receive food assistance)	Yes	Village 1	Count	1	3	2	0	6
			% from used programs	16.7%	50.0%	33.3%	0.0%	100.0%
		Village 2	Count	2	8	0	2	12
			% from used programs	16.7%	66.7%	0.0%	16.7%	100.0%
	No	Village 1	Count	0	2	2	0	4
			% from did not use programs	0.0%	50.0%	50.0%	0.0%	100.0%
		Village 2	Count	0	0	0	1	1
			% from did not use programs	0.0%	0.0%	0.0%	100.0%	100.0%
Total			Count	3	13	4	3	23
			% of Total	13.0%	56.5%	17.4%	13.0%	100.0%

Participant households often were utilizing the services of more than one food assistance program (Tables 4.25 and 4.26). All of the participant households who utilized free or reduced school lunches for their children or who received services from the local food pantries also used at least one other food assistance program. The majority of

participant households who used Food Share or WIC also received services from one or more other food assistance programs. Eleven of 14 (78.6%) households receiving Food Share and 9 of 12 (75.0%) households using WIC also received services from one or more additional food assistance programs.

Table 4.25. Table indicating the number of households using Food Share, WIC, Free/Reduced Lunches, or food pantries and the corresponding number of households using the indicated food assistance program and at least one other food program with participants from two rural villages in southwestern Wisconsin, 2013

Food Assistance Program	Number Households Using Indicated Program	Households Using Indicated Program and at least 1 Other Food Assistance Program
Food Share	14	11
WIC	12	9
Free/Reduced Lunch	6	6
Food Pantry	9	9
No Program Use	5	0

When considering the number of food assistance programs being used by each participant household, most participants reported using at least two food assistance programs. Five of the 23 (21.7%) participants reported utilizing none of the food assistance programs. Six (26.1%) of the participants reported using only one food assistance program. The remaining 52.1% ($n = 12$) of participants reported utilizing the services of at least two food assistance programs.

The WIC Program provides nutrition education, referrals, and food assistance in the form of vouchers for income eligible pregnant and postpartum women, and children up to the age of five years old. The WIC Program was being used by 12 of 16 (75.0%) participant households with children under the age of five in the household. The Free and

Reduced Lunch Program was being used to a lesser extent by participant households. Of the 17 participant households with school age children, 35.3% ($n = 6$) were receiving free or reduced lunches at school.

Table 4.26. Number of households utilizing food assistance programs of participants in two rural villages in southwestern Wisconsin, 2013

Number of Food Assistance Programs Used	Number of Households	% of Total Households ($n = 23$)
0	5	21.7%
1	6	26.1%
2	5	21.7%
3	3	13.0%
4	4	17.4%

There was a trend for alignment between food insecurity and food assistance program use in the combined sample of the two villages and the samples differentiated by village. The higher prevalence of food insecurity among participant households that utilized food assistance programs may be due, in part, to the more food insecure households seeking aid.

Over half of the combined sample received benefits from two or more food assistance programs. WIC appeared to be well-utilized with three quarters of the participant households with children under the age of five participating. The Free and Reduced Lunch program was being used to a lesser extent with only a little greater than one third of participant households receiving free or reduced school lunches for the school aged children.

RQ 7: Is there an alignment between English proficiency and food security status?

It was not able to be determined if there was any alignment between participant language use in the home and food security status. Only one (4.3%) participant reported speaking mostly English in the home; this participant's household had high food security status. In the remaining 22 (95.7%) households, the participants spoke Spanish only or mostly Spanish in the home. There was no distinguishable difference in the food security trends among the participants who spoke Spanish or mostly Spanish in their home. In households where the participant spoke only Spanish, seven of eleven (63.6%) households were food insecure; whereas in households where the participant spoke mostly Spanish and some English, nine of eleven (81.8%) households were food insecure (Table 4.27).

Table 4.27. Cross tabulation of household food security status and participant language use in the home among participants in two rural villages in southwestern Wisconsin, 2013

			Household Food Security Status				Total
			Food Insecure		Food Secure		
			Very Low	Low	Marginal	High	
Language Usage	Spanish	Count	1	6	2	2	11
		% from Spanish	9.1%	54.5%	18.2%	18.2%	100.0%
	Mostly Spanish/ Some English	Count	2	7	2	0	11
		% from Mostly Spanish/ Some English	18.2%	63.6%	18.2%	0.0%	100.0%
	Mostly English/ Some Spanish	Count	0	0	0	1	1
		% from Mostly English/Some Spanish	0.0%	0.0%	0.0%	100.0%	100.0%
Total		Count	3	13	4	3	23
		% of Total	13.0%	56.5%	17.4%	13.0%	100.0%

There was also no evidence of alignment between language usage and food security status when data were differentiated by village (Table 4.28). Seven of ten (70.0%) participants in Village 1 spoke mostly Spanish and some English in the home. In Village 2, eight of thirteen (61.5%) participants spoke only Spanish in their home. The higher level of English language use in participants from Village 1 could be due to a number of reasons to include: longer length of time in the United States, attendance in English-speaking classes, or other reasons not apparent to the investigator. However, no

data were collected to explain why participants in Village 1 reported speaking more English than participants in Village 2.

Table 4.28. Cross tabulation, with village differentiation, of household food security status and participant language use in the home comparing participants in two rural villages in southwestern Wisconsin, 2013

				Household Food Security Status				Total
				Food Insecure		Food Secure		
				Very Low	Low	Margin-al	High	
Participant Language Use in the Home	Spanish	Village 1	Count	0	1	2	0	3
			% from Spanish	0.0%	33.3%	66.7%	0.0%	100.0%
		Village 2	Count	1	5	0	2	8
			% from Spanish	12.5%	62.5%	0.0%	25.0%	100.0%
	Mostly Spanish/ Some English	Village 1	Count	1	4	2	0	7
			% from Mostly Spanish/ Some English	14.3%	57.1%	28.6%	0.0%	100.0%
		Village 2	Count	1	3	0	0	4
			% from Mostly Spanish/ Some English	25.0%	75.0%	0.0%	0.0%	100.0%
	Mostly English/ Some Spanish	Village 1	Count	0	0	0	0	0
			% from Mostly English/ Some Spanish	-	-	-	-	-
		Village 2	Count	0	0	0	1	1
			% from Mostly English/ Some Spanish	0.0%	0.0%	0.0%	100.0%	100.0%
Total			Count	3	13	4	3	23
			% of Total	13.0%	56.5%	17.4%	13.0%	100.0

For the combined sample of the two villages and the samples differentiated by village, there were no apparent trends for alignment between food insecurity and participant language use in the home. Alignment was unable to be detected due to the high use of the Spanish language. All participants spoke either Spanish or mostly Spanish in the home, with the exception of one individual. There was a difference in the trend of language usage between the participant households in the two villages. In Village 2, the majority of participants reported speaking only Spanish in the home. In Village 1, the majority of participants reported speaking mostly Spanish, but also some English, in the home. No data were collected to explain the difference in language use between the two villages.

RQ 8: Is there an alignment between family and/or community garden usage and food security status?

Participants were questioned if they received fresh produce from a family, friend's, or community garden to assess if the availability of fresh garden produce aligned with household food security status. In the combined sample pool of the participants from the two villages, no alignment was observed between garden use and household food security status (Table 4.29). Similarly, no alignment was observed with garden use and household food security status when the data of the two villages were divided (Table 4.30).

