

Food Insecurity Among Older Tennesseans

Phase Three: Older Adult
Quantitative Interviews



Phase 3: Statewide Quantitative Survey

INTRODUCTION

The purpose of Phase 3, a quantitative survey, was to develop a better understanding of the food and nutrition needs of a large cross-section of Tennessee's older population, with a focus on older adults who might be at risk of not having sufficient access to food. The goal was to collect data that might be useful for improving current programs and services to better provide for the food and nutritional needs of our state's older citizens. The study sought to identify barriers to participating in nutrition programs or accessing food sources. The survey also explored utilization of formal nutrition programs as well as informal resources like family, friends, and religious organizations.

METHODS

Recruitment

A sample of 5,000 households was obtained from a database of listed landline telephone numbers for which geographic location, income, age, and other demographic data were available. A weighted sample was obtained to ensure older Tennesseans from each of the nine districts were reached. Inclusion was limited to Tennessee households with a landline telephone, household income of \$35,000 or less, and at least one household member age 60 or older who spoke English.

Survey Design

Demographic variables measured include age, marital status, race and ethnicity, educational attainment, functional ability, and other health measures, household income, and residential status. The survey also explored older adults' utilization and barriers to use of current programs such as religious organizations, SNAP, home delivered meals, USDA commodities, senior center

nutritional programs, food banks, and informal nutritional support from family and friends.

In this analysis, food insecurity was defined as a dichotomous variable classified as food secure or food insecure. This variable was measured at the household level incorporating the U.S. Household Food Security Survey Module (HFSSM), a validated and widely used measure. To reduce respondent burden, the shorter 10-item module to measure food insecurity was used. This module is designed to explore various food situations, and looks at the role of economic factors in maintaining a sufficient nutritional diet.

In assessing food insecurity measures, closed-ended questions focused on items related to financial well-being, transportation barriers, and health conditions that prevented older adults from accessing or preparing food. Additional questions asked about utilization of food resources and willingness to use food resources in the future.

Procedure

A team of five researchers conducted the phone interviews, asking the questions to the respondents and entering their answers directly into a Survey Monkey data base. A total of 5,615 calls were made with 749 of these being recalls. About one-half (49.6%) of the calls resulted in no answer or reaching voice mail. Other challenges of making contact with potential interviewees included inoperable numbers, a non-household member answering, reaching a fax/computer or other communication barriers. Individuals who chose not to complete the interview or were not 60 years of age or older were excluded from analysis. Therefore, final analysis included 419 participants.

Analysis

Descriptive analyses were run to assess overall demographic characteristics of overall study population and food insecurity levels as calculated using the Household Food Security Survey

Module 10-item module. For purposes of analysis, individuals were categorized into 2 groups (Food Secure/Food Insecure) based upon their food insecurity level. The two groups were then compared on demographics, health, Household Food Security Survey answers, barriers to adequate nutrition, strategies used to address food security, use of formal and informal resources, reasons for nonuse of existing resources using Pearson chi-square and Fisher's Exact test when appropriate. Lastly, descriptive analysis was conducted to assess respondents willingness to use resources in the future should the need arise.

All analyses were descriptive and did not adjust for potential cofounders or effect modifiers. Analyses were conducted using SPSS 24.0.

RESULTS

Study Sample

Basic demographic characteristics of the study sample are described in Table 1 (Appendix). Respondents had a mean age of 75, ranging from 60 to 95. The sample was predominantly female (77%), white (84%), non-Hispanic (98%) and held a high school degree or higher (71%). In regard to marital status, 42% were widowed, 35% were married, and 14% were divorced. 13% were veterans. Employment and income status are described in Table 2 (Appendix). The sample was predominately retired (84%). Household income in relation to the 2015 Federal Poverty Limits (FPL) varied; however, due to large amount of refusal or no response, FPL was excluded from further analysis.

Health characteristics of the overall sample status are described in Table 2. Chronic conditions were common with the most commonly reported conditions being hypertension or "high blood pressure" (33%), diabetes (25%), heart disease (22%) and hyperlipidemia or "high

cholesterol” (22%). Approximately half (52%) described their health as excellent or good with the rest (48%) reporting their health as fair or poor.

