

Geographic Location and Coping Strategies Among Primary Caregivers with Food Insecurity

Allison Porter

The Ohio State University College of Public Health

Abstract

The objective of this study is to explore differences in coping strategies among urban and rural primary caregivers with food insecurity. According to the United States Department of Agriculture, food insecurity is a household-level economic and social condition of limited or uncertain access to adequate food. In 2014, there were 17.4 million American households classified as food insecure with the highest prevalence found in rural and urban settings. To mitigate the effects of food insecurity, primary caregivers use an array of coping strategies to feed their children, including foregoing basic needs like medication, rent, and utilities to purchase food. However, little is known about the use of these coping strategies by caregivers from urban and rural environments. Understanding these coping strategies used by caregivers could be useful in creating geography-specific strategies to address this debilitating issue. Primary caregivers, over the age of 18 with dependents under the age of 18, were recruited at two family practice clinics in Columbus, Ohio. Questionnaires were administered to assess presence and severity of food insecurity and food coping strategies. Place of residence, neighborhood characteristics and demographic information were also obtained. Initial responses indicate that there appears to be differences in coping strategies used in urban and rural environments. Urban primary caregivers appear to have a greater prevalence of food insecurity and appear more likely to forego utilities and rent whereas rural primary caregivers appear to forego medicine to obtain food. By understanding the coping strategies used by food insecure caregivers from rural and urban locations, public health professionals can plan more strategic interventions which can protect against poor nutrition and health outcomes and better serve the populations affected.

Introduction

Food insecurity is a prevalent and debilitating issue affecting 42 million Americans in 2015 (Coleman-Jensen, Rabbitt, Gregory, & Singh, 2016). There are four factors that contribute to food insecurity including availability, access, utilization, and stability of the food supply (Hadley & Crooks 2012). While global agricultural output produces enough food for the population, indicating good availability, this does not ensure access. There is increasing focus on why people are not accessing needed foods that are of sufficient quality.

Literature Review

The Range of Food Security and Food Insecurity

Food security is defined as a state when all people, at all times, have physical, social, and economic access to sufficient, safe, and nutritious food that meets their dietary needs and food preferences for an active and healthy life (Ivers & Cullen, 2011). Thus, food insecurity is present when this state is not achieved at any time, often resulting from lack of financial resources.

When food insecurity exists, it is not a binary state but rather a range that exists at varying severities. The United States Department of Agriculture has created a spectrum to help identify the nuances of food security and food insecurity that exist (2017). This spectrum includes high food security, marginal food security, low food security, and very low food security. High food security indicates that there is no indication of problems with accessing food. Marginal food security has one or two indications of food insecurity, but there are no signs in changes to one's diet or amount of food consumed as a result. Low food security is the mildest form of food insecurity and indicates that the quality of the diet has been compromised, but not intake. Finally, very low food security shows multiple indications of compromised diet and intake patterns

The rate of food insecurity for all households nationally is 12.7%, but among households with children, the rate increases to 16.6% (Coleman-Jensen, Rabbitt, Gregory, & Singh, 2015). Furthermore, Pabalan et al. (2015) found prevalence of food insecurity to be 45.6% in caregivers with children nationally. Ohio's problem is even more pronounced with the rate of food insecurity at 16.8%. Within Ohio, Franklin County was at a staggering 17.9% in 2014 (Feeding America, 2017). Thus there is reason to believe that an especially vulnerable primary caregiver population exists in Columbus, Ohio.

Measuring Food Insecurity

There are several ways of measuring food insecurity, but the most recently developed tools being used are focusing on individuals' experiences of accessing foods as opposed to simply quantifying food availability. Tools that are considered experience-based measures assume that food insecurity is an issue that is managed and controlled and that there is a universal progression that predicts level of food insecurity (Hadley & Crooks 2012). The USDA core food security module is one such experience-based measure for food insecurity. This is a popular instrument due to its consideration of the many factors influencing household food insecurity. The 18-item questionnaire gives a more sensitive measurement of food security status, differentiating between high food security, marginal food security, low food security, and very low food security (United States Department of Agriculture, 2017). These labels were updated from the original classifications of food secure, food insecure without hunger, and food insecure with hunger (Bickel, Nord, Price, Hamilton, & Cook, 2000).