Table 4.29. Cross tabulation of household food security status and family and/or community garden usage of participants from two rural villages in southwestern Wisconsin, 2013

			Food Security Status				Total
			Food Insecure		Food Secure		
			Very Low	Low	Marginal	High	
Family &/or Community Garden Use	Yes	Count	1	6	2	1	10
		% from used garden	10.0%	60.0%	20.0%	10.0%	100.0%
	No	Count	2	7	2	2	13
		% from did not use garden	15.4%	53.8%	15.4%	15.4%	100.0%
Total		Count	3	13	4	3	23
		% of Total	13.0%	56.5%	17.4%	13.0%	100.0%

Table 4.30. Cross tabulation, with village differentiation, of household food security status and family and/or community garden usage comparing participants of two rural villages in southwestern Wisconsin, 2013

				Household Food Security Status				Total
				Food Insecure		Food Secure		
				Very Low	Low	Marginal	High	
Family &/or Community Garden Usage	Yes	Village 1	Count	0	4	2	0	6
			% from used garden	0.0%	66.7%	33.3%	0.0%	100.0%
		Village 2	Count	1	2	0	1	4
			% from used garden	25.0%	50.0%	0.0%	25.0%	100.0%
	No	Village 1	Count	1	1	2	0	4
			% from did not use garden	25.0%	25.0%	50.0%	0.0%	100.0%
		Village 2	Count	1	6	0	2	9
			% from did not use garden	11.1%	66.7%	0.0%	22.2%	100.0%
Total			Count	3	13	4	3	23
			% of Total	13.0%	56.5%	17.4%	13.0%	100.0%

Qualitative Data: Participant Commentary

Income

Difficulties with a continuous income and sufficient income were brought up by a few participants. Two participants reported seasonal variations in income. Another reported that the household income varied monthly depending on the hours her husband was given at his place of employment. One participant stated what she felt was an issue for many households in the area, "no papers (green card) means no good jobs."

Food Assistance Programs

Participants also commented on the food assistance programs that were available to them. One participant noted that it was helpful that there are multiple programs to help families with food issues. Conversely, another participant reported that food program requirements for participation make accessing the programs difficult at times.

Food Pantries

A mobile food pantry visits one of the villages monthly. Otherwise, families in need of emergency food assistance need to travel outside the three-village area to access food pantries. Four participants stated that there needed to be food pantries located closer to their home. Additionally, two participants stated that extended and/or weekend hours at the food pantries would help make the pantries more accessible for families with working adults. One participant stated that additional food pantries would be helpful as so many households are using the existing pantries and sometimes not enough food is available at the pantries.

Language Issues

Language barriers were noted by some as an overall issue for Hispanic households in the area. One participant specifically had moved to the village he resided in because of free English classes that used to be offered in the village. Another participant reported taking part in English classes that were offered when she was able. Learning the English language was felt to be important. As one participant stated, "I think it's important to learn English. I've tried and it is hard. Maybe one day I'll be able to speak it better."

Fresh Produce

One participant reported that the local Amish produce stands located in the region were helpful with produce availability. The participant noted that the serve yourself feature of many of the produce stands was useful in increasing produce availability. These numerous Amish produce stands are scattered throughout the region. Many are located in the countryside, either at the end of the driveway or lane to an Amish family's house or up next to the Amish family's home. The stands located at the end of driveways and lanes often are unmanned and use an honor system of payment where a padlocked payment box is located on the stand. Customers are expected to be honest and provide proper payment for produce that is purchased.

Grocery Stores

Some participants in the three villages chose to provide comments while completing the questionnaires. With regards to food accessibility and availability, five participants reported that the lack of grocery stores in town was an issue. As stated by one participant, "What we need in this community is a market or store in the community.

We have three bars, but no store for milk even." Two participants noted that their families always had enough food, but not always the types of food desired. Two additional participants specifically referenced the need for a local market with culturally appropriate food items. One of those participants commented that she would have a Hispanic food store placed in her village if she was able. Another participant commented, "I think there needs to be a supermarket in town with food we can eat."

Literacy Issues

In addition to language barriers, basic literacy skills were noted by one participant as being an issue. "Many families (Latinos) don't know how to read or write. I think that this is an obstacle. Many times, they may choose unhealthy foods for their kids because they don't know better, or that there is not a lot of options. They may not know how to read ingredients or understand nutritional labels."

Discussion

The prevalence of household food insecurity in the combined sample pool of the two villages was greater than the overall prevalence of household food insecurity for the United States (Coleman-Jensen, Gregory, & Singh, 2014) (Figure 2). When considering the prevalence rates of food insecurity in each of the two villages, they were similarly high in comparison to the overall U.S. household prevalence with Village 1 having a food insecurity prevalence of 60%, and Village 2 a prevalence of 76.9%.

Household income aligned with participant household food security status in both the combined sample pool and when the results were differentiated by village. For participant households that were below the federal poverty guidelines, 83.4% were food insecure. In comparison, 20% of participant households that were above the federal

poverty guidelines were food insecure. Each of the two villages also had a high prevalence of household food insecurity among participants with a household income below the federal poverty guidelines.

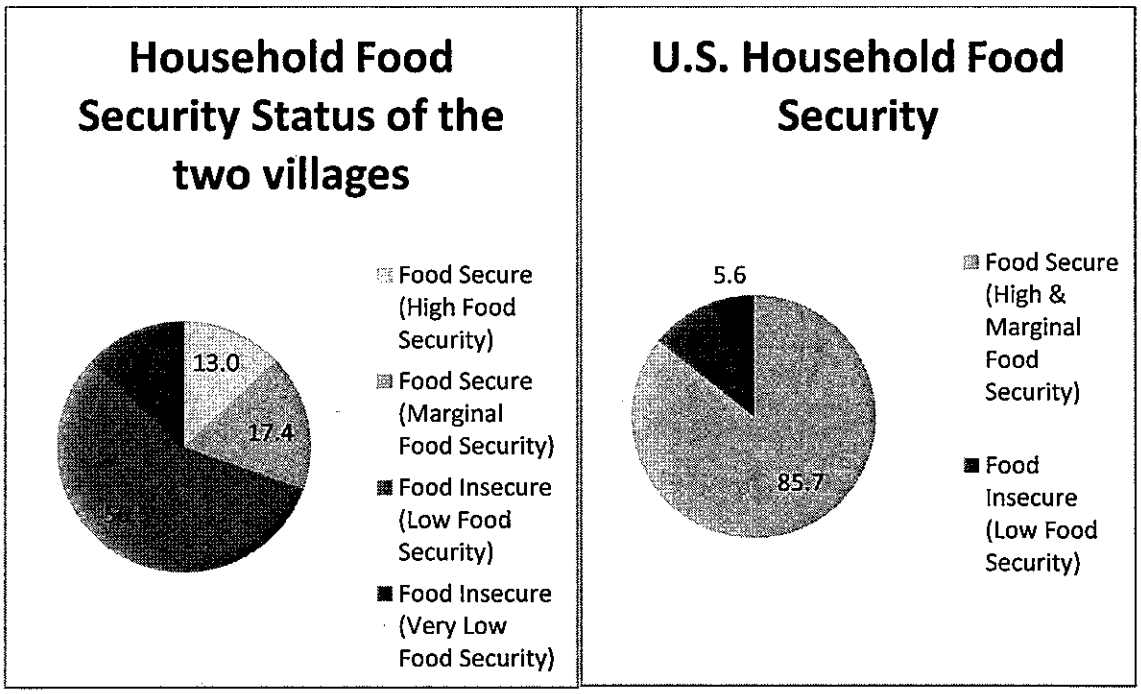

Figure 4.2. Prevalence of household food insecurity in the combined sample of the two villages in southwestern Wisconsin, 2013 and of U.S. households in 2013 using a nationally representative sample from the Current Population Survey (Coleman-Jensen, Gregory, & Singh, 2014).