Overall Food Insecurity Rates

Responses to Household Food Security Survey Module 10-item module are shown in Table 3. The majority of respondents 78.1% were identified as food secure (8.8% marginal food security, 69.9% high food security). Individuals were considered food secure if they had either marginal or high food security. An overall 69.9% of respondents had high food security, which indicates no indications of food access or problems. An additional 8.8% of respondents had marginal food security, which indicates they either experience anxiety over food sufficiency or shortage of food in the house, but have little or no indication of changes in diet or intake.

Approximately 21.3% of the sample were identified as food insecure. Individuals are considered food insecure if they have either low food security or very low food security. A total of 11% of respondents reported low food security, which indicates reduced quality, variety, or desirability of diet with little or no indication of reduced food intake. An additional 10.3% of respondents had very low food security and reported multiple indications of disrupted eating patterns and reduced food intake.

The risk of food security in this study sample indicates that the approximate prevalence of food insecurity among older Tennesseans 60+ earning \$35,000 or less is 21.24% (95% CI: 17.6, 25.4).

Comparison of Food Secure vs. Food Insecure

In order to assess specific populations that may be at risk of experiencing food insecurity, demographics were compared between groups. As shown in Table 5, individuals who were food insecure were more likely to be widowed or divorced, have a lower level of education, be a

veteran, and be unemployed. However, it is important to note that many of these factors are interrelated (ex. education level and employment); therefore further analysis is needed before conclusions can be drawn to determine groups most at risk for food insecurity.

When comparing groups on overall health and chronic conditions (Table 5) food insecure individuals were significantly more likely to have anxiety/depression and diabetes. For all other chronic conditions, there was no significant difference between the two groups. The two groups did vary significantly in terms of self-reported health. Food insecure individuals were significantly more likely to report their health as fair/poor when compared to their food secure counterparts. The two groups also varied in their perception of the trajectory of their health. Food insecure individuals were more likely to say that their health had gotten worse over the past year, and that they anticipated their health getting worse in the next year. Since this is a point-in-time survey, it is not possible to draw conclusions on the direction of this relationship. That is, it is not possible from this survey to determine if food insecurity caused poor health, poor health caused food insecurity, or neither.

Groups were also compared based on answers to items asked within the 10-item Food Security Scale (Table 6). Among food insecure individuals, most individuals worried their food would run out (96%), reported buying food but it just didn't last (94%), couldn't afford balanced meals (92%), cut the size of meals or skipped meals (63%), and ate less than they should (65%). Others expressed that they were hungry but didn't eat (38.2%), did not have enough to eat (26%), and sometimes didn't eat for the whole day (17%). This is in contrast to food secure individuals, where rates ranged from 0% to 9% in each of the 9 items.

Table 7 displays subgroups of barriers (economic, access, health, and social/psychological) previously identified in research as relevant to food insecurity. Food

insecure individuals were significantly more likely to have barriers in each of the categories. In addition, most had barriers in more than one of the four subgroups.

Strategies Used to Address Food Security

Despite these barriers, individuals of all levels of food security indicated using strategies to stretch their food budget as shown in Table 8. Individuals in both groups did not differ significantly on their use of special prices/sales at grocery stores, senior discounts, price matching, and coupons were common. Of these, two most common strategies were utilizing special prices and sales at grocery stores (70%) and using coupons (58%). However the two groups did differ on stocking up on low-cost food items. Food insecure individuals were significantly less likely than their food secure counterparts to stock up on low-cost food items (74.7% v 59.6%).

Many respondents also reported using community food resources to stretch their food budget. Community food resources include formal resources like food banks, home-delivered meals, and SNAP, and also informal resources like family, friends, and religious groups. Table 8 displays the use of food resources in our sample. Use of informal resources (family/friends/religious groups) did not differ significantly between food secure/insecure individuals. However, use of formal resources did vary significantly between the two groups. In all categories reported, food insecure individuals were significantly more likely to report using these resources. The most commonly used formal resources among food insecure individuals were food pantries/food banks (43%), SNAP (41%), and USDA Commodity boxes (35%).

