

The Impact of Income Levels on Food Insecurity in Rural Communities

Kelly Annestrand, Shelby Lenz, Andrea Bird, and Amy James
Tarleton State University

Abstract

The issue of food insecurity, defined by Anderson (1990) as: “[The] limited or uncertain availability of nutritionally adequate and safe foods or limited or uncertain ability to acquire acceptable foods in socially acceptable ways” (1557), is widespread for rural communities as they experience a lack of proper nutrition at a higher rate. This research study seeks to examine the correlation between household income per the poverty level and food insecurity within the population of a rural area. The research seeks to identify trends in the levels of income and the levels of food insecurity in a rural area based upon the poverty threshold. The poverty threshold, as defined by the U.S. Department of Health and Services (2016), is the minimal amount of income needed for a family to meet its basic needs. Using the poverty threshold as a measure of the minimum amount of income needed, the poverty threshold is determined by the amount of family members in the home, beginning with \$11,880 annually for a household of one individual, and increasing by \$4,140 for each additional household member (U.S. Department of Health and Human Services 2016).

Objectives include assessing the correlations between income levels and food insecurity and assessing the participants’ interpretation of food insecurity. In this research investigation, the initial hypothesis maintains that income level is positively correlated to the presence of food insecurity.

In addition, the study includes two hypotheses developed by the researchers:

H₁: Income level will be positively correlated to the presence of food insecurity.

H₂: Food insecurity will be more frequent in households with incomes below the poverty level than in households with incomes above the poverty level.

The research study analyzed the income level of individuals within the geographic location as well as the level of household food insecurity. The researchers utilized a mixed methodological approach to analyze pre-developed demographic questions, as well as qualitative and quantitative responses to the Household Food Insecurity Access Scale (HFIAS) developed by the National Center for Health Statistics (2012). The study had a sample size of 175 participants who have resided in the rural area for at least one year. Participants were identified through civil service agencies and purposive sampling methods of personal contacts within the community. The data analysis included basic correlations and frequency charts. Of the 175 participants, 20% (n=35) indicated they did not make enough money to meet their own basic needs, such as food. From this percentage of participants, 83% (n= 145) indicated they had an annual income lower than \$20,000. The other 17% (n=29) indicated not making enough money to meet their basic needs and reported an income between \$20,000 and \$34,000 annually. An implication of the study includes modifying current efforts to reduce food insecurity in order for resources to become more accessible to residents who earn a lower income.

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Food insecurity is an issue that affects a significant percentage of the population, both nationally and locally (Alaimo, Briefel, Frongillo, and Olson 1998). Research has shown that rural areas, defined by the United States Department of Agriculture (USDA) in 2015 as an area with a population under 50,000 people, tend to be affected by food insecurity more frequently than urban areas (Sharkey, Johnson, and Dean 2011). There are a few variables possibly influencing this occurrence, including the socioeconomic factors such as race, education level, and household income.

Examining food insecurity rates by household incomes per the poverty level may provide important insight into the potential strategies that can be used to address hunger. Feeding America, a charitable organization, compiled data from the USDA and released a publication in 2013 providing statistics on food insecurity at the national, state, and local county level. According to this data, 17.2% of the population in a rural region of Texas, the county in which the research was conducted, is food insecure in comparison to the national average of 16.4% (Feeding America 2013). In addition, Feeding America (2013) has identified families with lower incomes being at a higher risk for food insecurity.

Another factor is the prevalence of food insecurity related to the availability of community resources. Transportation and financial barriers are more frequent in rural communities, as there are fewer resources available for those who are in need in rural areas (Sharkey, Johnson, and Dean 2011). In rural areas, finding work that pays well can be a challenge, making it difficult for individuals in such communities to make a living. The lack of public transportation also creates a barrier—many rural areas often do not possess public transportation such as buses, subways, and taxis, making those who do not have a vehicle unable to travel to where the resources are located. As rural community budgets and population are smaller in proportion to those of urban areas, in addition to rural areas' geographic location being so remote, public transportation is an unrealistic option for rural communities.

