

THE PERCEIVED NUTRITION ENVIRONMENT OF SNAP, WIC, SENIOR CITIZENS,
AND THE ADMINSTRATIVE SCOPE OF THE DOUBLE VALUE PROGRAM

by

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A Dissertation Prospectus
Submitted in Partial Fulfillment of the Requirements for the
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IN THE FIELD OF HEALTH EDUCATION

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AN ABSTRACT OF THE DISSERTATION OF

DOMINIQUE MARIA ROSE, for the Doctor of Philosophy degree in Health Education, presented on April 24, 2018, at Southern Illinois University Carbondale.

TITLE: THE PERCEIVED NUTRITION ENVIRONMENT OF SNAP, WIC, SENIOR CITIZENS, AND THE ADMINISTRATIVE SCOPE OF THE DOUBLE VALUE PROGRAM

MAJOR PROFESSOR: Dr. Aaron Diehr

The proposed dissertation investigates fruit and vegetable consumption of low-income rural individuals across southern Illinois. Particularly, the study examines the dimensions of food access and its effects on food selection for individuals enrolled in the Supplemental Nutrition Assistance Program (SNAP); low-income senior citizens; and Women, Infants, and Children (WIC) recipients. This study examines the use of the Link Up Illinois Double Value SNAP Nutrition Incentives Program (DVCP), a coupon with which recipients can receive twice as much fresh produce when redeemed at a farmers market. Additionally, this study measures the organizational scope of administering the Double Value Coupon Program in two southern counties of Illinois. This information will allow for the development of appropriate location specific intervention strategies to increase use of the Link Up Illinois Double Value SNAP Nutrition Incentives Program and, consequently, consumption of fresh fruits and vegetables among low-income seniors, SNAP, and WIC recipients.

This study will use a cross sectional, mixed methods design to describe, understand, and interpret the use of the Link Up Illinois Double Value SNAP Nutrition Incentives Program and the community nutrition environment of SNAP, WIC, and senior citizens. The researcher will combine qualitative data from in-depth interviews with DVCP community leaders and

quantitative data from the Perceived Nutrition Environment Measures Survey (NEMS-P) which will investigate Jackson and Williamson counties in southern Illinois (Green & Glanz, 2015).

Quantitative data will be analyzed using descriptive statistics, binomial, ordinal, and multinomial logistical regressions. Interviews will be transcribed and coded using ATLAS.ti 8 software and themes will be reported. In addition, a geographic information system (GIS) framework will be used to visualize participants access to farmers markets. In doing so, the researcher purports to illustrate where program recipients are residing who are using the DVCP in comparison to both access to the farmers market and the organizational scope which will assist community leaders in implementation and promotion of the program.

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LIST OF ABBREVIATIONS

DVCP	Double Value Coupon Program
EBT	Electronic benefits transfer
FMNP	Farmers Market Nutrition Program
SFMNP	Senior Farmers Market Nutrition Program
SNAP	Supplemental Nutrition Assistance Program
WIC.....	Women, Infants, and Children

CHAPTER 1

INTRODUCTION

This proposed dissertation investigates fruit and vegetable consumption of low-income rural individuals across Southern Illinois. Specifically, the study examines the dimensions of food access and its effects on food selection for individuals enrolled in the Supplemental Nutrition Assistance Program (SNAP); low-income senior citizens; and Women, Infants, and Children (WIC) recipients. This study will also assess use of the Link Up Illinois Double Value SNAP Nutrition Incentives Program (DVCP), a coupon with which recipients can receive twice as much fresh produce when redeemed at a farmers market. Finally, the study assesses the organizational scope of administering the Double Value Coupon Program in two southern counties of Illinois. Chapter one will discuss the purpose of the study and how the findings might be significant to the field of health education. Further, the chapter also outlines research questions, aims, theoretical framework, limitations, and delimitations for the study.

Background

The 2015-2020 Dietary Guidelines for Americans recommend individuals to “follow a healthy eating pattern over time to help support a healthy body weight and reduce the risk of chronic disease” (U.S. Department of Health & Human Services [HHS], 2015, p. 14). Yet national surveillance data and numerous other research studies (Barnidge et al., 2013; Casagrande, Wang, Anderson, & Gary, 2007; Ettienne-Gittens et al., 2013; Prochaska, Sharkey, Ory, & Burdine, 2008) unfailingly indicate that low-income and rural populations are less likely to reach the recommended guidelines for fruit and vegetable intake levels compared to high income populations (Kamphuis et al., 2006). Federal, state, and local governments have implemented several programs to address the challenges of eating healthfully, including the

Special Supplemental Nutrition Program for Women or Women, Infants, and Children (WIC), the Supplemental Nutritional Assistance Program (SNAP), and the Senior Farmers Market Nutrition Program (SFMNP), all of which are operated by local and state health departments. The aim of the SNAP program is to provide nutrition assistance to low-income individuals and families (USDA, 2017). Likewise, the purpose of the WIC program is to assist low-income pregnant, breastfeeding, and non-breastfeeding postpartum women; infants; and children up to age five with obtaining nutrition education and supplemental foods.

Purchasing produce at farmers markets represents one way individuals can purchase healthful and seasonal fruits and vegetables to meet dietary guidelines. Indeed, farmers markets offer many benefits, some of which include increasing fruit and vegetable access, availability, and consumption among communities (CDC, 2011). Both food nutrition assistance programs (SNAP and WIC) have extended benefits to include farmers market purchases for fruits and vegetables through the use of electronic benefits transfers (EBT) and “double value” farmers market coupons (USDA, 2008a). This extension of benefits, then, could in turn partly address barriers associated with cost and availability of fresh fruits and vegetables for low-income households, as long as individuals have farmers markets in their communities. In addition to the WIC Farmers’ Market Nutrition Program (FMNP) and double value coupon programs, the Senior Farmers Market Nutrition Program (SFMNP) similarly allows low-income seniors to purchase fresh fruits and vegetables at farmers markets or roadside stands. Beyond addressing barriers of availability and cost of fresh fruits and vegetables, individuals who use these programs can establish a connection with those who grew the produce (CDC, 2011). Exchanging information, such as, food production practices, at the farmers market can affect food purchase behaviors. Clemmons (2008) examined information availability among consumers and

explained that *informedness* can change individuals purchasing decisions. Likewise, Carson, Hamel, Giarrocco, Baylor, and Mathews (2016) suggest the interactions at the farmers market can impact long term food purchase behavior and ultimately individuals health. Carson and colleagues argues that farmers market vendors have the opportunity to motivate individuals to try new produce, provide cooking tips, and discuss the benefits of locally grown foods. Further, the Link Up Illinois Double Value SNAP Nutrition Incentives Program (DVCP) allows the recipients of all three programs—SFMNP, SNAP, and WIC—to receive double the value of federal nutrition benefits spent at participating farmers markets throughout Illinois (Fair Food Network, 2017). Numerous studies have showed that although expansion programs exist, WIC and SNAP recipients continue to underuse both farmers markets and double value coupon programs (Freedman et al., 2017; Jillcott-Pitts et al., 2015).

The use of both farmers markets and expansion programs may be attributed to social determinants of food consumption. Factors that influence food choice include economic, physical, education, and social or community determinants. Some examples include cost, availability, education, and knowledge (Bellisle, 2006; De Iral-Estevez et al., 2000; Kearney, Kearney, Dunne, & Gibney, 2000). Also, the attitudes and beliefs about fresh fruits and vegetables greatly influence food choice and consumption. Researchers have suggested that the amount of education an individual receives can significantly influence dietary behaviors throughout adulthood (Kearney et al., 2000). However, when individuals receive health information, they may not take action if they are unsure how to apply that knowledge. The attitudes of low-income individuals who are a part of federal assistance programs towards eating fresh fruits and vegetables have been inadequately researched (Gibney, 2004). Thus, a general understanding of how low-income individuals perceive the consumption of fresh produce and

their food purchase behaviors would not only help in the formulation of healthy eating initiatives and interventions for these individuals, but it might also increase their farmers market participation.

Statement of the Problem

Despite continual state and federal guidance, fruit and vegetable consumption has remained below the recommended guidelines (Krebs-Smith & Kantor, 2001; National Cancer Institute, 2014). Although supermarkets and grocery stores sell over 100 produce items, it is important to note that in many geographical areas, sometimes the only stores that sell food—such as gas stations, convenience, or corner stores—offer little produce, which is especially salient for low-income rural individuals (Larson et al., 2009). Thus, improving access alone does not necessarily increase the purchase of additional fruits and vegetables (Dibsdall, Lambert, Bobbin, & Frewer, 2003). Currently, there are no known statistics on the number of individuals that are enrolled in the SFMNP; however, 1,914,000 (or 15%) SNAP recipients, 225,159 WIC participants (in 2016), and 333 farmers markets exist in the state of Illinois (USDA, 2017a). Additionally, there are 44,419 SNAP households in the state of Illinois and 16 farmers markets within a 20-mile radius of the 62901 zip code (the area surrounding Carbondale, Illinois). With a large student population due to the presence of Southern Illinois University, Carbondale has an estimated 26,179 residents, approximately 44.4% of whom are living in poverty (Census, 2016).

Need for the Study

The purpose of the aforementioned programs (SFMNP, WIC, and SNAP) is to increase healthy food consumption and to help low-income individuals and families. The average monthly benefit for a WIC recipient (per person) is \$52.16 (USDA, 2017b) and \$134.78 per month for a SNAP recipient (USDA, 2015). Further, the average seasonal benefit for SFMNP

recipients is \$24.00 (USDA, 2015a). Illinois is one of eighteen states in which the double value coupon program has been implemented. While there are data regarding how much money recipients spend using double value coupons per month, research is still needed to confirm where and how individuals spend their federal benefits, what geographical areas are best represented by the double value program, what local agencies that dispense benefits see as impediments to the program, as well as what potential barriers might impede recipients from using the Link Up Illinois Double Value SNAP Nutrition Incentives Program in rural Southern Illinois. Data from the 2016 season at the Murdale Farmers Market, a popular seasonal market in Carbondale, revealed there were 21 new SNAP customers and a total of \$1,365 in SNAP sales made at the market. No data were recorded for seniors or WIC recipients (see Table 1). However, there was an increase in both sales and number of new customers at the Murdale Farmers Market in 2017. During the 2017 farmers market season, there was a total of \$13,968 worth of distributed SNAP sales and WIC checks at the farmers market (Table 1). Of the aforementioned sales, about 20% were WIC recipients, 11% were seniors, and 69% were SNAP recipients (Table 1).