Reasons individuals chose not to utilize various resources varied by resource type and level of food security. Results are shown in Table 9. Among food secure individuals, the most common answer for not using these resources was “I did not need the service.” Among food

insecure individuals, their reasons for not utilizing various resources varied by resource type. Among food insecure individuals not participating in congregate meals, the top reasons for not doing so were they either did not know it was available in their area (20%) or they did not have transportation (20%). Among food insecure individuals not receiving assistance from food banks or food pantries, the top reasons for not doing so were they either did not know it was available in their area (22%) or they did not need the service (22%). Among food insecure individuals not participating receiving USDA commodity box program, the top reasons not doing so for were that they did not know this was available in their area (37%), had never heard of the program (19%), or did not know who to contact to get the service (19%). Among food insecure who did not participate in home delivered meals, the top reasons for not doing so was that they did not need the service (31%). Among food insecure who did not participate in SNAP, the top reasons for not doing so was that they did not qualify (34%) or were not sure if they would qualify (16%).

Willingness to Use Food Resources In Future

In order to assess reason for nonuse of both formal and informal resources, participants who reported not using each resource were asked follow-up questions to assess reasons they chose not to access these resources. Across the total sample, both food secure and food insecure, the majority of participants indicated they would be willing to use various resources in the future if needed (Table 8). Low-cost grocery delivery services was the only resource that the majority of respondents would be unwilling to use in the future if they needed (48% would be willing to use).

DISCUSSION

Food security within this study sample indicates that the approximate prevalence of food insecurity among older Tennesseans 60+ earning \$35,000 or less is 21.2% (95% CI: 17.6, 25.4). This is slightly higher than nationally published literature, which reports the overall prevalence of food insecurity in older Tennesseans is 15.2% (1); however, results are expected as the current study focuses on households earning below \$35,000 annually, a group at higher risk for food insecurity overall. Findings are significant, as there are an estimated 337,250 Tennessee households headed by an adult 65+ with a household income of \$35,000 or less. This indicates that according to current study findings, there are approximately 71,497 lower income households in TN experiencing food insecurity.

As shown in Table 5, individuals who were food insecure were more likely to be widowed or divorced, have a lower level of education, be a veteran, and be unemployed. However, it is important to note that many of these factors are interrelated (ex. education level and employment); therefore further analysis is needed before conclusions can be drawn to determine groups most at risk for food insecurity. Further analyses will be important to identify groups at heightened risk for food insecurity so appropriate solutions can be implemented where feasible.

Across all demographics, food insecure individuals were found to be significantly more likely to report anxiety/depression and diabetes. These findings are consistent with previously reported literature (2; 3; 4). As is consistent with existing literature, food insecure individuals in this study were significantly more likely to report their health as fair/poor when compared to their food secure counterparts (5). Self-reported health among older adults is widely accepted as an indicator of health status, a predictor of mortality and of healthcare expenditures (1; 2; 3; 4). This finding therefore suggests a relationship between food insecurity and a decline in health and

increased healthcare expenditures among older Tennesseans. However, since this is a point-in-time survey, it is not possible to draw conclusions on the direction of this relationship. That is, it is not possible from this survey to determine if food insecurity caused poor health, poor health caused food insecurity, or neither.

Many barriers can keep older adults from maintaining good nutrition, including lack of financial resources, poor transportation options, limited mobility, declining physical and mental health, and social isolation, etc. Subgroups of barriers (economic, access, health, and social/psychological) previously identified in research as relevant to food insecurity were common among food insecure individuals. In addition, most food insecure individuals had barriers in more than one of the four subgroups. These results suggest that initiatives and programs aimed at addressing food insecurity must target more than just financial barriers that make accessing adequate health nutrition possible. Instead a multifaceted approach will be needed. It will not be enough to simply ensure that older Tennesseans have money to purchase food; it will also be necessary to ensure they have a way to grocery shop, are able to prepare food, and have adequate social support.

Older Tennesseans are already utilizing some strategies to increase their food security or stretch their food budget. Across all levels of food security, the two most common strategies were utilizing special prices and sales at grocery stores and using coupons. However, food insecure individuals were less likely than their food secure counterparts to stock up on low-cost food items. This may be due to a variety of reasons, such as having limited funds with which to purchase extra foods to save, depleting reserves of food which had previously been stocked up, or simply not having space in which to store excess foods. However, this indicates two potential strategies for intervention. It appears that special prices/grocery store sales and using coupons are

actions in which older Tennesseans feel comfortable. If there were potential ways to further enhance these opportunities, it could potentially be an effective strategy to help address food insecurity. In addition, these results suggest that stocking up on low cost food is not something that food secure individuals are able to do regularly. This too may be an important consideration when designing a future initiative to address food insecurity among older Tennesseans. For example, it may not be a good strategy to encourage individuals to stock up on canned goods months in advance or to cook items they have in their pantry.