Due to the length of the original 18-item instrument, 10-item and 6-item scales also exist and provide reliability while minimizing some burden to the respondent. However, it is important to note that the 10-item instrument does not provide information on child food

security, and the 6-item instrument gives less sensitivity in the severity of food insecurity, compromises some reliability, and also does not give information on child food security (USDA, 2017). Furthermore, it is important to note the complex nature of food insecurity that incorporates many different factors and progresses through several stages of severity. Thus, an instrument is needed that can capture the various indicators of food insecurity that exist at different stages of food security, which is what the 18-item core module aims to accomplish. Ultimately, the 18-item instrument provides the greatest reliability, the greatest sensitivity of severity of food insecurity, inquires about multiple facets of the issue, and gains information on all members of a household.

Urban and Rural Food Insecurity

The urban and rural poor may suffer the most from food insecurity, especially since the 2008 financial crisis (Ruel, Garrett, Hawkes, & Cohen, 2010). In rural areas, individuals seeking access to healthy foods face obstacles including long distance to a supermarket and a lack of public transportation, which can both be problematic when there is no access to a vehicle (Ahern, Brown & Dukas, 2011). These factors may contribute to food insecurity rates in rural areas that are around 15% (Coleman et al., 2016). However rural residents do have the protective factor of access to land which could be used to produce food (Carter, Dubois, & Tremblay, 2014). While there are arguably more resources in urban communities, such as public transportation and health services, which can help to combat food insecurity and the associated health effects, access to these resources is more unequal in urban areas (Ruel et al., 2010). While living in urban areas is not a risk factor on its own, groups at increased risk for food insecurity in urban or metropolitan settings include African Americans and other minorities. Food insecurity rates among African

Americans is 22%, nearly twice the national average and over twice the food insecurity rate of white households (Coleman et al., 2016).

Overall, household income level is perhaps the greatest indicator of food insecurity (Carter, Dubois, & Tremblay, 2014). According to the USDA report on rural America, the poverty rate in 2012 was 17.7% for rural areas and 14.5% for urban areas (Piontak & Schulman, 2014). Thus from this measure, it seems that rural populations are at greater risk for food insecurity due to greater poverty in this geographic location.

Food Insecurity Coping Strategies

Coping strategies in relation to food insecurity are defined as a short-term response to an immediate and inhabitual decline in access to food (Hadley & Crooks, 2012), and can be thought of as a household's adaptability to changing food resources. These include rationing food, altering food-buying behavior, or forgoing bills, medications, or other necessities for food. These coping strategies protect or delay a household from experiencing hunger and other physiological consequences of food scarcity. Households with higher levels of food insecurity are more likely to employ coping strategies (Pinard et al., 2016).

Parents and other primary caregivers of children in food insecure households commonly use coping strategies in response to food insecurity. This often involves modifying their consumption to protect their children or dependents (McIntyre, Connor, & Warren, 2000). As a result, the primary caregiver(s) of food insecure households often experience negative physical and mental health outcomes (Hager et al., 2010). The stress caregivers feel when experiencing food insecurity has been correlated with negative health outcomes for children (Black et al., 2012).

While food-based coping strategies—such as switching to cheaper and less preferred food, skipping meals, and reallocating food consumption in the household—are similar among urban and rural populations (Ruel et al., 2010), less is known about the nonfood-based coping strategies used to combat food insecurity. Nonfood coping strategies include reducing spending on nonfood needs, including education, medication, transportation and other basic needs (Ruel et al., 2010). Thus when referring to coping strategies throughout this discussion, it is a reference to nonfood coping strategies.

Overall, food insecurity is a serious problem in the United States and Ohio. Rural and urban populations are affected adversely due to unique characteristics of both geographic locations and the high prevalence of poverty in both regions. Ultimately, food insecure households use strategies to cope, which is especially challenging for primary caregivers of children because they often sacrifice their meals to give to their children when food resources are limited. What remains unknown is whether or not there is a difference in coping strategies used by food insecure individuals in rural and urban locations, particularly among primary caregivers. Therefore, the purpose of this study is to explore differences in these nonfood coping strategies between urban and rural primary caregivers with food insecurity.

Methods

Sample

The sample consisted of 69 primary caregivers ages 18 and older recruited from Ohio Health family medicine clinics in Central Ohio. Clinic locations were Grant Family Practice East in Whitehall, Ohio and Doctors Hospital Family Practice in Grove City, Ohio.

Procedures

The Ohio Health Institutional Review Board approved this study on December 14, 2016. Participants received a cover letter representing informed consent prior to completing the survey. Within the survey participants answered questions regarding food insecurity, coping strategies for food insecurity, and demographics. The participants completed the survey privately.