It is unlikely that individuals would choose to be food insecure as adequate nutrition is a basic need for survival. As a result of healthy and nutritional food costing more and being located in more urbanized areas, many food-insecure individuals opt for less nutritional food that is more affordable and accessible in their community.

Literature Review

A study conducted by Alaimo et al. (1998) utilized the third National Health and Nutrition Examination Survey (NHANES III) to determine how demographic characteristics relate to the prevalence of food insecurity in family groups in the United States. The goal was to determine the prevalence of food insecurity based on income, racial/ethnic groups, age, and region of the United States

The results of the study indicated a greater risk for food insecurity among low-income groups in comparison to low-to-middle income groups. In groups that had low-to-middle incomes, 4.3% of individuals experienced food insecurity, as compared to solely low-income groups where 14% faced food insecurity. As a whole, 10.6% of all participants living at or below 185% of the poverty line reported being food insecure for at least a short amount of time.

In regard to race, food insecurity was highest among Hispanic participants at 15.2%, followed by African American individuals at 7.7%, and White participants at 2.5%. After

analyzing the responses to the survey, it was determined that the prevalence of food insecurity was much higher for the participants who answered in Spanish (the language they are most proficient in) compared to those who answered in English.

Among the total number of Hispanic participants who completed the survey, those who answered in Spanish accounted for 21.2% of the percentage of food insecure while those who answered in English only accounted for 9.7%. The results of this analysis found that “between 1988 and 1994, approximately 2.4 to 3.2 million children younger than age 12 lived in food-insufficient families. An additional 0.7 to 1.3 million teenagers...lived in food-insufficient families” (Alaimo et al. 1998, 423).

A limitation of the study, as discussed by the authors, surrounds the scale NHANES III, as it does not attempt to measure the quality, uncertainty, or psychological components of food insecurity. The NHANES III only measures the quantity of food insecurity based on the current self-reporting answers to the survey, which has the potential to lead to a less in-depth analysis of the role demographic factors have on a family’s food insecurity.

Another study completed by Wehler et al. (2004) demonstrated how the factors of low-income and unemployment can directly impact the probability of a family being food insecure. The study utilized “a sample of 220 homeless recruited from Worcester’s homeless shelters and welfare hotels ...and a comparison group of 216 never-homeless women was recruited from the Department of Public Welfare office to represent those at risk for homelessness” (Wehler et al. 2004, 109).

According to the data, 30% of the sample reported having an income 50% below the poverty line, while 69% reported an income 75% below the poverty line. In addition to these results, approximately 44% of the participants had not completed high school. The participants were ethnically diverse as White and Hispanic individuals were evenly represented with 39%, African Americans with 14%, and 9% identifying themselves as another ethnicity (Asian, Pacific-Islander, etc.) not listed on the survey. In the questionnaire, which asked participants if they or their children had experienced hunger during the past year, 45% of participants stated they experienced no hunger, 38% of adults experienced hunger, and 17% of adults stated their children experienced hunger.

One of the major limitations of the study was the exclusion of other factors, which have the potential to contribute to a family being food insecure, besides homelessness. Additional findings indicated many other factors should be considered when examining the income level of an individual including, but not limited to: child support, access to public assistance programs, personal relationship support, mental illness, presence of violence, and housing and other subsidies.

A study by Dean and Sharkey (2011) investigated if the possibility of a correlation between food insecurity and social resources within a rural Central Texas region existed. 1,803 adults participated in the study which included measures originally derived from the Brazos Valley Health Assessment in 2006. The study included data from three age categories (18-39, 40-59, and 60 years or older), race and ethnicity, educational attainment, gender, and household income.

The results of the study show large disparities in reference to food insecurity and availability in rural regions as compared to more urban regions. The results indicated more than 25% of the participants would run out of food during the week and would be unable to purchase more, consequently becoming food insecure as a result. In comparing participants from urban areas as opposed to rural areas, 16.8% in urban communities admitted food insecurity had

occurred in the past month, while 18.3 % of the rural participants admitted food insecurity occurred in the same time span.