Overall, the household factors that appeared to align with food security status in addition to income were the presence of three or four children, being a single head of household, being a female single head of household, specific field of employment (farm or factory work), and the use of food assistance programs. The factors that did not align with food security status or involved insufficient data to assess for alignment were the presence of a child or children under the age of six, educational attainment, unemployment, self-reported use of the English language in the home, and garden usage.

CHAPTER V

Introduction

This study investigated the prevalence of food insecurity in the Hispanic communities residing in three rural villages in southwestern Wisconsin. Household food security status was determined using the USDA Household Food Security Module (Beck, Nord, Price, & Hamilton, 2000). Demographic and socioeconomic data also were collected to determine if there was an alignment between those data and household food security status. Factors such as household composition, food program usage, English proficiency, educational attainment, and employment were assessed to investigate if there were any alignments between these factors and food security status.

Ultimately, one of the villages had a very small pool of respondents, with two individuals participating in the investigation. It was decided that the data obtained from participants living in that village would not be included in the data analysis, as the limited data would not be helpful in describing the demographic, socioeconomic, or food security status of other Hispanics that resided in that village. In addition, by not including the data from those participants, skewing the results of the other two villages or overstating the conditions and implications of households within the third village was avoided.

Summary of Results

1. There was a high prevalence of household food insecurity in the combined sample pool of the two villages (69.5%). When considering the prevalence of household food insecurity, with participants differentiated by village, the prevalence rates also

were high with Village 1 and Village 2 having household food insecurity prevalences of 60% and 76.9%, respectively.

2. Household income aligned with participant household food security status in both the combined sample pool, and when the results were differentiated by village. For participant households that were below federal poverty guidelines, 83.4% were food insecure. In comparison, 20% of participant households above the federal poverty guidelines were food insecure.
3. The majority (91.3%) of participant households contained children. The presence of children under the age of six did not align with food insecurity. However, households with three or four children had higher prevalences of food insecurity than households with one or two children. Additionally, households with children headed by a single adult aligned with household food security status. Specifically, all households headed by a single female were found to be food insecure.
4. Unemployment did not align with household food security status. Participants with specific fields of employment were found to have higher rates of household food insecurity. Specifically, farm and factory work aligned with a higher prevalence of household food insecurity.
5. The use of food assistance programs aligned with a higher prevalence of household food insecurity. The large majority (78.3%) of participants were utilizing food assistance programs, with over half of the participants utilizing two or more food assistance programs.

6. Other factors that were investigated but did not align with food security status, or involved insufficient data to assess for alignment, were educational attainment, self-reported use of the English language in the home, and garden usage.

Discussion

The prevalence of household food insecurity in the combined sample pool of the two villages (69.5%) was greater than the overall prevalence of household food insecurity for the United States (14.3%) and for Hispanic households nationwide (23.7%) (Coleman-Jensen, Gregory, & Singh, 2014). Research has indicated that households with specific characteristics experience food insecurity at a higher rate. For example, households with incomes less than the FPL, and households that utilized food assistance programs have been found to have a higher prevalence of food insecurity (Coleman-Jensen, Gregory, & Singh, 2014). The majority of participants' households in the combined sample of the two villages had incomes below the FPL and utilized food assistance programs, so the higher prevalence of food insecurity was congruent with previous research.

Previous research also has indicated that specific fields of employment (i.e., farm work) may be associated with a higher prevalence of food insecurity (Hill, Moloney, Mize, Himelick, & Guest, 2011; Quandt, Arcury, Early, Tapia, & Davis, 2004). This previous research aligned with the results of this investigation. Farm workers' households had a high prevalence of food insecurity, as did factory workers' households.

Households headed by a single person have been found to have a higher prevalence of food insecurity (Coleman-Jensen, Gregory, & Singh, 2014), as confirmed by this investigation. The presence of children in the household, the presence of a child (or children) under the age of six, educational attainment, unemployment (Coleman-

Jensen, Gregory, & Singh, 2014), and use of the English language (Dhokarh et al., 2011; Gormon, Zearley, & Favasuli, 2011) also have been associated with food insecurity. However, the results of this investigation were not congruent with the previous research, as no alignment between the previously stated variables and food insecurity were found.

A large majority of the participant households contained children, so the prevalence of household food insecurity of households with children closely mirrored that of the total sample. A larger sample that included a greater number of households without children potentially could have allowed for discernment in determining alignment between food insecurity and the presence of children in the household.

The presence of children under the age of six and educational attainment were two factors previous research indicated was associated with food insecurity (Coleman-Jensen, Gregory, & Singh, 2014). The small sample size of this investigation may be the reason no alignment was detected.

Unemployment has been aligned with household food insecurity as income has been found to be strongly associated with household food insecurity (Coleman-Jensen, Gregory, & Singh, 2014). However, participants were questioned regarding their own employment at the time of the interview. The employment of additional adults in households was not captured by the survey. Not capturing the data regarding the other working individual(s) might have diminished the effect of the limited resources associated with being unemployed.

Previous research has indicated that use of the English language among Hispanic populations is associated with decreased risk of food insecurity (Dhokarh et al., 2011; Gormon, Zearley, & Favasuli, 2011). Only one participant reported speaking mostly

English at home. The remaining participants all reported speaking only Spanish or mostly Spanish in the home. As a result, alignment between household food insecurity and language usage was not able to be determined. A larger sample, including a greater number of participants speaking English, might have allowed for alignment to have been determined.

The findings of this investigation can only be applied to the Hispanic participants that were investigated. The lack of a random sample and the small sample size indicate that the findings cannot be generalized to other Hispanic populations. However, these findings provide possibilities for future investigators to explore.

Recommendations

Recommendations for Practice

1. The high prevalence of household food insecurity found in these Hispanic populations indicates a need for greater availability, accessibility, and affordability of food resources among those who were interviewed. Additionally, there may be such needs within others in the villages in which the study took place.

None of the three villages had a grocery store, so residents must either travel to the closest larger town, a minimum of 20 minutes depending on the village, or rely on the gas station/convenience stores for food items. Convenience stores generally carry lower quality food, with regards to nutrient content, and at higher prices than items sold in a grocery store. As the villages are likely too small to support a full-service grocery store, working with the convenience stores to carry food items that are more nutritious, and reflect the cultural preferences of the local residents, may be an alternative.

Seniors' Farmers Market Vouchers and WIC Farmers' Market Vouchers are offered each summer to families enrolled in WIC and eligible adults over the age of 60. These vouchers can be used at farmers' markets for fresh fruits and vegetables. Setting up a farmers' market in one or more of the villages would allow the WIC families and senior adults in the three villages to access the fresh fruits and vegetables without having to travel a far distance. Additionally, individuals and families who do not receive the vouchers also would benefit from having fruits and vegetables more available and accessible in or near their own villages.

One of the participants noted that the Amish food stands in the region were a resource for accessing produce locally. Disseminating information about the Amish produce stands, especially to new members of the community not familiar with the stands, could help raise awareness of local sources of produce. The creation of a map or registry where local food stands are located also could be helpful. This resource could be placed in the local clinics, libraries, town halls, and other places that individuals might visit.