Prior to completing the questionnaire, participants were randomly assigned a case number for identification. Case numbers were listed on the surveys to keep track of participants while protecting their privacy. The surveys were kept in a locked file at the Ohio Health Research and Innovation Institute's Office of Health Equity. Participants who completed the survey in its entirety were entered into a drawing for a \$100 Walmart gift card.

Instrument

A 43-item survey was administered to consenting participants. The survey contained the following components: (1) the US Household Food Security Survey module (USDA, 2017) to assess food security, (2) a 3-item validated instrument developed by (Pinard et al., 2016) to assess coping strategies, and (3) 19-items to measure different demographic factors.

The 18-item US Household Food Security Survey Module was adapted for use as a paper and pencil survey. Questions 1-10 asked respondents about their food situation based upon a one-year reference period. Response categories were often, sometimes, never for 3 items; yes/no for 5 items; and almost every month, some months but not every month, one or two months for 2 items. Questions 11-18 queried respondents about their food situation in reference to their children over the past 12 months. Response categories were often, sometimes, never for 3 items, yes/no for 4 items, and almost every month, some months but not every month, one or two months for 1 item.

Each survey was scored according to the recommendations of the USDA, assigning a score of one for each affirmative response, including yes, often true, sometimes true, almost every month, and some months but not every month. A score of zero was given to negative responses including no, never true, and one month but not every month. The sum of all the scores for each survey were calculated and assigned a food security status based on the cumulative value. A score of 0 indicates high food security, a score of 1-2 indicates marginal food security, a score of 3-7 indicates low food security, and a score of 8 or greater indicates very low food security (Bickel, Nord, Price, Hamilton, & Cook, 2000). Those with low food security and very low food security were considered food insecure in statistical tests.

Data Analysis

Means, percent, and standard deviations were calculated to describe demographic and survey variables for all respondents. Chi square was used to compare differences in geographic location and food security status. Mann Whitney was used to compare differences between coping strategies and food security status as well as geographic location and coping strategies among food insecure. A p-value of < 0.05 was used to determine statistical significance. Data was analyzed in IBM SPSS Statistics software.

Results

Our sample consisted of 69 primary caregivers of children with a mean age of 36.1 years (SD =7.8). Sociodemographic characteristics of study participants are summarized in Table 1. Using the coding scale recommended by the USDA, 56.5% of participants scored as food insecure. When compared by geographic location, there was no significant difference between rates of food insecurity between self-reported urban (n= 42, 60.8%) and rural (n= 25, 36.2%) primary caregivers (p =0.175).

Table 1: Sociodemographic characteristics of 69 primary caregivers of children

	Total (n= 69)	Urban (n= 42)	Rural (n= 25)
Age (years), mean,(SD)	36.09 (7.834)	35.93 (8.197)	37.20 (6.837)
Sex			
Females	62 (89.9%)	40 (58.0%)	20 (29.0%)
Males	7 (10.1%)	2 (2.9%)	5 (7.2%)
Race			
White	52 (75.3%)	28 (40.6%)	23 (33.3%)
African American	14 (20.1%)	12 (17.4%)	1 (1.4%)
Education			
≤ High school degree or GED	31 (45.6%)	20 (29.0%)	10 (14.5%)
> High school degree or GED	38 (55.9%)	22 (31.9%)	15 (21.7%)
Income			
≤ \$40,000	48 (70.6%)	33 (48.5%)	15 (22.1%)
> \$40,000	20 (29.4%)	8 (1.5%)	10 (14.7%)
Food Secure (%)	29 (42.0%)	19 (27.5%)	10 (14.5%)
Food Insecure (%)	38 (55.1%)	23 (33.3%)	15 (21.7%)

Table 2 shows the frequencies of different coping strategies based on food security status. Table 3 shows the significance of these various coping strategies compared to food security status. Only utilities and transportation were significant ($p = 0.003$ and $p = 0.004$, respectively). Thus, regardless of the level of food security, there is no significant difference for households choosing between paying for food and paying for medicine, rent/mortgage, and education.