In addition to these strategies used to increase their food budget or food security, many respondents reported using both formal and informal resources. No single resource was noted as being the primary source of assistance. That is, no one resource was reported as being used by half or more of respondents in either category of food insecurity. Among food insecure individuals food pantries/food banks, SNAP, and USDA Commodity boxes were the three most commonly used formal supports. Informal supports (family/friends) were common across all groups. This suggests that many community resources are currently being used to meet this need. However, it does not appear there is a “one size fits all” approach with one resource serving as the primary solution. Instead it suggests that resources are being used by different individuals or in different situations.

This is further demonstrated by the distribution of reasons for nonuse of each particular resource type. Among food secure individuals, the most common answer for not using these resources was “I did not need the service.” Among food insecure individuals reasons for not using various resources differed by resource type. This highlights important methods for outreach and intervention to address food insecurity. For example, 20% of individuals who did not participate in congregate meals said they did not do so because they did not know the

program was available in their area or they did not have transportation to get there. This suggests that outreach and marketing of congregate meal sites as well as associated transportation options may be helpful in encouraging participation among food insecure individuals. Similarly, the top reason for nonparticipation in the USDA Commodity food program was that they did not know it was available in their area, had never heard of the service, or did not know who to contact to get it. This may suggest another possible opportunity for outreach and education in order to ensure that food insecure individuals are able to access this resource if needed.

It is also important to note that respondents of all levels of food security were almost all willing to use various formal and informal resources in the future should the need arise. When asked about eight various resources, more than 3 out of 4 individuals were willing to use each of them. The only exception was low-cost delivery service, of which only 48% of individuals stated they would be willing to use if they needed it in the future. This is an important finding for interventions going forward. This suggests that older Tennesseans are willing to access resources and assistance if they see a need. However, they must first know the resource exists, how to access it, who to call, and if they would likely qualify.

CONCLUSION

This report is intended to provide an initial, descriptive analysis of data collected as part of the TN Older Adult Food Insecurity Study. Analyses indicate food insecurity is a common issue affecting many older Tennesseans, particularly those earning a moderate or lower income. Initial results also suggest that food insecurity is related to older Tennessean's physical, mental and overall health. Fortunately, they are already using strategies to try to lessen the impact of food security. They are using strategies such as coupon clipping, special grocery store prices, and resources such as SNAP or food pantries. However, the results also indicate that older

Tennesseans are still experiencing some barriers when accessing services. It is not that they are unwilling, nor is it that they don't need the service. Instead, they may not know how to access these resources or they may not know they exist. Therefore, we as a State can use these results to inform decision making and allow us to better address the needs and food security among our older adults.

All analyses conducted are descriptive and do not control for confounding or effect modifying variables. Therefore, more detailed, complex analyses will be necessary in the future to allow for a deeper understanding of older Tennesseans' risk factors for food insecurity and the best strategies to address it. This will aid in crafting policies and programs to better ensure all older Tennesseans are able to obtain healthy, adequate nutrition and have a high level food security. Furthermore, ensuring food security among our older citizens will ensure Tennessee continues to be a great state in which all individuals are able to age with dignity.

Table 1. Demographic Characteristics

Characteristic	Total	
	n	%
Mean Age (range)	75 (60-95)	
Gender		
Female	308	77.2%
Male	91	22.81%
No Response / Refused	20	
Race		
White	324	84.4%
Black	44	11.5%
Other	16	4.2%
No Response / Refused	35	
Ethnicity		
Hispanic	6	1.6%
Non-Hispanic	375	98.4%
No Response / Refused	38	
Educational Level		
8th Grade or Less	54	14.1%
Some high school	56	14.6%
High school graduate of GED	122	31.8%
Some College	88	22.9%
College Graduate	64	16.7%
No Response / Refused	35	
Marital Status		
Widowed	165	41.8%
Married	139	35.2%
Divorced	56	13.4%
Other	38	9.7%
No Response / Refused	24	
Veteran		
Yes	49	12.8%
No	333	87.2%
No Response / Refused	37	
Poverty Level		
Below 100% of FPL	99	31.0%
100-150% FPL	98	30.7%
150% FPL or higher	122	38.2%
Refused / No Response	100	