Community gardens can increase the amount of fresh produce available to local residents. This investigation did not indicate an alignment between food security and the use of gardens, however other research has found an association (Carney et al., 2012). One of the villages already has a community garden in place. Conversations with members of the local village governments to make sure that supportive policies are in place for community gardens could be beneficial. Additionally, working with the communities to set up community gardens so that all community members are aware of

the gardens and feel welcome to participate could increase household produce consumption during harvest periods.

Six participants commented on issues regarding accessing emergency food supplies. Both the distribution time of the mobile food pantry and the distances to the other nearest pantries in larger towns were given as examples of barriers to households accessing emergency food supplies. Working with the local food bank to try to schedule the mobile food pantry to include hours to accommodate a variety of schedules (e.g., working and nonworking households) would be helpful. Having a local food pantry with hours that are convenient for working households also would increase the accessibility of emergency food supplies for local households.

2. Since income was strongly aligned with household food security status in this investigation, the results indicate that increasing household income may increase household food security. However, this investigation found no alignment between education and English language skills, and household food insecurity. Skills that might be attained through education and being able to speak the English language could help individuals attain higher incomes. Skill development through advanced or technical degrees and certifications can be a stepping stone to better paying employment. However, without English language skills in this region, acquiring additional education is not possible. Providing English language classes in the three villages would help individuals not only with possible earning potential, but also with the practical purposes of daily interactions with the English-speaking majority in the community.

Potentially, native Spanish-speakers could be paired with upper level high school Spanish students. The native Spanish-speaker could serve as the expert in the Spanish

language for conversation, but time could also be allotted for the native Spanish-speaker to work on his or her English skills.

Area college and university students with majors in fields like education, Spanish, or social work could also help provide English language classes. Some colleges and universities have a community service requirement for graduation that this experience could account for, and other students could use this experience to build a well-rounded resume. With the steady influx of new students into the colleges and universities, there would be a continuous pool of prospective English language instructors, so that the villages' community members could have consistent classes.

3. Since the results indicated that the majority of the participant households were food insecure families with children, the school district might be used as a resource to support families. The school district could serve as a hub for services, both in providing onsite assessments and services and in providing referrals for services elsewhere. Since there are no food pantries in the three villages, a food pantry at the school could potentially serve as an accessible location for food resources for families. Working families also could benefit from free or inexpensive wrap-around care (i.e., supervision and programming that is provided to students before and after school to accommodate for working parents' schedules) that some school districts are able to provide. The investigator is aware of an afterschool program that is available to students. Wrap-around care would provide parents with flexibility in work hours and security in knowing that their children were in a safe, supervised environment.

4. The villages could collaborate in attracting new businesses to the region or developing their tourism as an effort to create higher paying jobs. In the region

investigated, there were not a lot of employment opportunities outside of agriculture and factory work, the two fields of employment that were found to be aligned with household food insecurity. In the long term, having the villages work with an entity like the University of Wisconsin Extension Community, Natural Resources, and Economic Development (CNRED) division could help develop businesses and industries that could support better paying jobs.

5. Local agencies should continue to support households that are having difficulty with food resources. Ensuring that effective outreach is done for food assistance programs would aid households in being able to afford sufficient food for household members. The health clinic, WIC program, local churches, libraries, convenience stores, and school district could all serve as sites where information about available food assistance programs could be made available. Having all outreach materials available in both Spanish and English, with clear information regarding eligibility requirements, would allow households to determine for which food assistance programs they would qualify.

Finally, continued communication and collaboration among the local agencies and entities that interact with the Hispanic households would help ensure that individuals and families have access to the greatest possible number of resources. A formal coalition focusing on the issues and needs of the growing Hispanic populations in the village could be formed. However, even an informal communication network which allows agencies to communicate such things as services able to be provided, upcoming events, and changes to programs could keep network agencies informed and better able to refer

individuals and families to services. This communication network could be set up through such avenues as email listservs or private social media groups.

Recommendations for Enhancing the Research Methodology

6. Some demographic factors (i.e., presence of children under the age of 6, educational attainment, use of the English language) were not found to align with household food insecurity in this investigation. A larger sample size, especially participants from Village 3, may have allowed for better discernment as to whether or not these factors actually did align with household food insecurity in the target populations. Identifying additional community members willing to introduce the investigator to potential participants likely would have helped in increasing the participant sample size, as this method was found to be most beneficial in recruiting participants.

Specifically, when considering employment status with the Demographic and Socioeconomic Profile survey instrument, revising the instrument so that it captures employment by any household member would be advised. This revision could provide a more accurate representation of how unemployment aligns with household food security status.

Recommendations for Future Research

1. Since this investigation was exploratory and the results indicated a high prevalence of household food insecurity, further research could be beneficial to confirm the findings. Also, expanding the research to include the whole population in the three villages might provide valuable information. Including the entire population could allow investigators to determine if the high prevalence of household food insecurity is unique to the Hispanic populations, or if it is a regional issue.

6. Factors not found to be aligned with household food insecurity in this investigation could be reassessed to determine if the lack of alignment is a unique condition with these specific populations, or if it was just a result of the small sample size.

1-6. Further research incorporating more qualitative methods, which could include such methods as photovoice, formal interviews, and focus groups, could provide more of a context for the quantitative findings. Additional qualitative research may provide useful insights that could, for example, improve agencies' services, or indicate the need for policy changes or additional service provision.

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APPENDIX A

HOUSEHOLD FOOD SECURITY MODULE

Food Security Assessment

Please write your zip code of residence: _____

Directions:
Now I'm going to read to you several statements that people have made about their food situation.

HH1. Which of these statements best to eat describes the food eaten in your household food I/we want in the last 12 months, that is, since last December:

[1] Enough of the kinds of food I/we want
[2] Enough but not always the kinds of
[3] Sometimes not enough to eat
[4] Often not enough to eat
[5] Don't know; prefer not to answer

HH2. "I/We worried whether my/our food would run out before I/we got money to buy more." Was that often, sometimes, or never true for (you/your household) in the last 12 months?

[ ] Often true
[ ] Sometimes true
[ ] Never true
[ ] Don't know; prefer not to answer

HH3. "The food that I/we bought just didn't last, and I/we didn't have money to get more." Was that often, sometimes, or never true for (you/your household) in the last 12 months?

[ ] Often true
[ ] Sometimes true
[ ] Never true
[ ] Don't know; prefer not to answer

HH4. "I/We couldn't afford to eat balanced meals." Was that often, sometimes, or never true for (you/your household) in the last 12 months?

[ ] Often true
[ ] Sometimes true
[ ] Never true
[ ] Don't know; prefer not to answer

AD1. In the last 12 months, since last April/May, did you or other adults in your household ever cut the size of your meals or skip meals because there wasn't enough money for food?

[ ] Yes
[ ] No (Skip AD1a)
[ ] Don't know (Skip AD1a)

AD1a. [IF ANSWERED 'YES' ABOVE, PLEASE ANSWER THIS QUESTION] How often did this happen—almost every month, some months but not every month, or in only 1 or 2 months?

[ ] Almost every month
[ ] Some months, but not every month
[ ] Only 1 or 2 months
[ ] Don't know

AD2. In the last 12 months, did you ever eat less than you felt you should because there wasn't enough money for food?

[ ] Yes
[ ] No
[ ] Don't know

AD3. In the last 12 months, were you every hungry but didn't eat because there wasn't enough money for food?

[ ] Yes
[ ] No
[ ] Don't know

AD4. In the last 12 months, did you lose weight because there wasn't enough money for food?

[ ] Yes
[ ] No
[ ] Don't know

AD5. In the last 12 months, did (you/you or other adults in your household) ever not eat for a whole day because there wasn't enough money for food?