Table 2: Frequency of foregoing paying for utilities based on food security status among primary caregivers of children

		Total (n= 69)	Food secure (n= 30)	Food insecure (n= 39)
Medication	Never true	55 (79.7%)	27 (39.1%)	28 (42.4%)
	Rarely true	3 (4.3%)	2 (2.9%)	1 (1.4%)
	Sometimes true	6 (8.7%)	0 (0.0%)	6 (8.7%)
	Often true	3 (4.3%)	0 (0.0%)	3 (4.3%)
	Always true	2 (2.9%)	1 (1.4%)	1 (1.4%)
Utilities	Never true	42 (60.9%)	24 (34.8%)	18 (26.1%)
	Rarely true	4 (5.8%)	2 (2.9%)	2 (2.9%)
	Sometimes true	12 (17.4%)	2 (2.9%)	10 (14.5%)
	Often true	6 (8.7%)	1 (1.4%)	5 (7.2%)
	Always true	5 (7.2%)	1 (1.4%)	4 (5.8%)
Rent/mortgage	Never true	50 (72.5%)	25 (36.2%)	25 (36.2%)
	Rarely true	4 (5.8%)	0 (0.0%)	4 (5.8%)
	Sometimes true	8 (11.6%)	4 (5.8%)	4 (5.8%)
	Often true	2 (2.9%)	0 (0.0%)	2 (2.9%)
	Always true	5 (7.2%)	1 (1.4%)	4 (5.8%)
Transportation	Never true	49 (71.0%)	27 (39.1%)	22 (31.9%)
	Rarely true	7 (10.1%)	1 (1.4%)	6 (8.7%)
	Sometimes true	7 (10.1%)	0 (0.0%)	7 (10.1%)
	Often true	2 (2.9%)	1 (1.4%)	1 (1.4%)
	Always true	4 (5.8%)	1 (1.4%)	3 (4.3%)
Education	Never true	60 (87.0%)	28 (40.6%)	32 (46.4%)
	Rarely true	3 (4.3%)	1 (1.4%)	2 (2.9%)
	Sometimes true	2 (2.9%)	0 (0.0%)	2 (2.9%)
	Often true	1 (1.4%)	0 (0.0%)	1 (1.4%)
	Always true	3 (4.3%)	1 (1.4%)	2 (2.9%)

Table 3: Association between level of food insecurity and coping strategies

	Food insecurity status
Medication	0.055
Utilities	0.003*
Rent/Mortgage	0.086
Transportation	0.004*
Education	0.172

* Signifies p < 0.05

Finally, Table 4 shows the frequencies of different coping strategies compared to geographic location among those who are food insecure. Table 5 shows the significance between the different coping strategies compared to geographic location. Transportation was the

only nonfood coping strategy that differed between the urban and rural groups ($p = 0.042$). Urban households are significantly more likely to forego paying for transportation than rural households.

Table 4: Frequency of foregoing paying for utilities based on geographic location among food insecure primary caregivers of children

		Total (n= 67)	Urban (n= 30)	Rural (n= 39)
Medication	Never true	53 (79.1%)	33 (49.2%)	20 (29.9%)
	Rarely true	3 (4.5%)	2 (3.0%)	1 (1.5%)
	Sometimes true	6 (9.0%)	4 (6.0%)	2 (3.0%)
	Often true	3 (4.5%)	1 (1.5%)	2 (3.0%)
	Always true	2 (3.0%)	2 (3.0%)	0 (0.0%)
Utilities	Never true	41 (61.2%)	29 (43.3%)	12 (17.9%)
	Rarely true	4 (6.0%)	2 (3.0%)	2 (3.0%)
	Sometimes true	11 (16.4%)	5 (7.5%)	6 (9.0%)
	Often true	6 (9.0%)	3 (4.5%)	3 (4.5%)
	Always true	5 (7.5%)	3 (4.5%)	2 (3.0%)
Rent/mortgage	Never true	49 (73.1%)	32 (47.8%)	17 (25.4%)
	Rarely true	4 (6.0%)	3 (4.5%)	1 (1.5%)
	Sometimes true	8 (12.0%)	4 (6.0%)	4 (6.0%)
	Often true	1 (1.5%)	1 (1.5%)	0 (0.0%)
	Always true	5 (7.5%)	2 (3.0%)	3 (4.5%)
Transportation	Never true	47 (70.1%)	33 (49.3%)	14 (20.9%)
	Rarely true	7 (10.4%)	4 (6.0%)	3 (4.5%)
	Sometimes true	7 (10.4%)	2 (3.0%)	5 (7.5%)
	Often true	2 (2.9%)	1 (1.5%)	1 (1.5%)
	Always true	4 (6.0%)	2 (3.0%)	2 (3.0%)
Education	Never true	58 (86.6%)	38 (56.7%)	20 (29.9%)
	Rarely true	3 (4.5%)	1 (1.5%)	2 (3.0%)
	Sometimes true	2 (3.0%)	1 (1.5%)	1 (1.5%)
	Often true	1 (1.5%)	0 (0.0%)	1 (1.5%)
	Always true	3 (4.5%)	2 (3.0%)	1 (1.5%)

Table 5: Association between geographic location and coping strategies among food insecure primary caregivers

	Geographic location
Medication	0.847
Utilities	0.847
Rent/Mortgage	0.809
Transportation	0.042*
Education	0.332

*Signifies $p < 0.05$

Discussions

In this study, there was no association between food insecurity and geographic location. In addition, the choice of a household to forego paying for utilities and transportation seem to be the best predictors of the varying levels of food insecurity within a household, as those are the only two coping strategies significantly associated with food security level. Finally, among those who are food insecure, choosing between paying for food and paying for transportation is the only coping strategy that differs between the two different geographies.