Table 2. Health Characteristics

	n	%
Chronic Conditions		
Anemia	27	6.7%
Anxiety / Depression	55	13.1%
Cancer	55	13.1%
Digestive Disorders	55	13.1%
Diabetes	105	25.1%
Heart Disease	92	22.0%
High Cholesterol	93	22.0%
Hypertension	137	32.7%
Kidney Disease	26	6.2%
Osteoporosis	44	10.5%
Stroke	21	5.0%
Self Rated Health		
Excellent	54	14.2%
Good	145	38.2%
Fair	107	28.2%
Poor	74	20.0%
Don't Know / No Response / Refused	39	
In the past year, would you say your health has...		
Improved	52	13.9%
Stayed the same	213	57.0%
Gotten worse	109	29.1%
Don't Know / No Response / Refused	24	
In the next year, do you see your health...		
Improving	77	22.6%
Staying the same	205	60.3%
Getting Worse	58	17.1%
Don't Know / No Response / Refused	79	

Table 3. Food Insecurity

Often/Sometimes not enough to eat	30	7.2%
Often/sometimes worried food would run out	93	22.2%
Often/sometimes bought food just didn't last	95	22.7%
Often/sometimes couldn't afford balanced meals	110	26.3%
Cut the size of meal or skip meal (yes/no)	58	13.8%
Ate less than should (yes/no)	59	14.1%
Hungry but didn't eat (yes/no)	34	8.1%
Lost weight (yes/no)	27	6.4%
Didn't eat for a whole day (yes/no)	15	3.6%

Levels of Food insecurity

Food Secure	293	69.9%
Marginally Food Secure	37	8.8%
Low Food Secure	46	11.0%
Very Low Food Secure	43	10.3%

Table 4. Demographic Characteristics of individuals by Level of Food Security

Characteristic	Food Secure n=330		Food Insecure n=89	
	n	%	n	%
Mean Age (range)	75.8 (60-95)		72.0(60-88)	
Sex				
Male	2	0.6%	10	11.8%
Female	233	73.7%	75	88.2%
Other	81	25.6%	0	0.0%
No Response / Refused	14		4	
Marital Status				
Married	125	40.1%	14	16.3%
Divorced	34	10.9%	19	22.9%
Separated	2	0.6%	1	1.2%
Widowed	123	39.4%	42	50.6%
Cohabiting	1	0.3%	1	1.2%
Never Married	27	8.7%	6	7.2%
No Response / Refused	21		6	
Race				
White	263	86.8%	61	75.3%
Black	30	9.9%	14	17.3%
Other	10	3.3%	6	7.4%
No Response / Refused	27		8	
Ethnicity				
Hispanic	3	1.0%	3	3.8%
Non-Hispanic	298	98.3%	77	96.3%
No Response / Refused	29		9	
Educational Level				
8th Grade or Less	37	12.2%	17	21.0%
Some high school	42	13.9%	14	17.3%
High school graduate of GED	92	30.4%	30	37.0%
Some College	70	23.1%	18	22.2%
College Graduate	62	20.5%	2	2.5%
No Response / Refused	27		8	
Veteran				
Yes	42	14.0%	7	8.5%
No	258	86.0%	75	91.5%
No Response / Refused	30		7	
Employment				
Employed (full or part time)	25	8.4%	1	1.2%
Unemployed	18	6.1%	17	21.0%
Retired	254	85.5%	63	77.8%
Refused / No Reponse	33		8	