[ ] Yes
[ ] No (Skip AD5a)
[ ] Don't know (Skip AD5a)

AD5a. [IF YOU ANSWERED 'YES' ABOVE, PLEASE ANSWER THIS QUESTION] How often did this happen—almost every month, some months but not every month, or in only 1 or 2 months?

[ ] Almost every month
[ ] Some months but not every month
[ ] Only 1 or 2 months
[ ] Don't know

Answer the following questions if there are children under the age of 18 in the household.

CH1. "(I/we) relied on only a few kinds of low-cost food to feed (my/our) child/the children) because (I was/we were) running out of money to buy food." Was that often, sometimes, or never true for your household in the last 12 months?

[ ] Often true
[ ] Sometimes true
[ ] Never true
[ ] Don't know; prefer not to answer

CH2. "(I/We) couldn't feed (my/our) child/the children) a balanced meal, because (I/we) couldn't afford that." Was that often, sometimes, or never true for your household in the last 12 months?

[ ] Often true
[ ] Sometimes true
[ ] Never true
[ ] Don't know; prefer not to answer

CH3. "(My/Our child was/The children were) not eating enough because (I/we) just couldn't afford enough food." Was that often, sometimes, or never true for (you/your household) in the last 12 months?

[ ] Often true
[ ] Sometimes true
[ ] Never true
[ ] Don't know; prefer not to answer

CH4. In the last 12 months, since (April/May) of last year, did you ever cut the size of (your child's/any of the children's) meals because there wasn't enough money for food?

[ ] Yes
[ ] No
[ ] Don't know

CH5. In the last 12 months, did (CHILD'S NAME/ any of the children) ever skip meals because there wasn't enough money for food?

[ ] Yes
[ ] No (Skip CH5a)
[ ] Don't know (Skip CH5a)

CH5a. [IF ANSWERED 'YES' ABOVE, PLEASE ANSWER THIS QUESTION] How often did this happen—almost every month, some months but not every month, or in only 1 or 2 months?

[ ] Almost every month
[ ] Some months but not every month
[ ] Only 1 or 2 months
[ ] Don't know

CH6. In the last 12 months, (was your child/ were the children) ever hungry but you just couldn't afford more food?

[ ] Yes
[ ] No
[ ] Don't know

CH7. In the last 12 months, did (your child/ any of the children) ever not eat for a whole day because there wasn't enough money for food?	[ ] Yes [ ] No [ ] Don't know

Bickel, G., Nord, M., Price, C., Hamilton, W., & Cook, J. (2000). Measuring food security in the United States: Guide to measuring household food security (Revised 2000). Retrieved from http://www.ers.usda.gov/Briefing/FoodSecurity/surveytools.htm

APPENDIX B

HOUSEHOLD FOOD SECURITY MODULE: SPANISH INSTRUMENT

1*. ¿Cuál de las siguientes oraciones describe mejor la situación de comida en su casa en los últimos doce meses? (CHOOSE ONLY ONE OPTION)
[ ] Siempre como (comemos) lo suficiente y los tipos de alimentos que deseo (deseamos) (SKIP TO 2)
[ ] Como (comemos) lo suficiente pero no siempre lo que deseo (deseamos) (CONTINUE TO 1B)
[ ] A veces no como (comemos) lo suficiente o (CONTINUE TO 1A)
[ ] Frecuentemente no como (comemos) lo suficiente (CONTINUE TO 1A)
[ ] Don't Know or Refused

1a. Aquí hay algunas razones por cual las personas no comen lo suficiente. Para cada una, dígame si es una razón por la cual usted no come lo suficiente (MARK ALL THAT APPLY)
SI NO DONT KNOW
[ ] [ ] [ ] No tengo suficiente dinero para comida
[ ] [ ] [ ] Se me hace difícil ir a la tienda
[ ] [ ] [ ] Estoy a dieta
[ ] [ ] [ ] No tengo una estufa que funcione
[ ] [ ] [ ] No puedo cocinar o comer debido a problemas de salud
(CONTINUE TO 2)

1b. Aquí hay algunas razones por que las personas no siempre tienen las clases de comida que quieren o necesitan. Para cada una, por favor dígame si esa es una razón por que no tiene las clases de comida que usted quiere o necesita. (MARK ALL THAT APPLY).
SI NO DONT KNOW
[ ] [ ] [ ] No hay suficiente dinero para comida
[ ] [ ] [ ] Muy difícil ir a la tienda
[ ] [ ] [ ] Estoy a dieta
[ ] [ ] [ ] No hay la clase de comida que quiero
[ ] [ ] [ ] No hay buena calidad de comida

Ahora le voy a leer algunas respuestas de la gente sobre su situación de comida. Para cada repuesta, favor de indicarme si ocurre en su casa frecuentemente, a veces, o nunca en los últimos 12 meses, es decir desde el ultimo (display current month).

2. La primera oración es "Me (nos) preocupo´ que la comida se podía acabar antes de tener dinero para comprar más." Para (Usted./su casa), ¿Esto fue frecuentemente, a veces, o nunca en los últimos 12 meses?
[ ] Frecuentemente
[ ] A veces
[ ] Nunca
[ ] Don't Know or Refused

3. La comida que compre´ (compramos) no duro´ mucho y no había dinero para comprar más. Para (Usted./su casa), ¿Esto fue frecuentemente, a veces, o nunca en los últimos 12 meses?
[ ] Frecuentemente
[ ] A veces
[ ] Nunca
[ ] Don't Know or Refused

4. (Yo/Nosotros) no teníamos lo suficiente para comer una comida balanceada (nutritiva). Para (Usted./su casa), ¿Esto fue frecuentemente, a veces, o nunca en los últimos 12 meses?
[ ] Frecuentemente
[ ] A veces
[ ] Nunca
[ ] Don't Know or Refused

5. Dependía (Dependíamos) de unos pocos alimentos de bajo costo para dar comida a los niños por que se nos terminó el dinero disponible para comprar alimentos. Para (Usted./su casa), ¿Esto fue frecuentemente, a veces, o nunca en los últimos 12 meses?
[ ] Frecuentemente
[ ] A veces
[ ] Nunca
[ ] Don't Know or Refused

6. No tenía (teníamos) suficiente dinero para ofrecer una comida balanceada (nutritiva) a los niños. Para (Usted./su casa), ¿Esto fue frecuentemente, a veces, o nunca en los últimos 12 meses?
[ ] Frecuentemente
[ ] A veces
[ ] Nunca
[ ] Don't Know or Refused

7. Mi (s)/nuestros hijo(s) no comía(n) lo suficiente porque no tenía(mos) dinero para comprar suficiente comida. Para (Usted./su casa), ¿Esto fue frecuentemente, a veces, o nunca en los últimos 12 meses?
[ ] Frecuentemente
[ ] A veces
[ ] Nunca
[ ] Don't Know or Refused

8. En los últimos 12 meses, desde el ultimo (nombre del mes presente). ¿Usted o algún miembro de su familia comió menos o dejo´ de comer por que no había suficiente dinero para la comida?
[ ] Sı´ (GO TO 8A)
[ ] No (SKIP TO 9)
[ ] Don't Know (SKIP TO 9)

8a. ¿Con que´ frecuencia sucedió esto—casi cada mes, algunos meses, o solo en uno o dos meses?
[ ] Casi cada mes
[ ] Algunos meses
[ ] Solo en uno o dos meses
[ ] Don't Know

9. En los últimos 12 meses, ¿Comió usted menos de lo que pensaba que debía por que no hubo suficiente dinero para comida?
[ ] Sı´
[ ] No
[ ] Don't Know