The rate of food insecurity with hunger in the sample differed from the rates found in the literature. The study sample had a rate of food insecurity of 56.5% and 20.3% of participants were food insecure with hunger. This was higher than any of the reported statistics from the literature for both Franklin County and the state of Ohio (Feeding America, 2017). This indicates that food insecurity may have increased since 2015, or that the population sampled is concentrated in areas that have more severe food insecurity than the rest of the county.

Despite differences between rural and urban settings and varying risk factors for these two groups, there was no statistically significant difference between rates of food insecurity between the two geographic locations. The rate for rural food insecurity with hunger was 19% which was greater than the rate found in the literature of 15%. Furthermore, the rate of urban food insecurity was far greater than rural food insecurity rate (33.3% to 21.7%, respectively) which in contrast to the statistics seen in Piontak & Schulman's study on rural food insecurity (2014). These discrepancies with the literature could be due to the survey only measuring food insecurity among households with children, which is often higher than the rate of food insecurity among other households in addition to the small sample size.

As predicted by Pinard et al. (2016), households with higher levels of food insecurity were more likely to employ coping strategies, but not all coping strategies were equally utilized by food insecure households. Only utilities and transportation were seen to be significantly different between food secure and food insecure households. Thus these two necessities seem to be the first sacrifices made by a household when food resources are limited.

Ultimately, transportation was the only nonfood based coping strategy that differed between urban and rural primary caregivers who were food insecure. Urban households were significantly more likely than rural households to forego paying for transportation when food resources were limited. This could be due to differences between infrastructure patterns and transportation methods between the two locations. Urban areas tend to have greater access to public transportation and tend to have lesser distances of travel between destinations (Feeding America, 2017). Therefore, urban households may rely on public transportation, bike, or walk—all more economical options than having a private car—to get from place to place. In contrast, rural residents have little to no access to public transportation and have greater distances between destinations and thus rely on private cars more than urban residents. As a result, rural residents probably are less likely to sacrifice transportation costs because doing so may detrimentally affect their ability to work, get to healthcare visits, and getting to food retailers or food pantries—which would ultimately exacerbate their problem further.

The study has several limitations. First, the sample size is relatively small, and thus the results may not be stable. Second, because only two clinics that are associated with one healthcare system were included in the study, results are not generalizable to the larger population of Ohio. In addition, the categorization for rurality was self-reported. A more

standardized tool for classifying urban-rural status is needed to increase reliability of these results.

Food insecurity is an incredibly complex issue with multiple factors contributing to it at an individual and societal level. This study aimed to further understand the factors associated with its presence to better inform healthcare professionals on what to look for in order to identify food insecurity in its earliest stages and before serious health consequences are experienced. In addition, this study explored the decisions that are faced by households with food insecurity every day. Policymakers should consider this information when making decisions upon public assistance programs including obvious choices such as supplemental nutrition assistance programs, but also less obvious programs such as utility assistance, prescription assistance, healthcare laws in general, and assistance for rent and mortgage payments. It is essential to allocate greater funding to those areas where food insecure households are already compromising basic needs, such as with utilities and transportation. Beyond this, it is important to prevent cutting funds to programs that support coping strategies to avoid further stress to food insecure households. Finally, by taking notes of the geographic differences in transportation coping strategies among food insecure populations, geography-specific programs can be implemented to alleviate and prevent food insecurity in the population. For example, based on the results of this study, a program can be developed to help urban residents maintain their ability to get to work, appointments, and food outlets despite lacking formal transportation means when faced with food insecurity.