Additionally, there were 326 new customers who used the Link Up Illinois Double Value SNAP Nutrition Incentives Program, of whom 49% were SNAP recipients, 37.4% were WIC recipients, and 13.4% were seniors (Table 1). Although use of the DCVP requires individuals to be SNAP recipients, data was collected separately for senior, WIC, and SNAP recipients at the Murdale Farmers Market. The number of individuals swiping their Illinois Link card (EBT) or the total number of transactions to obtain tokens redeemable for meats and fresh produce at the farmers market were also documented. The data infers there was a significant increase in the total number of transactions from the 2016 to 2017 farmers market season, suggesting a greater number of SNAP, WIC, and senior citizens took advantage of the DVCP in 2017.

Table 1

Carbondale and Community Farmers Market Sales Data

Market	Amount of Link Matched					Total Redeemed	New Customers				Transactions			
	Total SNAP Sales	WIC	Senior	SNAP	Total		SNAP	WIC	Senior	Total	SNAP	WIC	Senior	Total
Carbondale														
2016	\$1,365	N/A	N/A	\$1,239	\$1,239	\$1,532	21	N/A	N/A	N/A	90	N/A	N/A	90
2017	\$11,285	\$2,790	\$1,525	\$9,653	\$13,968	\$13,356	160	122	44	326	674	558	275	1507
Carbondale Community														
2016	\$248	N/A	N/A	\$288	\$288	\$172	2	N/A	N/A	2	14	N/A	N/A	14
2017	\$11,443	N/A	N/A	\$783	\$904	\$864	19	N/A	N/A	23	55	N/A	N/A	55
Link Up Illinois Network		WIC/Senior										WIC/Senior		
2017	\$273,108	\$26,855	\$230,897	\$257,742	\$244,598	4,719	N/A	N/A	4719	15,575	2,064			17,639

Note: The total SNAP sales is the total number of SNAP recipients who used LINK to purchase food at the farmers market. The amount of link matched is the total number of double value coupons used at the farmers market. The total number of double value coupons for the Link Up Illinois Network is combined for WIC recipients and seniors due to the nature of the program, both are under one umbrella (i.e. the Farmers Market Nutrition Program). Data received from Experimental Station.

Yet, there is still a need to understand geographical trends in DVCP usage to determine to what specific individuals are using the DVCP and to ascertain whether any barriers might exist for specific subsets of the population to use the program. Defining the locations of where individuals reside can assist community organizers and administrators of the DVCP with community outreach and health promotion of the program. Therefore, using geographic information systems (GIS) to map where program recipients reside who use the DVCP in comparison to the organizational scope will assist community leaders in implementation and promotion of the program.

Purpose of the Study

This mixed methods study will address challenges low-income seniors, SNAP, and WIC recipients face in terms of using the Link Up Illinois Double Value SNAP Nutrition Incentives Program (DVCP); identify how recipients of the SFMNP, SNAP, and WIC programs are using their federal benefits; and examine the food purchase behaviors of these individuals. In addition, the researcher will assess the organizational scope of administering the Link Up Double Value SNAP Nutrition Incentives Program in the southern Illinois regions by conducting semi-structured interviews with organizational leaders who distribute the DVCP to individuals in Jackson and Williamson Counties in Southern Illinois.

Significance of the Study

There have been numerous research studies on the use of farmers markets (Conrey, Frongillo, Dollahite, & Griffin, 2003; Freedman et al., 2016; Jillcott-Pitts et al., 2014) and their use among SNAP and WIC recipients (Freedman et al., 2017; Grin, Gayle, Saravia, & Sanders, 2011; Herman, Harrison, Afifi, & Jenks, 2008; Jillcott-Pitts et al., 2015). Most researchers have suggested developing interventions to combat barriers to farmers market use, identifying how

SNAP and WIC recipients use their benefits, and delineating challenges associated with the double value coupon program and nutrition outreach. However, there are scant studies examining the SFMNP or all three programs in conjunction. Within the first area of responsibilities for health education specialists, one of the sub-competencies is to “assess social, environmental, and political conditions that may impact health education” (NCHEC, 2015, p.33). By assessing the social determinants of food consumption, the primary researcher of this study will be able to identify factors associated with the use of farmers markets and the Link Up Illinois Double Value SNAP Nutrition Incentives Program in low-income communities. Further, the researcher will be able to suggest appropriate targeted health education/promotion interventions to improve fresh fruit and vegetable consumption and food purchase behavior.

Conceptual Framework

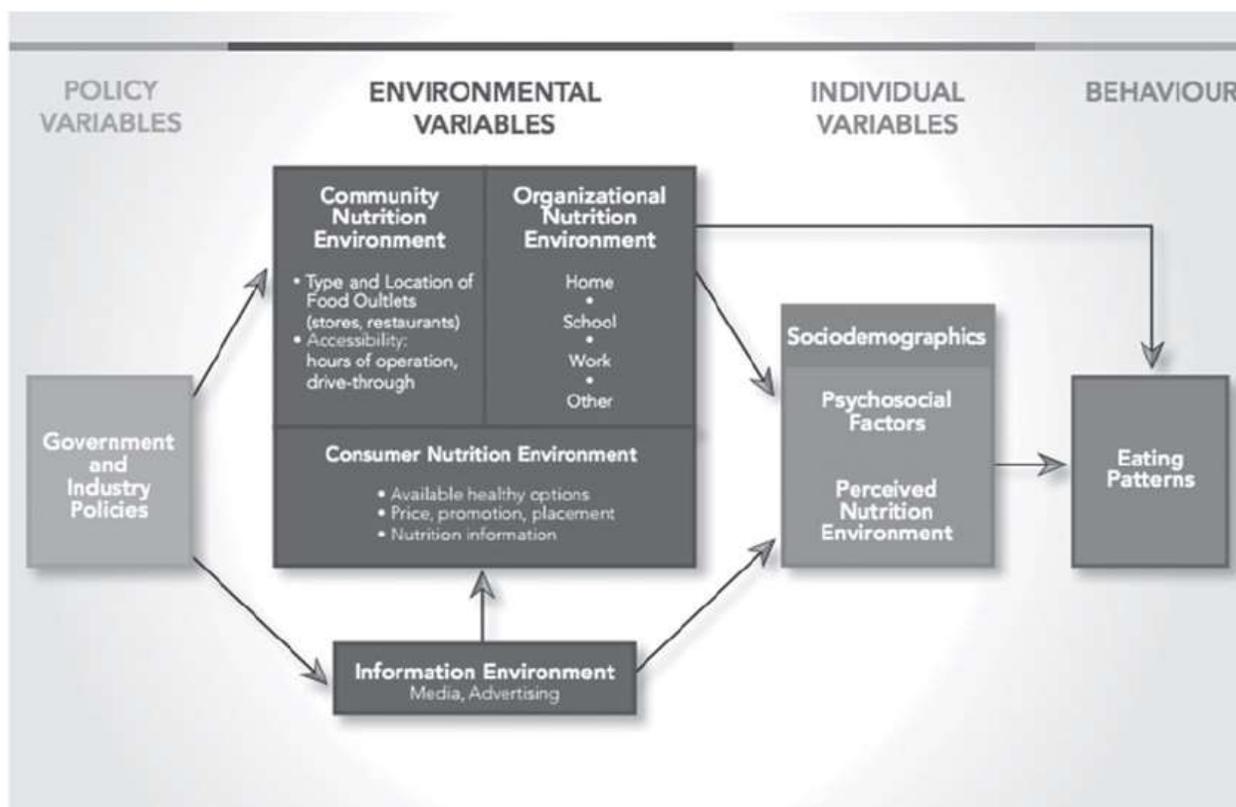
The present study features a convergent mixed methods design, in which qualitative and quantitative data are collected in parallel, analyzed separately, and then merged. Data collected through qualitative semi-structured interviews with agency leaders who administer the DVCP will explore the administrative scope of the DVCP in Jackson and Williamson Counties in Southern Illinois. Collecting both quantitative and qualitative data will help to develop a complete understanding of the research problem by examining the program scope, barriers, and benefits from both organizational and recipient perspectives. Obtaining these holistic data will allow for the development of appropriate location-specific intervention strategies to increase use of the Link Up Illinois Double Value SNAP Nutrition Incentives Program, particularly in areas that might remain underserved, and consequently, data can be used eventually to increase consumption of fresh fruits and vegetables among low-income seniors, SNAP, and WIC recipients.

To examine participants' beliefs about using the DVCP at farmers markets, the researcher will use an established quantitative instrument based on the Model of Community Nutrition Environments (Glanz, Sallis, Saelens, & Frank, 2005). The Nutrition Environment Measures Survey-Perceived (NEMS-P) was developed to measure the perceived and observed nutrition environment for the purpose of determining associations between food availability and food consumption (Alber, Green, & Glanz, 2017). For instance, Blitstein, Snider, and Evans (2012) examined whether convenience or quality selection of produce were associated with intake of fruits and vegetables in a low-income population. Results of Blitstein and colleagues (2012) suggest that more positive perceptions of the food shopping environment were associated with greater intake of fruits and vegetables. Similarly, research by Inglis, Ball, and Crawford (2008) examined the relationship between socioeconomic status, the perceived physical environment, and women's diets. Their results suggest that socioeconomic differences in diet were moderately explained by perceptions of the availability, accessibility, and affordability of food (Inglis et al., 2012). The perceived nutrition environment measures the community, consumer, and home environment, fruit and vegetable consumption, and background characteristics of individuals (Green & Glanz, 2015).