10. En los últimos 12 meses, ¿Alguna vez tuvo hambre pero no comió porque no tuvo suficiente dinero para comida?
[ ] Sı´
[ ] No
[ ] Don't Know

11. En los últimos 12 meses, ¿Perdió usted peso por que no tuvo suficiente dinero para comprar comida?
[ ] Sı´
[ ] No
[ ] Don't Know

12. En los últimos 12 meses, ¿Usted o algún otro adulto de su familia no comió´ por todo el día por que no hubo suficiente dinero para comida?
[ ] Sı´ (GO TO 12A)
[ ] No (SKIP TO 13)
[ ] Don't Know (SKIP TO 13)

12a. ¿Con que´ frecuencia sucedió esto—casi cada mes, algunos meses, o solo en uno o dos meses?
[ ] Casi cada mes
[ ] Algunos meses
[ ] Solo en uno o dos meses
[ ] Don't Know

13. En los últimos 12 meses, ¿Alguna vez le dio´ menos cantidad de comida a su(s) hijo(s) por que no hubo suficiente dinero para comida?
[ ] Sı´
[ ] No
[ ] Don't Know

14. En los últimos 12 meses, ¿Alguna vez su hijo o cualquiera de sus hijos no comió por que no hubo suficiente dinero para comida?
[ ] Sı´ (GO TO 12A)
[ ] No (SKIP TO 13)
[ ] Don't Know (SKIP TO 13)

14a. ¿Con que´ frecuencia sucedió´ esto—casi cada mes, algunos meses, o solo en uno o dos meses?
[ ] Casi cada mes
[ ] Algunos meses
[ ] Solo en uno o dos meses
[ ] Don't Know

15. En los últimos 12 meses, ¿Alguna vez su hijo o cualquiera de sus hijos tuvo hambre pero no tuvo suficiente dinero para comprar más comida?
[ ] Sı´
[ ] No
[ ] Don't Know

16. En los últimos 12 meses, ¿Alguna vez sus hijos no comieron por todo el día por que no hubo suficiente dinero para comida?
[ ] Sı´
[ ] No
[ ] Don't Know

*Items 1, 1a and 1b are optional and not required to calculate the scale or to classify households. These may be omitted if not needed for analytical purposes or screening.

Harrison, G., Stormer, A., Herman, D., & Winham, D. (2003). Development of a Spanish-language version of the U.S. Household Food Security Module. *Journal of Nutrition, 133*, 1192-1197.

APPENDIX C

DEMOGRAPHIC AND SOCIOECONOMIC PROFILE INSTRUMENT:

DRAFT INSTRUMENT

JURORS' INSTRUCTIONS FOR CONTENT VALIDATION PROCESS

FINAL INSTRUMENT

SPANISH INSTRUMENT

LIST OF JURORS

Draft Document

Participant # _____
Date of Interview_____
Date Data Entered_____

Demographic and Socioeconomic Profile

Zip Code of Residence _____

1. Household Composition

Please list the age, sex, and relationship of all the individuals living in your household.

Adults (18 yr & older)			Children (under 18 yr)		
Age	**Sex**	**Relationship**	**Age**	**Sex**	**Relationship**

__Total Children in Household
__Total Children under 5 in household
__Married Couple/ Living with Adult Partner
__Single Adult head of household

Observations:
(such as appearance, direct comments by participants, etc.)

2. Employment

Are you currently employed?
__Yes
__No

If yes, what is your field of employment?
Area/Field of Employment:

3. English Proficiency

What language is spoken in the home?

__Spanish only
__Mostly Spanish/Some English
__Mostly English/Some Spanish
__English only

4. Educational Attainment

What level of education have you completed: less than high school or at least high school?

__Less than high school level
__High school or above

5. Capacity: Garden Availability

Do you receive vegetables or fruit from either a family or community garden?

__Yes
__No

6. Use of Food Assistance

Has your household used any of the following programs in the past 12 months? (Check all that apply)

__ FoodShare (also known as Food Stamps or the Quest Card)
__ WIC
__ Free/Reduced School Meals
__Food Pantry/Mobile Food Pantry (for example Second Harvest or Cashton Cupboard & Closet)

7. Household Income

From the tables we are showing you, please indicate where your household income would be. You can choose by either monthly or annual income.

__Poverty level or below
__Above poverty level

Tables from Foundation for Health Coverage Education (http://coverageforall.org/pdf/FHCE_FedPovertyLevel.pdf). Tables adapted from the 2012 Health and Human Services poverty guidelines (*http://aspe.hhs.gov/poverty/12poverty.shtml*). Monthly percentage data calculated by FHCE and rounded to the nearest dollar.

Content Validation

The purpose of this study is to explore the issue of "food security," which is the ability of a family to gather enough food to maintain an active, healthy lifestyle, in Hispanic residents in two neighboring rural villages in southwestern Wisconsin. One survey instrument, which has already been validated and is used widely in food security research, will be used to determine if a family is food secure. The instrument being presented here for content evaluation will be used to gather **demographic and socioeconomic data** that has been shown in other research to have an association with food security.

Please review each of the items from the survey instrument and reflect on the degree to which you believe each item assesses the desired data. Circle the rating that matches the degree to which you believe the item assesses the desired data using the following scale:

1	2	3	4	5
Not at all	Barely	Moderately	Well	Very Well

1. Household Composition

Please list the age, sex, and relationship of all the individuals living in your household.

Adults (18 yr & older)			Children (under 18 yr)		
Age	**Sex**	**Relationship**	**Age**	**Sex**	**Relationship**

__Total Children in Household
__Total Children under 5 in household
__Married Couple/ Living with Adult Partner
__Single Adult head of household

The purpose of this survey item is to gather information about the family members in each household. Specific traits of families (e.g. presence of children, single head of household) have been found in other research to be associated with increased risk for food security issues.

Please rate the degree to which this item assesses household composition.

1	2	3	4	5
Not at all	Barely	Moderately	Well	Very Well

Comments:

2. Employment

Are you currently employed?
__Yes
__No

If yes, what is your field of employment?
Area/Field of Employment:

The purpose of this survey item is to ascertain if the study participant is employed, and if so, in what field. Unemployment and specific fields of employment have been found in other research to be associated with increased risk of food insecurity.

Please rate the degree to which this item assesses the desired employment characteristics.

1	2	3	4	5
Not at all	Barely	Moderately	Well	Very Well

Comments:

3. English Proficiency
What language is spoken in the home?
__Spanish only
__Mostly Spanish/Some English
__Mostly English/Some Spanish
__English only

The purpose of this survey item is to assess the study participant's English speaking ability. Research has indicated that limited English speaking skills is often associated with greater risk of food insecurity.

Please rate the degree to which this item assesses English proficiency.

1	2	3	4	5
Not at all	Barely	Moderately	Well	Very Well

Comments:

4. Educational Attainment
What level of education have you completed: less than high school or at least high school?
__Less than high school level
__High school or above

The purpose of this item is to assess if the individual has achieved a high school level of education or above. Individuals that have not completed a high school level of education have been found to be at greater risk of food insecurity.

Please rate the degree to which this item assesses the participant's educational attainment.

1	2	3	4	5
Not at all	Barely	Moderately	Well	Very Well

Comments:

5. Garden Availability

Do you receive vegetables or fruit from either a family or community garden?

__Yes

__No

The purpose of this question to provide data to allow investigation as to whether or not there is an association in this population between having access to garden produce and the food security status of the household.

Please rate the degree to which this item assesses the participant's access to garden produce.