Table 5. Employment and Income Status by Level of Food Security

Characteristic	Food Secure		Food Insecure		<i>p-value</i> ^a
	n	%	n	%	
Chronic Conditions					
Alzheimer's Dementia	7	2.1%	0	0.0%	0.17 ^b
Anemia	24	7.3%	3	3.4%	0.18
Anxiety / Depression	36	10.9%	19	21.3%	0.01*
Cancer	43	13.0%	12	13.5%	0.91
Digestive Disorders	42	12.7%	13	14.6%	0.64
Diabetes	73	22.1%	32	36.0%	0.01*
Heart Disease	74	22.4%	18	20.2%	0.66
High Cholesterol	72	21.8%	21	23.6%	0.72
Hypertension	113	34.2%	24	27.0%	0.19
Kidney Disease	22	6.7%	4	4.5%	0.45
Osteoporosis	33	10.0%	11	12.4%	0.52
Stroke	14	4.2%	7	7.9%	0.16
Self Rated Health					
Excellent	52	17.4%	2	2.4%	0.00*
Good	125	41.9%	20	24.4%	
Fair	75	25.2%	32	39.0%	
Poor	46	15.4%	28	34.1%	
Don't Know / No Response / Refused	32		7		
In the past year, would you say your health has...					
Improved	37	12.6%	15	18.8%	0.01*
Stayed the same	180	61.2%	33	41.3%	
Gotten worse	77	26.2%	32	40.0%	
Don't Know / No Response / Refused	36		9		
In the next year, do you see your health...					
Improving	55	20.8%	22	28.0%	0.00
Staying the same	172	65.2%	33	43.4%	
Getting Worse	37	14.0%	21	27.6%	
Don't Know / No Response / Refused	36		13		

* indicated significance at p=0.05

a. Pearson chi-square

b. Fisher's exact test

Table 6. Food Insecurity Items by Level of Food Security

Characteristic	Food Secure n=330		Food Insecure n=89	
	n	%	n	%
Often/Sometimes not enough to eat	7	2.1%	23	25.8%
Often/sometimes worried food would run out	8	2.4%	85	95.5%
Often/sometimes bought food just didn't last	11	3.3%	84	94.4%
Often/sometimes couldn't afford balanced meals	28	8.5%	82	92.1%
Cut the size of meal or skip meal (yes/no)	2	0.6%	56	62.9%
Ate less than should (yes/no)	1	0.3%	58	65.2%
Hungry but didn't eat (yes/no)	0	0.0%	34	38.2%
Lost weight (yes/no)	0	0.0%	27	30.3%
Didn't eat for a whole day (yes/no)	0	0.0%	15	16.9%

Table 7. Barriers to Food Security by Level of Food Security

	Not Food Insecure		Food Insecure		<i>p-value</i> ^a
	n	%	n	%	
Economic					
Did not have enough money to buy the food I needed	9	2.8%	67	77.0%	0.00
Had to choose between buying food or medicine/medical bills	18	5.5%	55	63.2%	0.00
Had to choose between buying food or utilities/other bills	9	2.8%	51	58.6%	0.00
Had to choose between buying food and paying for transportation / gas	7	2.1%	27	31.4%	0.00
Access					
Did not have adequate transportation to get the food I needed	12	3.7%	25	28.7%	0.00
Did not have a convenient/assessable place to get food	9	2.8%	23	26.4%	0.00
Health					
Poor health or physical limitations limited ability to get food	55	17.1%	41	48.2%	0.00
Poor health/physical limitations limited ability to prepare meals	85	26.4%	49	56.3%	0.00
Trouble walking or standing long enough to get or prepare food	96	29.9%	55	63.2%	0.00
Tooth or mouth problems that made eating difficult	43	13.4%	35	40.2%	0.00
Social/Psychological					
Failed to eat due to lack of motivation or desire	85	0.3%	53	60.9%	0.00
Didn't eat because you didn't want to fix a meal for one person	45	14.2%	33	37.9%	0.00
Failed to eat because you didn't want to eat alone	26	8.2%	20	23.0%	0.00
Did without food because family/friends unavailable to help	6	1.9%	23	26.4%	0.00
Did not know who to ask for assistance when you needed food	8	2.5%	24	27.9%	0.00
Did without food because afraid/embarrassed to ask for help	6	1.9%	17	19.5%	0.00 ^b