The present study theorizes that the perceived nutrition environment contributes to dietary behavior. There are many reasons why individuals may or may not eat fresh fruits and vegetables or shop at a farmers market, some of which include access related to the physical environment, as well as psychological, social or cultural reasons. The literature suggests that improved access to food venues, particularly farmers markets have a lower body mass index (BMI) than those who live further from food venues (Jillcott, Wade, McGuirt et al., 2011; Rundle, Neckerman, Freeman et al., 2009). Likewise, Racine, Vaughn and Laditka (2010)

examined barriers to farmers market use among African American WIC recipients and discovered lack of transportation and distance to the market were two common barriers. Racine and colleagues (2010) imply that women who were a part of the FMNP and redeemed farmers market coupons were more likely to purchase fresh produce at the market.

The Model of Community Nutrition Environments (Glanz et al., 2005) is based on an ecological model of health and is comprised of individual-level, environmental, and policy-related variables (Figure 1). Ecological models, in general, focus on the individual and their interaction with their environment (Stokols, 1992), a level of influence that includes both community and organizational factors. The Model of Community Nutrition Environments postulates that there are four types of nutrition environments: community, organizational, consumer, and the information nutrition environment (Glanz et al., 2005). The *community nutrition environment* includes the type and location of stores and restaurants in a designated location and the accessibility of the stores and restaurants to the community (Green & Glanz, 2015). The *organizational nutrition environment* is only accessible to groups that are defined, such as food in the workplace in schools, or in healthcare facilities (Green & Glanz, 2015). *Consumer nutrition environment* relates to what individuals come into contact with at food outlets and is influenced by cost, availability of healthy food options, promotion, and available nutrition information (Green & Glanz, 2015). *Information nutrition environment* is defined as the affect advertising and the media has on the government and the food industries policies (Green & Glanz, 2015). A newer construct within the model, *home food environment* measures the accessibility and availability of both healthy and unhealthy foods in an individual's or family's home (Green and Glanz, 2015). The Model of Community Nutrition Environment also measures and define psychosocial factors, such as food insecurity, food motivation, and the



*Figure 1. Model of Community Nutrition Environments. From “Healthy nutrition environments: Concepts and measures”, K. Glanz, J. F. Sallis, B. E. Saelens, and L. D. Frank, 2005, *American Journal of Health Promotion*, 19, p. 331. Copyright [2005] by American Journal of Health Promotion, Inc. Reprinted with permission.*

perception of nutrition importance (Green & Glanz, 2015). Ultimately, Glanz and colleagues (2005) hypothesize that there is an interaction between what is perceived and what is observed in the nutrition environment. The hypothesized interaction, in turn, influences eating behaviors by way of individuals' food shopping behaviors and the food home environment (Green & Glanz, 2015).

The Model of Community Nutrition Environment illustrates the complexity of food purchase behavior based on the actual and perceived environment, as well as the effects of psychosocial factors such as the perception of nutrition importance, food motivation and food insecurity. This framework can be applied to examine holistically senior citizens', SNAP, and WIC recipients' perceptions of their nutrition environment, current home food environment, attitudes towards fresh fruits and vegetables, and use of the Link Up Illinois Double Value SNAP Nutrition Incentive Program at farmers markets. The Model of Community Nutrition Environment can also be applied to examine organizational variables to administering the DVCP in low income or rural communities. These data can then be applied to the development of interventions to increase fruit and vegetable consumption among low-income rural citizens.

Research Questions

In line with the aforementioned conceptual framework and research design, the following research questions will be asked of participants:

1. Do organizational employees perceive any demographic differences in the use of the DVCP?
2. What barriers to DVCP sustainability do local organizational employees identify as most salient?

3. What potential difficulties do local organizational employees identify for recipients using the DVCP?
4. How do local organizations promote the DVCP?
5. How do local organizational employees describe the DVCP as “fitting in” with the overall community nutrition environment?
6. What partnerships do local organizational employees consider significant to the DVCP’s success and to improving the overall community nutrition environment?
7. Does participant DVCP use differ by demographic characteristics?

H1: DVCP use will differ by race/ethnicity.

H2: DVCP use will differ by gender.

H3: DVCP use will differ by age.

H4: DVCP use will differ by body mass index (BMI).

H5: DVCP use will differ by employment status.

H6: DVCP use will differ by education level.

H7: DVCP use will differ by living environment.

8. Does the number of times an individual has shopped at a farmers market differ by demographic characteristics?

H1: Farmers market shopping will differ by race/ethnicity.

H2: Farmers market shopping will differ gender.

H3: Farmers market shopping will differ by age.

H4: Farmers market shopping will differ by body mass index (BMI).

H5: Farmers market shopping will differ by employment status.

H6: Farmers market shopping will differ by education level.

H7: Farmers market shopping will differ by living environment.

9. Is community nutrition environment predictive of DVCP use?

H1: Higher scores for community nutrition environment will predict greater DVCP use.

10. Is consumer nutrition environment predictive of DVCP use?

H1: Higher scores for consumer nutrition environment will predict greater DVCP use.

11. Is home food environment predictive of DVCP use?

H1: Higher scores for home food environment will predict greater DVCP use.

12. Are psychosocial factors (i.e. perceptions and actual behaviors) predictive of DVCP use?

H1: Psychosocial factors will predict DVCP use.

13. Is community nutrition environment predictive of individuals shopping at farmers markets?

H1: Higher scores for community nutrition environment will predict more shopping at farmers markets.

14. Is consumer nutrition environment predictive of individuals shopping at farmers markets?

H1: Higher scores for consumer nutrition environment will predict more shopping at farmers markets.

15. Is home food environment predictive of individuals shopping at farmers markets?

H1: Higher scores for home food environment will predict more shopping at farmers markets.

16. Are psychosocial factors (i.e. perceptions and actual behaviors) predictive of individuals shopping at farmers markets?

H1: Psychosocial factors will predict number of times shopped at the farmers market.

Assumptions

An assumption is something the researcher takes for granted as true that could thus influence the understanding of any findings derived from the study should the assumptions be factually inaccurate. Nonetheless, Leedy and Ormrod (2010) explained that “assumptions are so basic that without them, the research problem itself could not exist” (p.44). The assumptions in this study include the following:

1. Participants will be willing to disclose their food consumption and purchase behaviors honestly.
2. Participants will be able to recall with accuracy their food purchase behavior or shopping patterns.
3. Individuals will be able to read and comprehend the survey items as written in English.
4. Participants will be willing to discuss the subject and to be honest during the interviews.

Limitations

Limitations are the boundaries or potential weaknesses in a research study. They are out of the researcher’s control and can thus affect both design and results (Gliner, Morgan, and Leech, 2009). This study will operate under the following limitations:

1. Participants will self-select to participate in the study; the researcher was unable to directly contact recipients of the WIC, SNAP, or SFMNP programs.

2. Participants will be recruited from four locations. Whether participants who were a part of the program will be present at the day and time the questionnaire will be given is beyond the researcher's control.
3. The condition of the weather during farmers market hours may have an influence on participants' ability or desire to participate in the survey.
4. Organizational employees have knowledge and experience in the subject.
5. The presence of the researcher during interviews is often unavoidable in qualitative research and can affect participants responses.
6. The hours of operation for data collection at the organizations may have an influence on participants ability to participate in the survey.
7. Findings from the qualitative research must be interpreted with caution.

Delimitations

Delimitations are boundaries imposed or created by the researcher (Gliner, Morgan, and Leech, 2009). Delimitations of this study include the following:

1. The researcher will restrict participation in this study to individuals aged 18 and older.
2. The researcher in this study will limit the recruitment of participants to 4 locations in Jackson and Williamson Counties in Illinois: The Murdale Farmers Market, Jackson Country Health Department, Senior Adult Services, Williamson County Programs on Aging, and Franklin-Williamson Bi-County Health Department.
3. The researcher will recruit participants who are strictly SNAP, WIC, and SFMNP recipients.

4. The researcher has chosen specifically to research food purchase behavior, access, and food selection of participants who are SNAP, WIC, and SFMNP recipients.
5. The researcher will limit the quantity of qualitative interviews to five in person interviews.
6. The researcher will use purposeful sampling to recruit participants for the qualitative interviews.
7. The researcher will limit the recruitment of participants for the qualitative interviews to organizational employees at four designated locations including: The Murdale Farmers Market, Jackson Country Health Department, Senior Adult Services, Williamson County Programs on Aging, and Franklin-Williamson Bi-County Health Department.

Definition of Terms

1. *Double Value Program*: The Double Value Program doubles the value of federal nutrition (SNAP or food stamps) benefits spent at participating markets and grocery stores, helping people bring home healthier fruits and vegetables while supporting local farmers (Fair Food Network, 2017).
2. *Electronic Benefit Transfer (EBT)*: Electronic system that allows participants in the Supplemental Nutrition Assistance Program (SNAP) to authorize transfer of their government benefits from a federal account to a retailer account to pay for fresh foods.
3. *Farmers Market*: Two or more farmers that sell their own agricultural products directly to the general public at a fixed location. The agricultural products include fruits and vegetables, meat, fish, poultry, dairy products, and grains (USDA, 2017c).