References

- Ahern, M., Brown, C., & Dukas, S. (2011). A National Study of the Association Between Food Environments and County-Level Health Outcomes. *The Journal of Rural Health, 27*, (4), 367-379.
- Black, M. M., Quigg, A. M., Cook, J., Casey, P. H., Cutts, D. B., Chilton, M., Meyers, A., ... Frank, D. A. (2012). WIC participation and attenuation of stress-related child health risks of household food insecurity and caregiver depressive symptoms. *Archives of Pediatrics & Adolescent Medicine, 166*, (5), 444-51.
- Bickel, G., Nord, M., Price, C., Hamilton, W., & Cook, J. (2000). Guide to Measuring Household Food Security (Revised 2000). *Measuring Food Security in the United States*, 28-31.
- Carter, M. A., Dubois, L., & Tremblay, M. S. (2014). Place and food insecurity: a critical review and synthesis of the literature. *Public Health Nutrition, 17*, (1), 94-112.
- Coleman-Jensen, Alisha, Matthew P. Rabbitt, Christian A. Gregory, & Singh, A.. *Statistical Supplement to Household Food Security in the United States in 2015*, AP-072, U.S. Department of Agriculture, Economic Research Service, September 2016.
- Feeding America. (2017). Food Insecurity in Ohio. Retrieved April 18, 2017, from <http://map.feedingamerica.org/county/2014/overall/ohio>
- Hadley, C., & Crooks, D. L. (January 01, 2012). Coping and the biosocial consequences of food insecurity in the 21st century. *American Journal of Physical Anthropology, 149*, 72-94.
- Hager, E. R., Quigg, A. M., Black, M. M., Coleman, S. M., Heeren, T., Rose-Jacobs, R., Cook, J. T., ... Chilton, M. (January 01, 2010). Development and Validity of a 2-Item Screen to Identify Families at Risk for Food Insecurity. *Pediatrics Springfield, 126*, (1), 157.

Ivers, L. C., & Cullen, K. A. (January 01, 2011). Food insecurity: Special considerations for women. *The American Journal of Clinical Nutrition*, 94, (6).

McIntyre, L., Bartoo, A. C., Pow, J., & Potestio, M. L. (January 01, 2012). Coping with child hunger in Canada: Have household strategies changed over a decade? *Canadian Journal of Public Health*, 103, (6), 428-432.

Pabalan, L., Dunn, R., Gregori, K., Olson, E., Thomas, L., Willis, E., Simpson, P., ... Brousseau, D. C. (January 01, 2015). Assessment of Food Insecurity in Children's Hospital of Wisconsin's Emergency Department. *Wisconsin Medical Journal*, 114, (4), 148-151.

Pinard, C., Smith, T. M., Calloway, E. E., Fricke, H. E., Bertmann, F. M., & Yaroch, A. L. (December 01, 2016). Auxiliary measures to assess factors related to food insecurity: Preliminary testing and baseline characteristics of newly designed hunger-coping scales. *Preventive Medicine Reports*, 4, (4), 289-295.

Piontak, J. R., & Schulman, M. D. (August 22, 2014). Food Insecurity in Rural America. *Contexts*, 13, (3), 75-77

Ruel, M. T., Garrett, J. L., Hawkes, C., & Cohen, M. J. (January 01, 2010). The food, fuel, and financial crises affect the urban and rural poor disproportionately: A review of the evidence. *The Journal of Nutrition*, 140, (1).

United States Department of Agriculture Economic Research Service. (2017, March 7). Survey Tools. Retrieved April 20, 2017, from <https://www.ers.usda.gov/topics/food-nutrition-assistance/food-security-in-the-us/survey-tools/#six>

Appendix A: Recruitment letter

OHIOHEALTH

SURVEY CONSENT FORM

Comparing the Impact of Geographic Location on Coping Strategies among Primary Caregivers with Food Insecurity

Erin Krafka, MPH, CHES (Principal Investigator)

You are being asked to take part in a research study of how geographic location alters the prevalence of food insecurity and the associated coping mechanisms. The project is being conducted by Erin Krafka from the OhioHealth Research and Innovation Institute's Office of Health Equity. Please read this form carefully and ask any questions you may have before agreeing to take part in the study.

You must be over 18 years old and have at least one dependent between the ages of 1 and 18 to take part in this study.

If you agree to be in this study, we will ask you to complete a survey. The survey will include questions about your food security, various behaviors, and various physical conditions. Additionally, you have the option to include your address on the survey so researchers can determine proximity to grocery stores. The survey will take about thirty minutes to complete. You also have the option to fill out the attached form asking for your name and address for the chance to win a \$100 gift card to Walmart. Your participation is voluntary. You can refuse to answer questions that you do not wish to answer. You can decide to withdraw from the study at any time without penalty or repercussion. If you do not wish to take part, simply discard the questionnaire.