1	2	3	4	5
Not at all	Barely	Moderately	Well	Very Well

Comments:

6. Use of Food Assistance

Has your household used any of the following programs in the past 12 months? (Check all that apply)

__ FoodShare (also known as Food Stamps or the Quest Card)

__ WIC

__ Free/Reduced School Meals

__Food Pantry/Mobile Food Pantry (for example Second Harvest or Cashton Cupboard & Closet)

The purpose of this item is to ascertain what, if any, food programs members of the participant's household have utilized over the past twelve months. Past research has found associations between the use of food assistance programs and food security.

Please rate the degree to which this item assesses food assistance program use by the participant's household.

1	2	3	4	5
Not at all	Barely	Moderately	Well	Very Well

Comments:

7. Household Income

From the tables we are showing you, please indicate where your household income would be. You can choose by either monthly or annual income.

__Poverty level or below

__Above poverty level

Tables from Foundation for Health Coverage Education (http://coverageforall.org/pdf/FHCE_FedPovertyLevel.pdf). Tables adapted from the 2012 Health and Human Services poverty guidelines (*http://aspe.hhs.gov/poverty/12poverty.shtml*). Monthly percentage data calculated by FHCE and rounded to the nearest dollar.

Study participants will indicate where their household income lies on the charts. The purpose of this item is to assess if the household income is above or below federal poverty lines as poverty has been found to be associated with food insecurity.

Please rate the degree to which this item assesses the poverty status of the household. .

1	2	3	4	5
Not at all	Barely	Moderately	Well	Very Well

Comments:

Participant # _____
Date of Interview_____
Date Data Entered_____

Demographic and Socioeconomic Profile

Zip Code of Residence _____

1. Household Composition

Please list the age, sex, and relationship of all the individuals living in your household.

Adults (18 yr & older)			Children (under 18 yr)		
Age	**Sex**	**Relationship**	**Age**	**Sex**	**Relationship**

__Total Children in Household
__Children under 6 in household
__Married Couple/Living with Adult Partner
__Single Adult Female head of household

Observations:
(for example, appearance, interview environment, direct comments by participants)

2. Employment

Are you currently employed?
__Yes
__No

If yes, what is your field of employment?
Area/Field of Employment:

3. English Proficiency

What language is spoken in the home?

__Spanish only
__Mostly Spanish/Some English
__Mostly English/Some Spanish
__English only

4. Educational Attainment

How many years of school have you completed? _____

5. Capacity: Garden availability

Do you receive fresh vegetables or fruits from a garden?

__ Own garden
__ Family member's garden
__ Friend's garden
__ Community garden
__No

6. Use of Food Assistance

Has your household used any of the following programs in the past 12 months? (Check all that apply)

__ FoodShare (also known as Food Stamps or the Quest Card)
__ WIC
__ Free/Reduced School Meals
__Food Pantry/Mobile Food Pantry (for example Second Harvest or Cashton Cupboard & Closet)

7. Household Income

What is your household's monthly income?

$_____

Is that fairly consistent for all 12 months of the year? Yes____ No____

If "yes" compare against the income tables. If no, write in below the participant's description of the household's income (e.g., increases during the summer months by $$$ because of...), and then calculate annual income.

Annual Income:$_____

__Poverty level or below
__Above poverty level

Tables from Foundation for Health Coverage Education (http://coverageforall.org/pdf/FHCE_FedPovertyLevel.pdf). Tables adapted from the 2012 Health and Human Services poverty guidelines (*http://aspe.hhs.gov/poverty/12poverty.shtml*). Monthly percentage data calculated by FHCE and rounded to the nearest dollar.

Participant # _____
Date of Interview_____
Date Data Entered_____

Ficha Socio-económica y demográfica

Código Postal de residencia _____

1. Miembros de la familia

Indica la edad, el sexo y la relación de los miembros de la familia que viven en la casa

Adultos (18 de edad y mayor)			Niños (menos de 18 de edad)		
Edad	**Sexo**	**Parentesco**	**Edad**	**Sexo**	**Parentesco**

__Niños en el hogar
__Niños de menos de 5 años de edad en el hogar
__Pareja Casada/Viviendo con pareja adulta
__Adulto soltero jefe de casa

Observations:
(for example, appearance, interview environment, direct comments by participants)

2. Información laboral

¿Está usted empleado/a?
__Sí
__No

¿En qué trabaja usted?
Area/Field of Employment:

3. Habilidad para hablar ingles

¿Qué lengua habla usted en casa?

__Solo español
__Mas español/ algo de ingles
__Mas ingles/ algo de español
__Solo inglés

4. Nivel de escolaridad

¿Hasta qué grado de estudios tiene usted? ¿Cuántos años? _____

5. Capacidad: Disponibilidad de jardín

¿Recibe usted frutos y vegetales frescos de un jardín?

__ Mi propio jardín
__ El jardín de la familia
__ Jardín de un amigo
__ Jardín comunitario
__No

6. Uso de asistencia de comida

Marque <u>cada</u> programa que usted o un miembro de su hogar ha recibido en los últimos 12 meses:

__ Estampillas para comida (< Food Stamps> o <Quest Card>)
__ WIC
__ Comidas gratuitas y a precio rebajado de la escuela
__Despensa de alimentos/Banco de alimentos móvil < Second Harvest> o <Cashton Cupboard & Closet>)

7. Ingresos

¿Cuál es el ingreso mensual de su familia?

$_____

¿Es este ingreso consistente durante los 12 meses del año? Sí____ No____

If "yes" compare against the income tables. If no, write in below the participant's description of the household's income (e.g., increases during the summer months by $$$ because of...), and then calculate annual income.

Annual Income:$_____

__Poverty level or below
__Above poverty level

Tables from Foundation for Health Coverage Education (http://coverageforall.org/pdf/FHCE_FedPovertyLevel.pdf). Tables adapted from the 2012 Health and Human Services poverty guidelines (*http://aspe.hhs.gov/poverty/12poverty.shtml*). Monthly percentage data calculated by FHCE and rounded to the nearest dollar.

Jurors Assisting With Content Validation of Socioeconomic and Demographic Profile Instrument

Karen Ehle-Traastad, Family Living Agent, UW Extension Vernon County

Anne Heath, Health Educator, Scenic Bluffs Community Health Center

Sonya Lenzendorf, Wisconsin Nutrition Education Program Coordinator, UW Extension Crawford and Vernon Counties

Kelly Stefferud, RD, CD, WIC Dietitian, Vernon County Public Health Department

Shelley Teadt, Director of Planning, Couleecap, Inc.

APPENDIX D

INFORMATIONAL FLYER: ENGLISH AND SPANISH VERSIONS

We are looking into hunger in your area!

Norwalk Health Center

Monday, April 29th

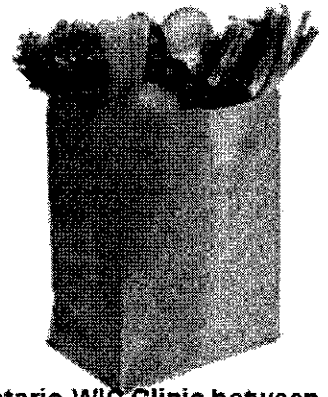
7:30 a.m. until 4:00 p.m.

Jen Whitty, a UW-La Crosse graduate student, is looking for interested individuals who are willing to talk about their ability to feed their families. You do not need to be from a family experiencing hunger in order to participate. All responses will remain confidential.

We are looking for Latino residents who:

- Are adult members of their household
- Live in Ontario or Norwalk, WI

*An interpreter will be available.