4. *Farmers Market Nutrition Program (FMNP)*: The Farmers Market Nutrition Program (FMNP) is associated with the Women, Infants and Children (WIC) program which was established to provide fresh unprepared produce through farmers markets to WIC participants. FMNP is administered through a Federal/State partnership which provides grants to state agencies. Only farmers, farmers markets authorized by the state agency may accept and redeem FMNP coupons (USDA, 2008a).
5. *Senior Farmers' Market Nutrition Program (SFMNP)*: The Senior Farmers Market Nutrition Program (SFMNP) targets low-income seniors who are at least 60 years old and have household incomes of no more than 190 percent of the federal poverty level. Eligible seniors receive coupons which can be used to buy eligible foods from farmers and farmers market that have been approved by the state agency to accept them. (USDA, 2016)
6. *Supplemental Nutrition Assistance Program (SNAP)*: The program previous known as Food Stamps is now called the Supplemental Nutrition Assistance Program (SNAP). It is a statewide program that offers nutrition assistance to low-income individuals and families (USDA, 2017h).
7. *Supplemental Nutrition Assistance Program (SNAP) Authorized Retailer*: An eligible “store” that applies to, and becomes authorized to, accept SNAP benefits as a form of payment. Among other requirements, to be an eligible “store,” a retailer must sell food for home preparation and consumption and meet at least one of the following criteria: (A) offer for sale, on a continuous basis, at least three varieties of qualifying foods in each of the following four staple food groups, with perishable foods in at least two of the categories — meat, poultry or fish, bread or cereal, vegetables or

- fruits, and dairy products; OR (B) more than one-half (50%) of the total dollar amount of all retail sales (food, nonfood, gas and services) sold in the store must be from the sale of eligible staple foods (USDA, 2017c).
8. *Women, Infants, and Children (WIC) Program*: The special supplemental nutrition program for Women, Infants, and Children (WIC) provides federal grants to states for supplemental foods, health care referrals, and nutrition education for low-income pregnant, breastfeeding, and non-breastfeeding postpartum women, as well as to infants and children up to age five who are found to be at nutritional risk (USDA, 2017d).
 9. *Women, Infants, and Children (WIC) Farmers Market Vouchers*: Eligible WIC participants are issued FMNP coupons in addition to their regular WIC benefits. These coupons can be used to buy eligible foods from farmers, farmers markets, or roadside stands that have been approved by the state agency to accept FMNP coupons (USDA, 2017).

Summary

Throughout the years, there has been a widespread increase of shoppers at farmers markets in the United States. The number of farmers markets has increased from 1,755 in 1994, to more than 8,669 in 2016 (USDA, 2007). Still, certain populations, including low-income and rural populations, may not be using the farmers markets, despite their acceptance of public assistance benefits, including the Link Up Illinois Double Value SNAP Nutrition Incentive. The Model of Community Nutrition Environments (Glanz et al., 2015; Green & Glanz, 2015) proposes that the relationship between how individuals shop for food and the accessibility of food in the home influences individuals eating behaviors (Green & Glanz, 2015). Using the

Model of Community of Nutrition Environments as a framework, the goal of this study is to investigate the use of the Link Up Illinois Double Value SNAP Nutrition Incentive Program in southern Illinois area along with SNAP, WIC, and senior citizens food purchase behavior and food access. An organizational perspective will also be assessed to determine factors that hinder community organizations to administering the Link Up Illinois Double Value SNAP Nutrition Incentives Program in the southern Illinois area

CHAPTER 2

LITERATURE REVIEW

This chapter includes background information to provide scope for the proposed study. Specifically, the chapter includes information about the historical context of food assistance programs, farmers markets, and the double value programs. The chapter also examines how food the environment relates to eating behaviors. Finally, the conceptual framework for the study will be discussed in detail.

Background

The Nutrition and Weight Status objectives for Healthy People 2020 support the notion of maintaining a healthy weight and eating a healthful diet. Specifically, one of the leading health indicators and objectives (NSW-9) is to reduce the proportion of adults who are obese. Based on the midcourse review of Healthy People 2020, there are little to no detectable changes for this objective. The Dietary Guidelines for Americans suggest making small shifts in daily eating habits to improve health over the long run in addition to encouraging the community to increase access to healthy food choices through farmers markets (ODPHP, 2016).

Fruit and vegetable consumption lowers one's risk of developing many chronic diseases and can also assist with weight management. The National Center for Health Statistics (NCHS) monitored the prevalence of obesity among adults and youth in the United States between 2011 and 2014 (Ogden, Carroll, Fryar, & Flegal, 2015). Key findings of the NCHS (Ogden et al., 2015) report revealed that the prevalence of obesity was over 36% in adults and 17% in youth; higher in women (38.3%) than in men (34.3%); and higher among middle aged (40.2%) and older adults (37.0%) than in younger adults (32.3%). Comparably, research by Ogden, Lamb, Carroll, and Flegal (2010) has shown that there is a relationship between obesity prevalence and

socioeconomic status. Ogden et al. (2010) revealed that among women, obesity prevalence increases as income decreases; 29% of women who live in households with income at or above 350% of the poverty level, as well as 42% of those with income below 130% of the poverty level, are obese. The 2013 State Indicator Report on Fruit and Vegetables (Center for Disease Control and Prevention, 2013) discovered that fruit and vegetable consumption is higher in some states than in others. Having access to fresh fruit and vegetables and other healthy foods may increase fruit and vegetable consumption. Likewise, improving access to fresh fruits and vegetables, such as utilizing farm-to-consumer approaches or farmers markets can increase individuals' opportunity to purchase fruits and vegetables (CDC, 2013; Larson, Story, & Nelson, 2009).

Food Assistance Programs

In an effort to supplement the diets of low-income Americans, the USDA issued commodity vouchers (or stamps) between 1939 and 1943. Under the administration of Franklin D. Roosevelt, the "Food Stamps Plan" was implemented in 1939 to provide food assistance to low-income individuals through the purchase of food stamps (Caswell & Yaktine, 2013). Participants in the program purchased booklets to buy food and household products, and provisional or bonus stamps could be used to purchase specific foods identified as being surplus items; however, items such as tobacco and alcohol were prohibited from being purchased (Caswell & Yaktine, 2013). The surplus component of the program allowed individuals to buy orange stamps, as such, for every dollar worth of orange stamps purchased \$0.50 cents worth of blue stamps were received. Orange stamps could be used to buy any food item while blue stamps could only be used to buy food determined the Department of agriculture to be surplus (USDA, 2014). The "Food Stamp Plan" program ended in 1943 after World War II as a result of

the economic boom and subsequent decrease of individuals living in poverty in the US (Caswell & Yaktine, 2013). However, the Food Stamp Program was reintroduced in 1961 by President John F. Kennedy through food stamp pilot programs in eight pilot areas including Avoyelles Parish, LA. (USDA, 1964). The pilot program still required individuals to purchase food stamps, but it eliminated the concept of surplus foods.

In 1962, President Kennedy asked for an extension of the Pilot Food Stamp Program for another year, in addition to increasing the pilot program to 25 areas in 18 states for the purposes of obtaining a better evaluation of the program (Peters & Woolley, 2017). The states which benefitted from the expansion included Arkansas, Oregon, Virginia, Pennsylvania, West Virginia, North Carolina, Minnesota, Missouri, Alabama, Oklahoma, Washington, Wisconsin, California, Indiana, Louisiana, Ohio, Tennessee and Kentucky (Peters & Woolley, 2017). The Pilot Food Stamp Program had a significant and positive impact on food sales. Meat sales were 25% higher than any other food group, grocery sales rose 12%, but produce sales declined almost 10% (USDA, 1964). Two years later under President Lyndon B Johnson's term, the Food Stamp Act of 1964 was signed into law. The purpose of the Food Stamp Act was to bring the Pilot Food Stamp Program under Congressional control, enact regulations into law, strengthen the agricultural economy, and provide improved levels of nutrition among low-income households (USDA, 2014b).

Participation in the Food Stamp Program experienced rapid increases due to geographic expansion. In 1965, program participation was 561,261, and in 1966 program participation increased to two million (USDA, 2014b). During the 1970s two legislations shaped the food stamp program. Public Law (P.L.) 91-671 was approved on January 11, 1971, which established uniform standards of eligibility and work requirements. Public law (P.L.) 91-671 limited

households' purchase requirements to 30 percent of their income, which required allotments be equivalent to the cost of a nutritionally adequate diet. Additionally, it authorized the Department of Agriculture to pay 62.5% of administrative cost incurred by the States (USDA, 2014b). The second legislation which shaped the Food Stamp Program was the Agriculture and Consumer Protection Act of 1973 (P.L. 93-86). The Agriculture and Consumer Protection Act of 1973 required states to expand the program to every political jurisdiction, as well as to drug addicts and alcoholics in treatment and rehabilitation (USDA, 2014b). In agreement with the Agriculture and Consumer Protection Act of 1973, the Food Stamp Program began operating nationwide on July 1, 1974 and program participation grew to almost 14 million (USDA, 2014b).

In 1977, major revisions to the Food Stamp Program were made under the Food Stamp Act. Revisions included the establishment of uniform national standards of eligibility, the elimination of the requirement that participants had to purchase the food stamps, the expansion of the program to minority communities, and the restriction of access to benefits for students enrolled in a university (USDA, 2014b). During the 1980s, major legislation enacted cutbacks including annual rather than semi-annual adjustments in food stamp allotments, periodic reporting requirements, prohibition against using federal funds for outreach, state option to require job search of applicants as well as participants, and gross income eligibility tests and net income tests for most households (USDA, 2014b). The reduction of program funding and revisions to the program were associated with the subsequent rise in hunger in America during the 1980s. Further, in 1984 Electronic Benefits Transfer (EBT) began in Reading, Pennsylvania. In 1988, the Hunger Prevention Act was signed into law, permitting a pilot project to test whether the use of benefit cards or electronic benefits could enhance the effectiveness of program operations (USDA, 2014b). Following the Hunger Prevention Act, the Omnibus

Budget Reconciliation Act strongly encouraged state agencies to develop and establish EBT systems. The Personal Responsibility and Work Opportunity Reconciliation Act of 1996 followed shortly thereafter, mandating states to implement EBT systems before October 1, 1996 (USDA, 2014b).