Additional findings demonstrated other common disparities among rural regions including age, education level, and household income ($p < 0.001$). Rural participants at 28.3% “were more likely to report low social-capital scores than urban respondents” at 16.5% (Dean and Sharkey 2011), while there were no disparities in regards to gender (Dean and Sharkey 2011). A limitation of this study is the high number of recognized independent variables, which include education, income level, age, gender, ethnicity, social resources, and personal differences as perceived by the individual.

These studies validate the current research study by providing an examination of the disparities common in rural regions as compared to urban communities. Several disparities examined in the studies, such as having a low-income household, certain demographic factors, and the availability of resources, reiterate the many differences and the impact that these differences have in rural communities as compared to urban areas. The studies demonstrate the correlation between resource accessibility and the presence of food insecurity, as well as the impact the lack of resources has on rural community members.

Theoretical Framework

The theory utilized to conduct this study is the Ecological Systems Theory (EST) developed by Urie Bronfenbrenner in 1977, which suggests that an individual is constantly affected by various systems of his or her life as these varying dimensions interact with each other. An example of such includes an individual whose profession is influenced by their status as food insecure. When the individual exhibits common symptoms of food insecurity (a micro-system issue), such as stress and malnutrition, such factors can have a negative impact on the individual’s work performance (meso-system). Ultimately, food insecurity can weaken communities through the ways described above, and a lack of resources in the area can exacerbate such effects (macro-system). Consequently, the manner in which different systems interact and influence others is apparent. This illustrates how his or her environment at different levels can impact an individual.

Regarding the research study in investigating the manifestations of food insecurity in terms of income level, EST is critical to the effective implementation as well as interpretation of the research. The theory is especially vital in understanding the microsystem, mesosystem, and macrosystem in an individual’s life, and the role income level may have in determining or influencing the presence of food insecurity within a household. As the hypotheses for this research study maintain that food insecurity is influenced by the variable of household income, EST possesses a large role in illustrating the manner in which conclusions are plausible. EST also assists in examining many factors occurring in an individual’s life and attempts to discover how these variables influence one another. The research study intends to investigate this concept through the dependent variable of food insecurity contrasted with the independent variable of income level.

The systems within an individual’s life interact and influence one another. Having a lower income level makes the individual more at risk for food insecurity, as the individual would lack the necessary economic means to obtain nutritionally adequate food for the household. Utilizing EST as the theoretical base of the research study appeared to be the most appropriate of social work theoretical frameworks available to base the nature of the investigation due to its

multifaceted design. With a multifaceted research design, social work practitioners are able to examine a variety of variables influencing an individual's life. The EST is also relevant not only for the purposes of collecting data for evaluation, but also in interpreting the results as well.

Methods and Research Design

As mentioned previously, the study was conducted using a mixed methodological approach, obtaining data from both quantitative and qualitative questions. The survey included open-ended questions, six predeveloped demographic questions, and rating questions. The Household Food Insecurity Access Scale (HFIAS) developed by the National Center for Health Statistics (2012) was also utilized in the questionnaire. HFIAS is an internationally recognized scale with questions in reference to six different domains of the perceptions on food insecurity. The domains measured in the HFIAS are 1) uncertainty or anxiety over food; 2) perceptions of insufficient quantity of food; 3) perceptions of insufficient quality of food; 4) reported reductions of food intake; 5) reported consequences of reduced food intake; and 6) feelings of shame for resorting to socially unacceptable means of accessing food (National Center for Health Statistics 2012). The researchers employed several methods of gathering information, which included sampling at civil service agencies, purposive sampling methods of personal contacts, and attending community events to gather participants.

The theoretical framework for this study is structured from the method in which the data is collected, primarily through the use of questionnaires containing quantitative and qualitative inquiries. The independent variable is identified as income level and measured by the self-report of income, and the dependent variable of household food insecurity is measured through comparing and contrasting income levels from other data sets. The researchers observed the presence of food insecurity and other factors (or systems) of an individual's life, such as the observed variable of household income level, through analysis of the collected data.