* indicates significance at p=0.05

a. Pearson chi-square

b. Fisher's exact test

Table 8. Strategies to Address Food Security by Level of Food Security

In the past 12 months have used	Total		Secure		Food Insecure		p-value
	n	%	n	%	n	%	
Special prices and sales at grocery stores (buy one get one)	293	69.9%	237	71.8%	56	62.9%	0.10
Senior discounts or senior discount days	166	39.6%	131	39.7%	35	39.3%	0.95
Price matching or low price guarantees	90	21.5%	68	20.6%	22	24.7%	0.40
Coupons	243	58.0%	192	58.2%	51	57.3%	0.88
Stocking up on low cost food items	255	62.8%	190	59.6%	65	74.7%	0.01

* indicates significance at p=0.05

a. Pearson chi-square

Table 8. Strategies used within the past 12 months by Level of Food Security

	Total n=419		Food Secure n=330		Food Insecure n=89		<i>p-value</i> ^a
	n	%	n	%	n	%	
Participating in congregate meal at senior center or other location	63	15.0%	47	11.6%	16	18.4%	0.03
Food pantries or food banks	93	22.2%	56	13.9%	37	42.5%	0.00
USDA Commodity Box	87	20.8%	57	14.2%	30	34.5%	0.00
Home delivered meals	30	7.2%	20	5.0%	10	11.8%	0.00
Supplemental Nutrition Assistance Program (SNAP)	106	25.3%	72	18.2%	34	40.5%	0.00
Family or friends	203	48.4%	164	41.0%	39	45.9%	0.30

* indicates significance at p=0.05

a. Pearson chi-square

Table 9. Reasons for not utilizing resources by Level of Food Security

	Total		Secure		Food	
	n	%	n	%	n	%
Participating in congregate meal at senior center or other location	359		288		71	
Did not need service		48%		55%		17%
Too difficult		10%		8%		17%
Did not know it was available in my area		8%		5%		20%
Did not have transportation		7%		4%		20%
Others need it more		6%		8%		1%
Did not know who to contact to get service		3%		1%		10%
Did not provide the foods I wanted / needed		3%		3%		6%
Did not feel welcome / comfortable		3%		2%		4%
Afraid of what others would think		2%		1%		6%
Food pantries or food banks	347		297		50	
Did not need service		75%		84%		22%
Others need it more		13%		13%		10%
Did not know it was available in my area		6%		3%		22%
Never heard of it		1%		0%		2%
Did not know who to contact to get service		1%		1%		4%
Did not have transportation		3%		1%		10%
Did not feel welcome / comfortable		1%		1%		2%
Too difficult		2%		1%		10%
Afraid of what others would think		2%		1%		12%
USDA Commodity Box	345		288		57	
Did not need service		65%		76%		9%
Never heard of it		11%		9%		19%
Did not know it was available in my area		10%		5%		37%
Did not know who to contact to get service		6%		3%		19%
Did not qualify		6%		5%		12%
Did not provide the foods I wanted / needed		1%		1%		4%
Did not have transportation		2%		0%		9%
Did not feel welcome / comfortable		0%		0%		2%
Too difficult		3%		1%		9%
Afraid of what others would think		1%		0%		5%
Others need it more		10%		11%		2%
Home delivered meals	379		304		75	
Did not need service		71%		81%		31%
Did not know it was available in my area		10%		7%		21%
Was not sure I would qualify		4%		4%		7%
Did not know who to contact to get service		4%		2%		12%
Never heard of it		1%		1%		8%
Did not provide the foods I wanted / needed		2%		2%		5%
Too difficult		1%		1%		3%
Supplemental Nutrition Assistance Program (SNAP)	323		273		50	
Did not need service		66%		76%		14%
Did not qualify		26%		25%		34%
Was not sure I would qualify		12%		11%		16%
Others need it more		9%		9%		6%
Too difficult		2%		1%		8%
Benefit amount not worth it		2%		1%		10%
Did not know who to contact to get service		2%		1%		6%

Did not have transportation	1%	0%	4%
Afraid of what others would think	2%	1%	4%

* indicates significance at $p=0.05$

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Table 10. Willingness to use resources in the future

In the future if you needed it would you be willing to use...	Total
	%
Senior discounts or senior discount days at grocery stores	97.3%
Family, friends, or religious organizations	88.8%
SNAP	83.2%
Food Banks or Food Pantries	81.8%
Home Delivered Meals	80.5%
USDA Commodities	79.8%
Congregate meals	77.2%
Low-cost grocery delivery services	48.2%