Supplemental Nutrition Assistance Program (SNAP). The Personal Responsibility and Work Opportunity Reconciliation Act of 1996 required all states to issue food stamp benefits via Electronic Benefit Transfer (EBT), and by 2004, all states used the new system (USDA, 2009). Electronic Benefit Transfer allows a recipient to authorize the transfer of their governmental benefits from a federal account to a retailer account to pay for products received (USDA, 2014b). Recipients are issued a plastic card (similar to a bank card) and a personal identification number (PIN) (assigned or chosen). The EBT system replaced the paper system which was associated with lost or stolen food stamps, and thus the EBT system in turn reduced food stamp fraud (USDA, 2014b). The Food, Conservation, and Energy Act of 2008, also known as the 2008 Farm Bill, was passed into law by Congress and enacted on May 22 to provide a continuation of agricultural programs through the year 2012 (P.L. 110-234). The 2008 Farm Bill renamed the Food Stamp Program to the Supplemental Nutrition Assistance Program (SNAP), improved benefits, modified program operations and program integrity (Congress, 2008).

The annual SNAP State Activity Report for fiscal year 2015 states that there are over two million (2,042,306) individuals and a little over one million (1,060,589) families enrolled in SNAP in Illinois, (USDA, 2015). The number of individuals enrolled in SNAP has steadily increased since 2010 (1,645,722) to 2014 (2,015,303). Likewise, the number of households enrolled in SNAP has also steadily increased since 2010 (775,019) to 2014 (1,021,150) (Table

2.). The USDA (2015) notes that for fiscal year 2016 SNAP recipients received \$132.37 SNAP dollars for individuals and \$254.41 SNAP dollars for households in Illinois.

Women, Infants, and Children (WIC). The Child and Nutrition Act of 1972 formally created the Women, Infants, and Children (WIC) program, for which eligibility was limited to children up to four and for which participation excluded non-breastfeeding postpartum women (USDA, 2017d). In 1975, eligibility was extended to non-breastfeeding women and children up to five years old, and WIC was established as a permanent program (USDA, 2017d). Although eligibility was extended, all participants must have been believed to be at a nutritional risk with inadequate income (though there was no operationalized definition of inadequate income). In 1978, the Child Care Food Program Act (P.L. 95-627) defined nutrition risk and established income eligibility standards connected with income standards associated with reduced school meals (Government Publishing Office, 1978). In 1989, an additional income standard took place and established similar eligibility guidelines as the Food Stamp Program, which therefore lowered the income standard (P.L. 101-147). The Child Nutrition and WIC Reauthorization Act lowered the WIC income standard, simplified the application process, and established similar income eligibility for the Food Stamp Program and Medicaid (USDA, 2017f). Additionally, in 1999, the WIC program standardized the nutrition risk criteria for program eligibility and began assigning nutrition risk priority levels (Institute of Medicine, 1999).

Eligibility criteria for the WIC program includes falling into one of three major categories. Women must either be breastfeeding, postpartum, or pregnant; have an infant (up to first birthday); or have children (up to their fifth birthday). Additionally, women must fall at or below 185 percent of the U.S. Poverty Income Guidelines, be a resident of the state to which

Table 2

Illinois Enrollment in the Supplemental Nutrition Assistance Program (SNAP)

	2010	2011	2012	2013	2014	2015	2016
Individual	1,645,722	1,793,886	1,869,713	2,040,053	2,015,303	2,042,306	1,914,393
Household	775,019	859,785	914,287	1,017,190	1,021,150	1,060,589	996,092

Note. Data retrieved from the United States Department of Agriculture SNAP State Activity Reports for the years 2010 through 2016.

they are applying, and have a nutritional risk assessment performed by a health professional (USDA, 2017d).

Overall benefits of the WIC program include providing screening and referrals to other social services, health, and welfare programs; providing nutrition education and counseling at WIC clinics; and providing supplemental nutritious foods (USDA, 2017d). For fiscal year 2013, in Illinois, the average monthly benefit and cost for WIC recipients was \$48.16, with a total 280,463 of individuals enrolled (USDA, 2017b). Since, the number of recipients enrolled in the program has declined (Table 3). In 2016 in Illinois, the average monthly benefit for WIC recipients was \$52.16, with a total of 225,159 participants enrolled (USDA, 2017b).

Senior Farmers Market Nutrition Program (SFMNP). The Senior Farmers Market Nutrition Program (SFMP) was developed in 2001 by the United States Department of Agriculture (USDA) to improve the diets of low-income seniors. The SFMNP focuses on low-income seniors, defined as individuals at least 60 years old who have household incomes of no more than 185 percent of the federal poverty level (USDA, 2016). The purpose of the SFMNP is to increase the consumption of agricultural commodities by aiding in the development and expansion of farmers markets, roadside stands, community supported agriculture (CSA) programs; and to provide fresh nutritious, unprepared, locally grown fruits, vegetables, herbs, and honey from farmers markets, roadside stands, and community supported agricultural programs to low-income seniors (USDA, 2016). The SFMNP is administered through a state agency such as the State Department of Agriculture or Aging which implements, operates, and administers the program. Further, coupons are given to eligible SFMNP participants to buy eligible foods from farmers, roadside stands, CSA programs, or farmers markets that have been

Table 3

Illinois Enrollment in the Women, Infants, and Children Program (WIC)

Year	2013	2014	2015	2016	2017
Total Enrollment	280,463	265,923	247,594	225,159	211,367

Note. Data retrieved from the United States Department of Agriculture State Annual Level Data for total participation for the years 2013 through 2016. Data for the year 2017 is preliminary and subject to change.

approved by the state agency to accept the coupons. In turn, the eligible vendors submit the coupons to the agency for reimbursement.

For the fiscal year of 2015, Illinois was awarded \$802,706 in grant monies for the SFMNP (USDA, 2015a). In addition, the number of federal recipients was 37,100, all of whom received a seasonal benefit of \$24.00 for fiscal year 2015 (USDA, 2015a). There were 472 farmers who accepted the SFMNP coupons; however, there were no markets, stands, or CSAs who accepted the program in the fiscal year of 2015 (USDA, 2015a). Presently, the SFMNP coupons are redeemable at 15 farmers market in the southern Illinois region. Four of the farmers markets are within the 62901-zip code, one of which is a winters farmers market, and the remaining three open during the normal season.

Farmers Market Nutrition Program (FMNP). The 1996 Federal Agriculture Improvement and Reform (FAIR) Act or the 1996 U.S. Farm Bill was effective for seven years, until 2002 (Nelson & Schertz, 1996). The 1996 Farm Bill modified provisions for price support, provided export subsidies, unlinked income support payments from farm prices, replaced deficiency payments, and eliminated area reduction obligations (Nelson & Schertz, 1996). The Farm Security and Rural Investment Act or Farm Bill of 2002 was signed by President Bush to replace the 1996 U.S. Farm Bill. The bill provided funding for agricultural research centers, forest programs, nutrition programs, rural development projects, and school meals for low-income children. In addition, the Farm Security and Rural Investment Act of 2002 established the Farmers Market Promotion Program. The purpose of the Farmers Market Promotion Program is to award grants that will help increase consumption of, and access to, locally produced foods and develop new market opportunities for farm operators participating in direct farm to consumer programs (i.e., farmers markets) (USDA, 2016b). The FMPP awarded 879

grants for over \$58 million since the 2008 Farm Bill, and the results of these grant investments included an increase in sales at farmer markets, more customer traffic at farmers markets, the establishment of new markets, and more opportunities for farmers (USDA, 2016b). In 2014, the current Farm Bill, or the Agricultural Act (or Farm Act of 2014) was extended to authorize \$125 million for the Healthy Food Financing Initiative in order to make nutritious foods more accessible (USDA, 2014a). Additionally, the expansion of the Farm Bill renamed the Farmers Market Promotion Program (FMPP) to the Farmers Market and Local Promotion Program (USDA, 2014a).

The WIC Farmers Market Nutrition Act of 1992 established the Farmers Market Nutrition Program (FMNP). The purpose of the legislation was to authorize grants for state programs designed to provide nutritious unprepared foods (fruits and vegetables) from farmers markets to women, infants, and children who are nutritionally at risk, as well as to expand the awareness and use of farmers markets and increase the number of transactions. Women, infants over four months, and children certified to receive WIC or on a waiting list for WIC certification are eligible to participate in the FMNP. Eligible WIC participants are issued FMNP checks or coupons in addition to their regular WIC benefits; the check or coupons are then used to buy eligible foods from farmers at farmers markets and or roadside stands that have been approved by the State agency such as the health department (USDA, 2008a). WIC recipients can purchase fresh, nutritious, unprepared, locally grown fruits, vegetables, and herbs for human consumption. Additionally, eligible foods may not be processed or prepared beyond their natural state (GPO, 2017). Furthermore, WIC recipients are eligible to receive no more than \$30 but no less than \$10 per recipient, per year (USDA, 2008a).

Double Value Program. The double value program began at five farmers markets in Detroit, Michigan in 2009 and has grown since then to over 150 sites (Fair Food Network, n.d). Due to the 2014 Farm Bill, there has been an expansion in funding, including over one hundred million in grants and funding opportunities, such as the Food Insecurity Nutrition Incentive grants program (FINI). The FINI grant program is administered by both the National Institute of Food and Agriculture (NIFA) and USDA's Food and Nutrition Service (FNS). The purpose of the FINI grant is to increase the purchase of fruits and vegetables among low-income consumers participating in the Supplemental Nutrition Assistance Program (SNAP) by providing incentives at the point of purchase (NIFA, 2016).