Your answers will be confidential. The records of this study will be kept private. In any sort of report we make public, we will not include any information that will make it possible to identify you. Research records will be kept in a locked file; only the researchers will have access to the records. Nonetheless, some of the questions asked may be of a sensitive nature and you may choose not to answer any questions that you do not feel comfortable answering. Completing the survey confirms your consent to take part.

Keep this letter for your records. If you have any questions regarding the research, contact:

Erin Krafka, MPH, CHES
OhioHealth Research & Innovation Institute
3545 Olentangy River Rd., #414
Columbus, OH 43214
614-566-5206
Erin.Krafka@ohiohealth.com

Allison Porter
Ohio State University
porter.693@osu.edu

If you have any questions about your rights as a research subject, contact Dr. Randall Franz, Chairperson of the OhioHealth Institutional Review Board #2, at (614) 566-4431. This office oversees the review of the research to protect your rights and is not involved with this study.

Thank you again for your help.

Erin Krafka

Appendix B: Questionnaire

Date: _____ Location: _____ Staff: _____

Comparing the Impact of Geographic Location on Coping Strategies among Primary Caregivers with Food Insecurity

Erin Krafka, MPH, CHES (Principal Investigator)

1. What is your age?
 - a. _____
2. Are you the primary caregiver of a child or children between the ages of 1 and 18? (a primary caregiver is an adult for whom the child's well being is his/her responsibility)
 - a. Yes
 - b. No

PART 1: HOUSEHOLD FOOD SITUATION

Below are several statements that people have made about their food situation. For each statement, please circle the response that best describes whether the statement was often true, sometimes true, or never true for (you/your household) in the last 12 months – that is, since last November.

3. “(I/We) worried whether (my/our) food would run out before (I/we) got money to buy more.” Was that often true, sometimes true, or never true for (you/your household) in the last 12 months?
 - a. Often true
 - b. Sometimes true
 - c. Never true
 - d. Don't know
4. “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?
 - a. Often true
 - b. Sometimes true
 - c. Never true
 - d. Don't know

5. “(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?
 - a. Often true
 - b. Sometimes true
 - c. Never true
 - d. Don’t know

6. In the last 12 months, since last November, did (you/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?
 - a. Yes
 - b. No (skip 7)
 - c. Don’t know (skip 7)

7. How often did this happen—almost every month, some months but not every month, or in only 1 or 2 months?
 - a. Almost every month
 - b. Some months but not every month
 - c. Only 1 or 2 months
 - d. Don’t know

8. In the last 12 months, did you ever eat less than you felt you should because there wasn’t enough money for food?
 - a. Yes
 - b. No
 - c. Don’t know

9. In the last 12 months, were you ever hungry but didn’t eat because there wasn’t enough money for food?
 - a. Yes
 - b. No
 - c. Don’t know

10. In the last 12 months, did you lose weight because there wasn’t enough money for food?
 - a. Yes
 - b. No
 - c. Don’t know

11. 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?
 - a. Yes
 - b. No (skip 12)
 - c. Don’t know (skip 12)

12. 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

Below are several statements that people have made about the food situation of their children. For each statement, please circle the response that best describes whether the statement was often true, sometimes true, or never true in the last 12 months for (your child/children) living in the household who are under 18 years old.

13. “(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
14. “(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
15. “(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 your household in the last 12 months?
- Often true
 - Sometimes true
 - Never true
 - Don't know
16. In the last 12 months, since November 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

17. In the last 12 months, did (CHILD’S NAME/any of the children) ever skip meals because there wasn’t enough money for food?
- a. Yes
 - b. No (skip 18)
 - c. Don’t know (skip 18)
18. How often did this happen—almost every month, some months but not every month, or in only 1 or 2 months?
- a. Almost every month
 - b. Some months but not every month
 - c. Only 1 or 2 months
 - d. Don’t know
19. In the last 12 months, (was your child/were your children) ever hungry but you just couldn’t afford more food?
- a. Yes
 - b. No
 - c. Don’t know
20. 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?
- a. Yes
 - b. No
 - c. Don’t know

PART 2: COPING STRATEGIES

21. In the past month, how often did you choose between paying for food and paying for:
(1= never true; 2 = rarely true; 3 = sometimes true; 4 = often true; 5 = always true)