	Total		Secure		Food Insecure	
	n	%	n	%	n	%
Participating in congregate meal at senior center or other location	<u>359</u>		<u>##</u>		<u>71</u>	
Did not need service	171	47.6%	##	55.2%	12	16.9%
Too difficult	36	10.0%	24	8.3%	12	16.9%
Did not know it was available in my area	29	8.1%	15	5.2%	14	19.7%
Did not have transportation	24	6.7%	10	3.5%	14	19.7%
Others need it more	23	6.4%	22	7.6%	1	1.4%
Never heard of it	4	1.1%	1	0.3%	4	1.1%
Did not know who to contact to get service	11	3.1%	4	1.4%	7	9.9%
Did not provide the foods I wanted / needed	12	3.3%	8	2.8%	4	5.6%
Did not feel welcome / comfortable	9	2.5%	6	2.1%	3	4.2%
Afraid of what others would think	7	1.9%	3	1.0%	4	5.6%
Food pantries or food banks	<u>347</u>		<u>##</u>		<u>50</u>	
Did not need service	260	74.9%	##	83.8%	11	22.0%
Others need it more	44	12.7%	39	13.1%	5	10.0%
Did not know it was available in my area	21	6.1%	10	3.4%	11	22.0%
Never heard of it	2	0.6%	1	0.3%	1	2.0%
Did not know who to contact to get service	5	1.4%	3	1.0%	2	4.0%
Was not sure I would qualify	2	0.6%	2	0.7%	0	0.0%
Did not provide the foods I wanted / needed	2	0.6%	2	0.7%	0	0.0%
Did not have transportation	9	2.6%	4	1.3%	5	10.0%
Did not feel welcome / comfortable	4	1.2%	3	1.0%	1	2.0%
Too difficult	6	1.7%	3	1.0%	5	10.0%
Afraid of what others would think	8	2.3%	2	0.7%	6	12.0%
USDA Commodity Box	<u>345</u>		<u>##</u>		<u>57</u>	
Did not need service	223	64.6%	##	75.7%	5	8.8%
Never heard of it	37	10.7%	26	9.0%	11	19.3%
Did not know it was available in my area	34	9.9%	13	4.5%	21	36.8%
Did not know who to contact to get service	19	5.5%	8	2.8%	11	19.3%
Did not qualify	22	6.4%	15	5.2%	7	12.3%
Did not provide the foods I wanted / needed	4	1.2%	2	0.7%	2	3.5%
Did not have transportation	6	1.7%	1	0.3%	5	8.8%
Did not feel welcome / comfortable	1	0.3%	0	0.0%	1	1.8%
Too difficult	9	2.6%	4	1.4%	5	8.8%
Afraid of what others would think	3	0.9%	0	0.0%	3	5.3%
Others need it more	33	9.6%	32	11.1%	1	1.8%
Home delivered meals	<u>379</u>		<u>##</u>		<u>75</u>	
Did not need service	270	71.2%	##	81.3%	23	30.7%
Did not know it was available in my area	37	9.8%	21	6.9%	16	21.3%
Was not sure I would qualify	17	4.5%	12	3.9%	5	6.7%
Did not know who to contact to get service	16	4.2%	7	2.3%	9	12.0%
Never heard of it	3	0.8%	3	1.0%	6	8.0%
Did not provide the foods I wanted / needed	9	2.4%	5	1.6%	4	5.3%
Too difficult	4	1.1%	2	0.7%	2	2.7%

Supplemental Nutrition Assistance Program (SNAP)

	<u>323</u>		<u>##</u>		<u>50</u>	
Did not need service	214	66.3%	##	75.8%	7	14.0%
Did not qualify	85	26.3%	68	24.9%	17	34.0%
Was not sure I would qualify	38	11.8%	30	11.0%	8	16.0%
Others need it more	28	8.7%	25	9.2%	3	6.0%
Too difficult	7	2.2%	3	1.1%	4	8.0%
Benefit amount not worth it	7	2.2%	2	0.7%	5	10.0%
Did not know who to contact to get service	6	1.9%	3	1.1%	3	6.0%
Did not have transportation	3	0.9%	1	0.4%	2	4.0%
Afraid of what others would think	6	1.9%	4	1.5%	2	4.0%

* indicates significance at $p=0.05$

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