NIFA (2016) has evaluated whether incentivizing the purchase of produce increases consumption and affordability. For example, the city of Aurora, Illinois was awarded \$30,000 in 2015 to provide bonus value tokens for all SNAP shoppers at weekly markets, allowing them to double their purchasing power for fresh produce (USDA, 2017g). Likewise, the New Mexico Farmers Marketing Association in Santa Fe was awarded \$99,999 in 2015 for their Snap to Health: Double UP Food Bucks New Mexico program which provided incentives at farmers markets and farm stands (USDA, 2017g). Along with Santa Fe and Aurora, Experimental Station in Chicago, Illinois was awarded the FINI grant to increase access of fresh produce (NIFA, 2017). The Link Up Illinois Double Value SNAP Nutrition Incentive Program received funding to assist underfunded farmers markets in and outside of Chicago to implement the double value program in Illinois (NIFA, 2017). In southern Illinois, there are three farmers markets to which Experimental Station allocated funds. The Carbondale and Murdale Farmers Market in Carbondale, Illinois matches the value of SNAP purchases with double value coupons to spend on locally grown produce. Double value coupons can only be used to purchase fruits

and vegetables at the farmers markets. The overall goal of the Link Up Illinois Double Value SNAP Nutrition Incentive Program is to assist in the success of the local environments, assist and present families with healthier food choices, and help farmers get a financial boost.

Farmers Markets

Farmers markets are a significant component to the United States food system, dating back to 1730 in Lancaster, Pennsylvania (Neal, 2013). At the foundation of a sustainable food system is food security, or having enough food available and having knowledge of nutrition (UUMFE, 2013). Therefore, communities can increase the sustainability of the nation's food system by supporting local food producers in addition to providing distribution opportunities (i.e. farmers markets) to food producers. The advancement of farmers markets is significant to local communities. First, farmers markets help build and sustain local communities by addressing hunger and providing a concept of a food system (Feenstra, 1997). Second, local markets have the opportunity to offer agricultural education along with their produce to members of the community (Feenstra, 1997). In addition, the quantity of farmers markets is increasing and are becoming more accessible to local communities (USDA, 2017e). Lastly, farmers markets are using technology (Holt, 2015) to conduct transactions such as EBT. Today, more markets not only use social media outlets, but they also use other forms of payment beyond cash (e.g., credit cards, tokens, coupons) (Holt, 2015). In addition, farmers markets have added interactive experiences, such as cooking demonstrations and food sampling (Holt, 2015). The current structure of a farmers market is similar to past concepts, but varies state-to-state. Farmers markets are usually held in public spaces, either inside or outdoors, and each potentially has different characteristics determined by cultural, social, economic, and political factors of a particular region. For instance, research by Markowitz (2010) concluded that the farmers market

in Louisville, Kentucky successfully attracted low-income and African American individuals by placing the location near low income neighborhoods, through outreach, subsidies, and presenting a welcoming atmosphere. Likewise, Gerbasi (2006) examined an outdoors farmers market in Athens, Ohio and determined that this specific market offered a child friendly and family oriented environment and facilitated the interaction among all cultural groups. As a result, the Athens community praised the local farmers market, offered continual support, and celebrated the farming culture (Gerbasi, 2006). Although the majority of farmers markets differ nationally, they provide consumers the opportunity to purchase food directly from the farmer who grew it and also engage more with the local community (Fair Food Network, n.d).

In April 2010, the U.S. Department of Agriculture's Agricultural Marketing Service (AMS) launched their campaign to collect information about farmers markets for the 2010 USDA National Farmers Market Directory (USDA, 2010). The USDA has counted the number of operating farmers market from the time when one was first created in 1994 (USDA, 2010). Farmers markets can be added and updated to the directory by representatives of state farmers associations, state departments of agriculture, nonprofit organizations, or by market managers at any time via online registration (USDA, 2010). The National Farmers Market Directory captures information about what types of products are being sold, if SNAP or WIC is accepted, and market operating times (USDA, 2010). According to the United States Department of Agriculture (USDA) (2014), markets listed in the USDA National Farmers Market Directory have increased more than four times from 1994 (1,744) to 2013 (8,144). However, since 2013 (8,144), there has been almost a seven percent increase in 2017 (8,681) (Table 4) (USDA, 2017e). More farmers market representatives have taken the initiative to register their market which has often led to an increase in market traffic. Due to the increase in popularity as well as

Table 4

Number of Farmers Markets in the United States

Year	1994	1996	1998	2000	2002	2004	2006	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Markets	1755	2410	2746	2863	3137	3706	4395	4685	5274	6132	7175	7865	8144	8268	8476	8669	8687	8713

Note. Data retrieved from the United States Department of Agriculture, Agricultural Marketing Services Division.

the number of farmers markets over the years, one of the USDA's focal points is to support and help sustain market development in underserved areas to keep both old and new farmers flourishing through grants and programs. Hinrichs, Gillespie, and Feenstra (2004) argue that the present popularity could be drawn by a number of factors, including the pleasant atmosphere of the farmers market, consumers' rising interest in purchasing fresh local foods, and producers' renewed search for more profitable alternatives.

Farmers Market Operations

The operations of a farmers market differ per city; however, many markets function independently with the help of nonprofit partners or the city itself. Almost all farmers markets have a market manager who enforces the market's bylaws and oversees the daily business of the market. In addition, the market manager is generally the point of contact for any questions or concerns (Farmers Market Coalition, 2017). While farmers markets may vary in type, such as being held either indoors or outdoors, all markets follow standard operating procedures. Vendors and the entire market in general have to follow environmental guidelines, licensing laws, and the market's own rules. In addition, the hours of operation, space payment (for vendors or the entire market), and any other regulations the vendor and the market have to abide by are set by the local government (Farmers Market Coalition, 2017).

In Illinois, direct food marketing means selling food to consumers who reside in the same state and not more than 275 miles from the person or business that sold the food (Schell & King, 2013). In efforts to control distribution and food safety, the Food Safety Modernization Act (FSMA) was created. The FSMA was signed into law by President Barack Obama in 2011 to ensure that the U.S. food supply was safe by shifting the focus from that of responding to contamination to preventing it (U.S. Food and Drug Administration (FDA), 2017). The goal of

the FSMA is preventing food-borne illness by achieving key milestones of prevention control. Prevention includes inspection and compliance, as well as imported food safety, response, and enacted partnership (FDA, 2017). The FSMA regulates the way foods are grown, harvested, and processed. As such, the type of food that is being sold determines that type of regulation. Products that are sold in Illinois may be regulated by the state or local authorities as well as the federal government, and state and local government entities control commerce within the state (Schell & King, 2013). Ultimately, the FSMA gives the FDA the ability to order food recalls and enforce food safety protocols that reflect Good Agricultural Practices (GAP) on produce. GAP is a scheme of practices and procedures designed to ensure farms practice good food safety techniques to prevent foodborne illnesses (FDA, 1998; Schell & King, 2013). While there are practices and procedures for food handling, there are also policies on what farmers and vendors can actually sell at farmers markets, and these policies vary by state.

The Illinois Department of Public Health (IDPH) (2013) provides standards, guidelines and information to market managers and vendors as to what food items can be sold. Permitted items includes fresh fruits and vegetables (minimally rinsed and unprocessed), grains, seeds, beans, and nuts (whole unprocessed and un-sprouted), popcorn, fresh herb spring, dried herbs in bunches, baked goods such as pies, and honey (IDPH, 2013). Foods prohibited from sale or distribution include home canned foods, wild mushrooms, raw milk, and ice cream. However, depending on the product, a market vendor may be required to obtain a permit, license (for egg and meats), or public health inspection of their facility. Even though markets and vendors are regulated by the state, all farmers markets encourage consumers to modify their eating patterns, eat seasonally, and help the economy by supporting local businesses.

Farmers Market Assessment

There are various reasons why individuals choose to buy from farmers markets. Previous research concluded that individuals shop at local markets because the food options appear fresher, provide health benefits, and are of high quality (Onozaka, Nurse, & McFadden, 2010; Thilmany, Bond, & Bond, 2008; Zepeda & Deal, 2009). Gustafson, Christian, Lewis, Moore, and Jilcott (2013) examined the association between several dietary indicators and food venue availability, food venue choice, and availability of healthy food within the venue. The researchers determined that individuals who prefer to purchase fresh produce were more likely to seek out farmers markets. However, the researchers mentioned that the results of their study consisted of individuals among a higher socio-economic population. Gustafson and colleagues' (2013) sample included individuals with a high socioeconomic status with 60% earning over \$50,000 per year and 35% having a college degree. Furthermore, the researchers explained if participants of the study have chosen to shop somewhere else, fruit and vegetable intake may be similar to individuals who choose to shop at supermarkets. Likewise, Velasquez, Eastman, and Masiunas (2005) investigated farmers market and farm stand customers' perception about locally grown vegetables and found that quality and freshness were two of the important reasons for shopping at farmers markets. Velasquez et al. (2013) focused on participants from two locations which included 15 vendors and a female-to-male ratio of 2:1 and found that 67% of participants in the study were willing to pay a 10 cent or more premium for locally-grown produce (Velasquez et al., 2005).

In addition to quality and freshness, consumers have been known to choose to shop at farmers markets for the social aspect (Velasquez et al., 2013; Zepeda & Deal, 2009). Results of Velasquez et al.'s (2013) study showed that 90% of individuals visited the farmers market to

enjoy the social atmosphere. Likewise, Zepeda and Deal (2009) conducted semi-structured interviews to understand consumers' reasoning for buying locally grown foods and revealed that 64% wanted to experience the interaction with farmers. Furthermore, Carson, Hamel, Giarrocco, Baylor, and Mathews (2016) reported that the interaction between vendor and consumer had an impact on food purchase behavior. Results of Carson et al. and colleagues (2016) study similarly suggested these interactions have an impact on long term purchasing behavior, such as shopping for more locally produced foods.

Farmers Market Shopper Demographics

The investigation of farmers market shoppers is well documented in the literature (Aguirre, 2007; Govindasamy, Italia & Adelaja, 2002; Kezis, Gwebu, Peavey & Cheng, 1998; Schupp, 2016). Schupp (2016) conducted a systematic review and discovered that individuals who shop at farmers markets are more inclined to have professional degrees, are employed, are Caucasian females, and are among middle to upper socioeconomic class. Additionally, there are differences in age, education, and income levels between those who shop at farmers markets and those who do not (Jekanowski, Williams & Schiek, 2000; Onianwa, Wheelock & Mojica, 2005; Wolf, Spittler & Ahern, 2005). Although there are demographic differences, Govindasamy et al. (2002) argued that the racial makeup of individuals who shop at farmers markets are not a good representation of the overall population in the area.