A small gift will be provided to participants as a "thank you" for their time.

If you are interested in participating, you simply need to be present at the Ontario WIC Clinic between the hours of 7:30 and 4:00, and ask to speak with Jen. Participation should only require approximately 10 minutes of your time. Call (608)732-4402 with any questions.

Queremos saber más sobre hambre en la comunidad!

Norwalk Health Center

Lunes, 29 de abril

de 7:30 a 4:00 p.m.

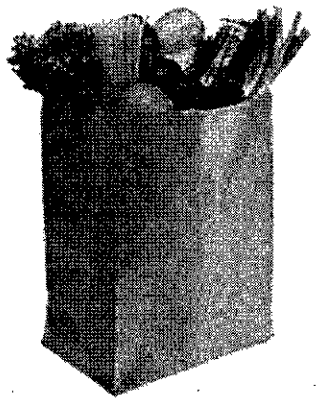
Jen Whitty, una estudiante de la universidad de Wisconsin-La Crosse, quiere buscar a gente interesada en hablar de la capacitad de proveer comida para la familia. No necesita tener problemas de hambre para participar. Todas sus respuestas serán completamente confidenciales.

Estamos buscando residentee latinos, incluyendo:

- Adultos mayores de 18 años de edad
- Adultos que viven en Ontario o Norwalk, WI

*Habrá un intérprete disponible

Para demostrar nuestro agradecimiento, un pequeño regalo será proporcionado a los participantes



Si usted está interesado en participar, sólo necesita estar presente en la clínica Ontario WIC Clinic entre las horas de 7:30 a 4:00, y pida hablar con Jen. Sólo se necesitarán 10 minutos para cumplir el cuestionario. Para mas preguntas, llame a Jen: (608)732-4402.

APPENDIX E

INFORMED CONSENT DOCUMENT: ENGLISH AND SPANISH VERSIONS

(Survey Assessment Informed Consent)

Investigating food security and key factors in the Hispanic communities of Norwalk and Ontario, WI

Contact:
Jen Whitty
UW La Crosse graduate intern
608-732-4402

Purpose & Procedure

- The purpose of this study is to investigate the degree to which Hispanics in your community may be having difficulty getting enough food for their households
- Participation: I will complete the survey at the location where I was contacted in order to participate in the study. I realize this should take approximately 5-10 minutes

Potential Risks:

- There are no expected risks to participation.

Rights & Confidentiality

- My participation is voluntary. I can withdraw or refuse to answer any question without consequence at any time.
- The results of this study will be printed and placed in the UW-La Crosse library. The results will also be presented at the oral defense of the study by the graduate student. Additionally, the results may be published in public health literature or presented at a professional conference.
- My responses to the survey questions will be kept confidential. Any results that are presented or published will use grouped information only.

Possible Benefits

- I will receive a small gift of a food item for participating.
- Information that is gathered through this study may help agencies and organizations in the area better serve the needs of the Hispanic residents.

Questions regarding the study can be directed to Jen Whitty or graduate advisor Dr. Gary Gilmore, Director of Graduate Community Health/Public Health Programs, UW-L (608-785-8163). Questions regarding the protection of human subjects may be addressed to the UW-La Crosse Institutional Review Board for the Protection of Human Subjects (608-785-8124 or irb@uwlax.edu).

Participant_____ Date_____

Researcher_____ Date_____

CONSENTIMIENTO INFORMADO: Encuesta De evaluación
(Survey Assessment Informed Consent)

Investigación de la seguridad de alimentos y los factores claves en las comunidades hispanas de Norwalk y Ontario, WI

Contact:
Jen Whitty
UW La Crosse graduate intern
608-732-4402

El objetivo y procedimientos del estudio

- El objetivo de este estudio es hacer una investigación del nivel de dificultad para asegurar alimentación suficiente entre hogares en la comunidad Latina
- Participación: Entiendo que cumpliré esta ficha en el lugar donde me contactaron para poder participar en el estudio. Entiendo que llenar la ficha dura 5 – 10 minutos, más o menos.

Riesgos Posibles

- No se espera ningún riesgo por participar en el estudio.

Derechos y Confidencialidad

- Participar es voluntario. Puedo retirarme o negarme a contestar cualquier pregunta sin consecuencia, en cualquier momento.

- Los resultados del estudio se publicarán y estarán en la biblioteca de la Universidad de Wisconsin – La Crosse. También, se presentarán los resultados durante la presentación de "defensa verbal" por la estudiante. Adicionalmente los resultados pueden ser publicados en literatura sobre salud pública o presentados en una conferencia profesional.
- Las respuestas de este cuestionario serán mantenidas confidencialmente. Los resultados que se presenten o publiquen serán información agrupada.

Posibles Beneficios

- Voy a recibir un regalo de alimento por participar.
- La información que se obtenga con este estudio puede ayudar a las agencias y organizaciones en el área para servir mejor las necesidades de las personas Latinas que viven en el área.

Preguntas sobre esta investigación pueden ser dirigidas a Jen Whitty o al supervisor de graduados Dr. Gary Gilmore, Director de Estudios Graduados en Salud Comunitaria/ Salud Publica, UW-L (608-785-8163). Preguntas sobre la protección de las personas que participan en el estudio pueden hacerse a UW-La Crosse Junta de Revisión Institucional para la Protección de Sujetos Humanos (608-785-8124 o irb@uwlax.edu).

Participante_____ Fecha_____

Investigador_____ Fecha_____

APPENDIX F

COMMUNITY RESOURCES SHEET

Community Resources

St Augustine of Hippo Catholic Church

512 Main Street, Norwalk

608-823-7506

Father Michael Klas

E-mail: stmaryridge@stmaryridge.org

Spanish Mass each Sunday at 4:00

Harvest Evangelical Free Church

123 Main St PO Box 76, Norwalk

608-823-7512

Pastor Jose Reyes

Email: josereyes2767@yahoo.com

El Lugar de Reunion

620 Industrial Drive, Sparta

608-269-2944

E-mail: lugardereunion@yahoo.com

Mission: A comprehensive Latino resource center offering a broad range of supportive programming including English classes, bi-lingual play group, women's group, chess club, computer lab, translation, and clothes closet.

Food Pantries

Norwalk Mobile Food Pantry

Second Harvest

Community Center

200 North Street

Last Tuesday of the month at 11:00 am

Couleecap Sparta Office

217 N. Black River St., Sparta

608-269-5012

Contact: Stephanie Rahr

E-mail: Stephanie.Rahr@couleecap.org

Mondays & Thursdays from

10:00 am-2:00 pm

Cashton Cupboard & Closet

9783 Ogden Ave., Cashton

608-654-5770

Contact: LeAnne Misna

E-mail: nlmisna@centurytel.net

Hours: Monday-Friday 10:00am-4:00pm,

Tuesday 10:00am-6:00pm,

Saturday 10:00am-2:00 pm

Food Programs

FoodShare

888-627-0450

You can also go to www.access.wisconsin.gov to determine your eligibility

FoodShare is a government nutrition assistance program designed to help individuals and families buy nutritious foods when money is tight. Monthly benefit amounts are based on net income and household size.

Women, Infants, and Children (WIC) Program

637-5290

Vernon County Health Department

WIC provides supplemental nutritious foods, nutrition and breastfeeding information, and referral to other health and nutrition services to pregnant women and infants and children under five years.

Free & Reduced School Meal Program

Free and reduced priced breakfast and lunch meals are available through the local schools for students.

Contact your child's school for income guidelines and an application.