The sample size of the survey was 175 participants 18 years of age or older. The respondents of the questionnaire received a verbal explanation of the entire survey before the respondents made the decision to participate in the study. All participants were categorized as residents of the rural area, which is defined as the participant residing there for a minimum of one year. The researchers focused on the independent variable of the participant's household income in correlation to the dependent variable of the existence of food insecurity in the participant's household.

Three patterns emerged from the data. The first pattern is the prevalence of food insecurity was negatively correlated to the income level of the participant's household. The second observable tendency in the data is the presence of food insecurity being positively correlated to the income level of the participant's household. And the third trend is the absence of discernable correlation between the prevalence of food insecurity and the income level of the participant's household.

Data Analysis

The sample size of the data consisted of 175 participants, which were obtained by means of convenience sampling. Of this sample, 36% (n=62) were male and 64% (n=113) were female. In regards to age, 38.8% (n=68) were between the ages of 18-24, 21.7% (n=38) were between the ages of 25-35, and 39.4% (n=69) were over the age of 35. In addition, 77.8% (n=136) of the

participants were Caucasian, 14.2% (n=25) were Hispanic, 4% (n=7) were African American, and 4% (n=7) identified as a different race. In terms of education, 21.2% (n=37) of the participants had a 6th-12th-grade education, 27.4% (n=48) had a high school diploma or GED, 36% (n=63) reported having some college, and 15.4% (n=27) reported having a college degree.

The hypotheses for the research study included predictions that those with an income under the poverty level would be more prone to food insecurity, as well as a positive correlation existing between household income level and food insecurity.

In the sample group, 20.5% (n=36) indicated they did not make enough money to meet their everyday basic needs. When the percentage was analyzed by demographic variables, 83% (n=30) of individuals possessed an annual income under \$20,000. Furthermore, 50% (n=18) of the participants who reported they did not make enough money to meet their everyday needs held a high school diploma/GED or less. In addition, 33% (n=12) of the individuals who stated they did not make enough money to meet their everyday needs also had to eat a smaller meal due to not enough food being available in their household. The data shows that people with an income under the poverty level were more likely to experience food insecurity, as 83% (n=30) who had experienced food insecurity at least once during their life had an income below \$20,000.

In addition, a direct correlation appeared in regards to food insecurity: the lower the income, the more likely individuals were to eat a smaller meal than what they felt they needed due to the lack of food. The results also indicated 83% (n=30) of individuals who had to eat smaller meals had an income of lower than \$20,000, and the remaining 17% (n=6) had an income ranging from \$20,000-\$34,000 annually. Based on these observations, both hypotheses proposed were supported by the data. The data also displayed a direct positive correlation based upon income level and prevalence of food insecurity.

An identified strength of the research study was the researchers' prior knowledge and personal connections within the community. This prior knowledge allowed for researchers to identify survey participants through prior work in social service agencies and community involvement. Another strength of the research study was the use of a valid scale. The accessibility and simple terminology of the HFIAS scale allowed the participants to complete the survey with ease. The reliability of the study allows for a more accurate analysis of results on behalf of the researchers as well.

A limitation of the research included participant hesitancy to complete the survey and discomfort faced by participants associated with food insecurity in rural communities. As surrounding rural communities were reluctant to discuss food insecurity, locating participants proved to be challenging.

Conclusion

An analysis of the data in this study suggests a correlation between income level and food insecurity: as household income level decreases, the prevalence of food insecurity increases. The results of this study indicated the specific issue of food insecurity is present in the population of this county. However, the research study did not provide indications for effective means of reducing the prevalence of food insecurity within the identified population. Consequently, further research is needed to identify and determine effective means of addressing the disproportionate levels of food insecurity among individuals with different income levels.

In addition to providing a direction for further research, this study highlights a target population for current efforts to meet the needs of those who experience food insecurity, especially within the county in which the research was conducted. While further research is still needed to determine the most effective methods of combatting food insecurity among lower-income families, current efforts may now also be used to target lower-income households as a result of the identified prevalence of the issue.

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