In addition, several studies determined that individuals who shop at farmers markets look for specific food options (Onozaka, Gretchen, & McFadden, 2010; Thilmany et al., 2008; Zepeda & Deal, 2009). For instance, Thilmany and others (2008) examined how local sources of food and production connect with food choice dimensions. The researchers determined that perceived produce quality and purchase experience had an impact on individuals' willingness to pay for

produce at the farmers market. purchases. Furthermore, Thilmany et al. (2008) suggest that individuals are less concerned with the USDA's organic certifications program, rather they are more motivated by public perceptions. Overall, Thilmany and colleagues (2008) finding suggest the importance of freshness, vitamins, and support for local farmers perceptions were higher for individuals who primarily shopped for groceries at the farmers markets. Similarly, Zepeda and Deal (2009) found that food purchase behavior was motivated by values, beliefs, and the creation of norms, specifically that heavy organic shoppers actively pursue information about food, which in turn enables habits and behavior. Also, Zepeda and Deal (2009) reported that individuals who are organic food buyers valued knowing where the food came from and having a relationship with the farmers. Comparably, Onozaka, Gretchen, and McFadden (2010) explored individuals' perceptions of factors that were most important when choosing to buy fresh produce. Their results indicated that the variables proven health benefits, freshness, and the food safety of local produce had the highest rating of importance compared to produce being organically grown, without pesticides, and visual appeal (Onozaka et al., 2010). Additionally, the researchers found that individuals who shop at farmers markets reported stronger influences from people in their lives to shop in direct produce channels or farmers markets and argued that this may be due to the transparent information flow (or dialogue) between consumer and vendor (or farmer).

Position of Farmers Markets in Southern Illinois

Currently, there are about 330 farmers markets in the state of Illinois, 29 of which are within 50 miles of Carbondale, Illinois. The US Census Bureau (2016) defined Jackson County, Illinois as mostly urban, with a population of 60,218. However, in 2010, another 37.2% of the population in Jackson County Illinois was reported rural (Census, 2016). Ratcliffe, Burd, Holder, and Fields (2016) defines rurality in terms of density, land use, and distance and argues

that rural areas are the opposite of an urban area, that is, the population is sparse, less dense, at a distance, and nonmetropolitan. The Jackson County area faces many challenges; three rural towns and cities are separated by the Shawnee National Forest in Herod, Illinois, and extensive amounts of farmland. Rural areas in Jackson County may face challenges with accessibility to local food sources, which in turn may contribute to poorer health outcomes (Bardenhagen, Pinard, Pirog, & Yaroch, 2017).

To date, there is very limited research exploring southern Illinois farmers markets. Research by Wagner (1978) was one of the first studies exploring the Carbondale region. In this study, Wagner (1978) examined the economic, social, and demographic profiles of shoppers and farmer market growers while also measuring how the market meets the needs of its consumers and members. Results indicated that 11% of shoppers expressed that the atmosphere was important, 63% of the shoppers came to the market weekly, and 56% ranked freshness as the most important reason for shopping at the farmers market (Wagner, 1978). The second farmers market study was conducted by the Southern Illinois Center for Sustainable Future (2007). The Southern Illinois Center for Sustainable Future informally examined perception of the farmers market and factors that motivated consumers to shop at the market. Although the results of these studies provide a foundation for future research in the rural area of Southern Illinois, there is a need to examine not just farmers market demographics and presence, but also use of the newly adopted Link Up Illinois Double Value SNAP Nutrition Incentive Program.

Food Environment

Food environment includes community characteristics, stores, food prices, and restaurants. When fresh fruits and vegetables are not available in a food environment, individuals are less likely to eat them, know how to cook them, or be interested in fresh produce

(Hearn et al., 2013; Young, Karpyn, Uy, & Which, 2011). Farmers markets serve as a location for direct fresh produce purchases and have the potential to alleviate food deserts and increase access and consumption of healthy foods, specifically in rural areas (Sallis & Glanz, 2009). In a status report by Sallis and Glanz (2009), the investigators reported research on food environment and described findings suggesting ways to improve diet and physical activity, and to control or reduce obesity. Sallis and Glanz's (2009) findings suggested that individuals who live in a community with ready access to healthy foods also tend to have more healthful diets, whereas disparities exist in low-income communities. To expand, Morland, Wing, and Diez Roux (2002) conducted a study and found that African Americans intake of fruit and vegetables were higher when they lived in close proximity to a supermarket. Likewise, access to fresh produce in neighborhoods was also associated with lower prevalence of obesity and overweight in adults and adolescents (Morland, Diez Roux, & Wing, 2006; Powell, Auld, Chaloupka, O'Malley & Johnston, 2007).

There are many other factors that determine why individuals do not eat healthy foods. One factor is social determinants of diet (Healthy People, 2020). Healthy People 2020 explains that social factors such as knowledge and attitude, social support, food assistance programs, and societal and cultural norms influence diet. Knowledge and attitudes towards diet and food plays an important role in food choice. Kearney, Kearney, Dunne, and Gibney (2000) examined perceived influences on food choice and suggests that sociodemographic variables were highly interrelated. Specifically, Kearney and colleagues (2000) suggest gender, age, education level, and socioeconomic status were indicators of healthy eating. Furthermore, the researchers argue that males, individuals with low education levels and lower socioeconomic status are important target groups for nutrition education (Kearney et al., 2000). Although individuals may use

knowledge as a link between health and diet, many individuals may not understand the application of knowledge to diet or health (Nestle et al., 1998). Another factor, equally important is the influence of cultural and societal norms. Cultural influences can lead to restrictions in diets, and can frame individuals perception with regards to what foods are acceptable (Nestle et al., 1998). Food assistance programs such as the FMNP, Food Stamp Program, or WIC offers supplemental food assistance and nutrition education to low income individuals and households with the main objective of improving the nutrition of low income individuals (Fox, Hamilton, & Lin, 2004). For instance, Racine, Smith, and Laditka (2010) explored farmers market usage by WIC participants and the effects of previous FMNP participation on farmers market patronage. Based on their results, the researchers concluded that women who have received and redeemed FMNP vouchers or coupons were more likely to purchase fresh fruits and vegetables at the farmers market. Likewise, Herman, Harrison, Adidi, and Jenks (2011) studied the effectiveness of a subsidy or coupon use on postpartum WIC recipients and found that use of the coupon increased and sustained fruit and vegetable consumption among these women.

In addition to the social determinants of diet, food insecurity in households also has an impact on health outcomes. Pinstrip-Anderson (2009) states that a household is considered food secure when they have the ability to acquire food. However, previous studies have shown that rural, low-income women who have children are at an increased risk for experiencing food insecurity (Gorimai & Holben, 1999; Holben, McClincy, Holcomb, Dean & Walker, 2004; Nord, Andrews, & Carlson, 2005). Coleman-Jenson, Nord, Andrews, and Carlson (2014) examined household food security in the United States and discovered that households with incomes near or below the Federal poverty line, households with children headed by single women or single

men, and Black and Hispanic households had food insecurity rates higher than the national average. Additionally, the findings of the study represented 6.8 million households nationwide; 99 percent reported having worried that their food would run out before they got more money to buy more food. WIC households might also be at risk for experiencing food insecurity (IDPH, 2004). Kropf, Holben, Holcomb, and Anderson (2007) investigated household food security and identified differences between women from WIC and WIC Farmers Market Nutrition Program (FMNP) recipients. The investigators discovered that food insecurity was negatively associated with perceived diet quality, specifically, perceived benefits, and perceived diet quality for fruit and vegetable consumption were higher for recipients who were a part of the FMNP (Kropf et al., 2007). Kropf et al.'s (2007) findings imply that FMNP recipients may perceive they have a more healthful diet but are not necessarily more food secure.

While there are social determinants of diet, there are also environmental determinants of fruit and vegetable consumption (Mancino & Newman, 2007). Kamphuis et al. (2006) conducted a meta-analysis to determine what environmental influences on fruit and vegetable consumption exist. The researchers' results suggested that individuals with low income had lower fruit and vegetable consumption. Additionally, Kamphuis et al.'s (2006) research implies that local availability of fresh produce had a positive influence on the purchase of fresh produce. Furthermore, Dibsall et al. (2002) also concluded that individuals who reported eating fewer fruit and vegetable servings had a less positive attitude towards fruit and vegetable consumption. Another environmental determinant that may affect fruit and vegetable consumption is region (Billson, Pryer, & Nichols, 1999; Johansson, 1999; Mancino & Newman, 2007; Papadaki & Scott, 2002; Pollard, Kirk & Cade, 2002). Being married and residing in an advantaged area were positively associated with fruit and vegetable consumption (Billson et al., 1999). For

instance, research by Billson et al. (1999) examined the variation of fruit and vegetable consumption among adults in the United Kingdom and showed that the fruit and vegetable intake of men who were married was significantly higher than men who were not. Furthermore, Diez-Roux and colleagues (1999) found that individuals living in low-income neighborhoods were less likely to eat vegetables, fruit, and fish but more likely to consume meat (Diez-Roux, 1999).

Food choice is also influenced by social factors because attitudes develop through interaction with other individuals. Feunekes, de Graaf, Meyboom, and van Staveren (1998) examined familial influences and similarities on food intake within social networks. They concluded that food choice and similarity was clear between children and their parents. In addition, familial structure plays an important role, influencing a household's ability to be food secure, and individuals within the household ability to eat healthfully (Dammann and Smith, 2009; Evans et al., 2011; Wiig and Smith, 2009). Furthermore, De Castro (1997) suggested that eating with someone else or eating socially might increase the amount of food a person consumes. De Castro (1997) also argued that the presence of other individuals extends the amount of time that is spent at a meal which, in turn, increases the amount eaten; specifically, verbal interactions that occur during social meals might cause an individual to linger over his or her meal. DeCastro (1997) noted that length of stay was positively related to the size of the group. Ultimately, research has shown that there are many influences on food choice and eating behaviors.