	How often?
Medicine	
Utilities	
Rent/mortgage	
Transportation	
Education	

22. In the past month have you:

	Yes/no
Asked friends and family for food or money for food	
Sold food or pawned any personal property	
Skipped paying bills to buy food	
Bought the cheapest food available	
Avoided buying expensive foods like fruits and vegetables	
Locked up or hid food to save it	
Stretched food by limiting	
Avoided having guests to avoid serving food	
Eaten as much as possible when food is available	
Eaten meals or snacks after children finished	
Grown food in a garden	
Eaten meat that you or another person hunted	
Visited a social or a community event just to eat	
Eaten "road kill" or animals hit by cars	
Eaten food that was thrown away	
Removed slime from lunchmeat before eating	
Removed mold from cheese or bread before eating	
Removed spoiled parts from fruits/vegetables	
Eaten food after the expiration date	
Watered down infant formula to extend it	
Other:	

23. In the past month have you felt _____ because you did not have money to buy food?

	Yes/No
Stomach growling	
Dizzy	
Cranky	
Tired	
A headache	
Sick	
Other: _____	

PART 3: DEMOGRAPHICS

24. What is your sex?
- Male
 - Female
 - Other
25. Please indicate your ethnicity
- Hispanic or Latino
 - Not Hispanic or Latino
26. Please indicate your race (choose all that apply)
- American Indian or Alaska Native
 - Asian
 - Black or African American
 - Native Hawaiian or Other Pacific Islander
 - White
27. What is the highest level of education you have attained?
- Some high school, but not graduated
 - Grade 12 or GED (high school graduate)
 - Some college, no degree
 - Associate Degree
 - Bachelors Degree
 - Masters Degree or higher
28. What is your employment status?
- Full-time employment
 - Part-time employment
 - Unemployed, actively seeking employment
 - Unemployed, not seeking employment
29. What is your total household income?
- Less than \$35,000
 - \$35,000 - \$40,000
 - \$40,001 - \$50,000
 - \$50,001 - \$65,000
 - Greater than \$65,000

30. Please indicate your source(s) of income (select all that apply)

- a. Earnings (wages, salaries, etc.)
- b. Old age, survivor, or disability insurance
- c. Private retirement benefits
- d. Public retirement benefits (such as Social Security)
- e. Help from relatives
- f. Veterans benefits
- g. Public assistance
- h. Interest, dividends, and rents
- i. Other _____

31. Please list the ages of all children of whom you are responsible who are 18 years of age or younger and your relationship to the child (biological parent, adoptive parent, grandparent, aunt/uncle, cousin, older sibling, friend, etc.)

- a. CHILD 1 _____ Relationship to Child: _____
- b. CHILD 2 _____ Relationship to Child: _____
- c. CHILD 3 _____ Relationship to Child: _____
- d. CHILD 4 _____ Relationship to Child: _____
- e. CHILD 5 _____ Relationship to Child: _____
- f. CHILD 6 _____ Relationship to Child: _____
- g. CHILD 7 _____ Relationship to Child: _____
- h. CHILD 8 _____ Relationship to Child: _____
- i. CHILD 9 _____ Relationship to Child: _____
- j. CHILD 10 _____ Relationship to Child: _____

32. Do you participate in any Supplemental Nutrition Assistance Programs? (SNAP, etc.)

- a. Yes
- b. No
- c. Don't Know

33. What is your health insurance status?

- a. No insurance
- b. Medicaid
- c. Medicare
- d. Private Insurance

34. Describe your household composition

- a. Married-couple family
- b. Female head, no spouse
- c. Male head, no spouse

35. Including yourself, how many people live in your home?

- a. _____

36. Is your home owned, being bought, rented, or occupied by some other arrangement by you or someone else in your family?
- a. Owned (even if s/he is still paying on a mortgage)
 - b. Rented (pay on a continuing basis without gaining any rights to ownership)
 - c. Other arrangement
 - d. Homeless
 - e. Don't know
37. Are you a legal resident of the U.S.?
- a. Yes
 - b. No
38. What is your zip code: _____
39. Which county and state do you live in?
- County _____
- State _____
- How long have you lived in this county? _____
40. Have you ever lived in a rural area?
- a. Yes
 - b. No
41. If you answered yes to Question 40, what was the zip code or city/state of the rural area?
- _____
42. How long did you live in a rural area? _____
43. We would like to know your street address so that we can calculate your distance from grocery stores. Would you mind listing your street address here?
- _____

Thank you for completing this survey. The drawing will be held at the end of the study. Only one entry per person, please. Multiple entries will be disqualified. **You must complete the entire questionnaire to be eligible for the drawing.** Information obtained from this questionnaire will be kept strictly confidential.

Please list your name and contact information so that we can notify you if you win our drawing!
(PLEASE PRINT)

Name: _____

Address: _____

City, State, Zip: _____

Phone: _____

Email: _____