Conceptual Framework

Social Ecological Model. Social ecological models were originally developed to understand the dynamic relationship between environmental and personal factors on human behavior. The social ecological literature highlights a number of theoretical assumptions. For

instance, Lejano and Stokols (2013) postulate the multiple dimensions of social-physical environments act cooperatively to produce outcomes that are observed within society. Historically, Bronfenbrenner (1979) first introduced the social ecological model as a conceptualization then theory in the 1980s. The initial theory purported to understand human development within the entire ecological system. Bronfenbrenner (1979) specified micro-, meso-, exo-, and macro- subsystems or levels. Social ecological analysis incorporates a range of concepts from systems theory to understand the interdependence of environmental conditions and to approach health research and the development of health promotion programs for an integration of the community (Stokols, 1996). Moreover, the social ecological model suggests individuals are embedded within a larger social system, and the interactive characteristics of individuals and their environment affect health outcomes (Sallis, Owen, & Fisher, 2008; Stokols, 1992).

Building upon Bronfenbrenner's (1979) framework, McLeroy, Bibeau, Steckler, and Glanz (1988) presented five levels of influences to specific health behaviors: intrapersonal factors, interpersonal processes, institutional factors, community factors, and public policy. The intrapersonal level focuses on individual characteristics that influence behavior, such as knowledge, attitudes, and beliefs whereas at the interpersonal influences stem from peers, family, and other groups that provide support. At the organizational level, concentration is on rules, regulations, policies, and structures that constrain or promote behaviors such as stores, community organizations and churches. The community level focuses on community norms, regulations, and social networks, whereas public policy concentrates on laws and regulations to support healthy practices and actions at a local state or federal level. As described, there are

numerous influences at each level and interventions should be specified and directed at each level for individuals (McLeroy et al., 1988).

The social ecological paradigm is primarily concerned with the interrelation among environmental conditions, human behavior and health. Social ecological analysis emphasizes the dynamic interplay between conditions and personal factors rather than focusing exclusively on environmental, biological, or behavioral determinants of health. Environmental conditions affect individuals differently, which is why the compatibility between people and their surroundings is viewed as an important predictor of wellbeing in ecological research.

Model of Community Nutrition Environments. In efforts to explain, advance, and address diet related diseases and obesity, Glanz (2009) suggested looking at individuals' perceptions of their nutrition environment to improve behavior. The development of the Model of Community Nutrition Environments is based on an ecological model of health behavior (Glanz, Sallis, Saelens, & Frank, 2005). The ecological model of health behavior holds that there are five sources of influence on health behavior (i.e., intrapersonal, interpersonal processes, primary groups, institutional factors, community factors, and public policy) (McLeroy, Bibeau, Steckler, Glanz, 1988). Building upon this model, Glanz et al. (2005) proposed five key constructs that affect eating behaviors: availability, price, promotion of foods, and nutrition information of food. These constructs apply to all food outlets including restaurants and food stores. Glanz (2009) proposes the food nutrition environment, like the social ecological model, are multileveled and multifaceted. The Model of Community Nutrition Environments theorizes that the availability of food in the environment and what individuals encounter on a daily basis influence eating behaviors (Green & Glanz, 2015). Therefore, it is imperative to understand the perception of the nutrition environment.

First, it is critical to differentiate food environments from the physical environment. In public health, the physical or built environment is defined as all physical properties, including infrastructure, open spaces, buildings and streets (CDC, 2011a). On the other hand, food environment explains where food is brought and what nutrition information is available (Glanz, 2009). The Model of Community Nutrition Environments suggests that the examination of both the perceived and quantitatively measured nutrition environment are associated, and the interaction both directly and indirectly influences individuals eating behaviors (Green & Glanz, 2015).

Model of Community Nutrition Environment constructs. The Model of Community Nutrition Environments ultimately measures five constructs: consumer nutrition environment, community nutrition environment, home food environment, eating behaviors and psychosocial factors. Although there are five constructs, four are formally defined. The community nutrition environment includes the location, variety, number, and accessibility of food outlets in the community or neighborhood (Glanz, 2009). Supermarkets, grocery stores, convenience stores, both fast food and sit-in restaurants are examples of businesses that might be available in a community. Consumer nutrition environment includes a variety of factors individuals might come across when they purchase food (Glanz, 2009). For instance, the food retail outlets, supermarkets, supercenters (like Walmart or Sam's Club), corner or convenience stores, or gas stations. The home food environment assesses the association among the availability and accessibility of both healthy and unhealthy foods in the home (Glanz, 2009; Green and Glanz, 2015). The type of food individuals have in their home is affected by what is available to them in their community—or their nutrition environment. Likewise, the accessibility of food stores and the ability to shop for food affects individuals' food choice. Lastly, psychosocial factors are

defined as an individual's "perceived importance of nutrition, food insecurity, and food motivation" (Green and Glanz, 2015, p. 51). Using this conceptual model as a guide for the present study allows for a better understanding of individuals' opinions of their food environments which is, in turn, essential for assessing interventions such as the Link Up Illinois Double Value SNAP Nutrition Incentive Program—a program directed at the reduction of health disparities and food insecurity.

Mixed methods research. The incorporation of both qualitative and quantitative methods can improve and enhance the value of the research study (Creswell & Plana Clark, 2011; Fetters, Curry, & Creswell, 2013). The type of the research question determines the choice of methods. Quantitative research methodologies address research questions about causality and generalizability (Fetters et al., 2013). Whereas qualitative research methodologies explore why a phenomenon occurs, and are used to describe individual's experiences (Creswell et al., 2011). Mixed methods research pulls from the strengths of both quantitative and qualitative approaches and offers some advantages. One of which includes the integration of both qualitative and quantitative data. First, qualitative data can be used to measure the validity of quantitative findings (Fetters et al., 2013). Second, quantitative data can be used to help describe the findings of qualitative data. Lastly, mixed methods designs can provide a stronger evidence through convergence of findings (Johnson & Onwuegbuzie, 2004). In a convergent research design both qualitative and quantitative data are collected during the same time frame, analyzed separately and then merged (Fetters et al., 2013). In order to have a complete understanding of the DVCP and the FMNP, the Model of Community Nutrition Environments will be used to analyze use of the DVCP in Illinois through collecting both quantitative and qualitative data.

Summary

In attempt to alleviate food insecurity among different populations in the United States, there have been several programs developed to assist low-income individuals. Some of which includes the Supplemental Nutrition Assistance Program (SNAP), Women, Infant's, and Children (WIC), the Farmers Market Nutrition Program (FMNP), the Senior Farmers Market Nutrition Program (SFMNP), and the Link Up Illinois Double Value SNAP Nutrition Incentive Program (DVCP). Data has shown that there is an increase in the quantity of farmers markets (Table 4), number of individuals enrolled in SNAP (Table 2), and recent increase in the use of the DVCP in Illinois (Table 1). The social determinants of diet and environmental determinants of fruit and vegetable consumption, as well as many other factors, have been associated with eating healthy foods. To examine food shopping behaviors of senior citizens, SNAP, WIC recipients an ecological model will be used to guide the present study. The Model of Community Nutrition Environments hypothesizes that both community and consumer nutrition environments impact eating behaviors, and the model recommends examining individuals' perceived nutrition environment. Furthermore, the model posits that food shopping and home food environment both predict eating behaviors (Green & Glanz, 2015).

This chapter discussed multiple factors that are associated with fruit and vegetable consumption, including the food nutrition environment, demographics of farmers market patronage, and statistics regarding the use of the Link Up Illinois Double Value SNAP Nutrition Incentive Program among SFMNP, WIC, and SNAP recipients. The subsequent chapter will describe, in detail, how the aforementioned theoretical model will be used to guide the study's activities.

CHAPTER 3

METHODS

This chapter will discuss the overall methodology of the proposed research investigation. Within the chapter, the researcher explains how the necessary data and information will be collected to address the purpose of the research investigation and the proposed research questions. The researcher will also provide justifications for the research design, research instruments, and data sources. Further, this chapter outlines participant selection, data collection and analysis for the proposed study.

Aims

The goal of this study is to contribute to the body of public health research by offering a new perspective about the perceived nutrition environment as it relates to the use of farmers markets and the Link Up Illinois Double Value SNAP Nutrition Incentives Program (DVCP). The food purchase behaviors of senior citizens, Supplemental Nutrition Assistance Program (SNAP), and Women, Infants, and Children (WIC) recipients who are eligible to participate in the DVCP have not been assessed in the southern Illinois area. In addition to the perceived nutrition environment, the organizational perspective of the DVCP will also be assessed. The perspective of community leaders will be assessed to understand the administrative scope of the DVCP. As such, the purpose is to explore the organizational scope of the DVCP and their perceptions of the nutrition environment and the food choices of individuals who are eligible for the DVCP. This information will be vital to determine how to market the Link Up Illinois Double Value SNAP Nutrition Incentives Program, identify key barriers, and establish what attracts farmers market shoppers. More importantly, this study purports to understand the perception of healthy foods and what is accessible to senior citizens, SNAP and WIC recipients

in the southern Illinois area. The researcher will use a geographic information system (GIS) to analyze the spatial location of participants to identify DVCP usage patterns among SNAP, WIC and senior citizens. The results of this research might provide a deeper understanding of the impact of food access and its dimensions on food selection, particularly among low-income rural individuals. Finally, this study will conclude with recommendations to sustain the DVCP and food purchase behaviors of low-income individuals residing in the southern Illinois area.

Research Design

A convergent parallel mixed methods design will be used to describe, understand, and interpret the use of the Link Up Illinois Double Value SNAP Nutrition Incentives Program (DVCP) and the community nutrition environment of SNAP, WIC, and senior citizens. The researcher will combine qualitative data from in-depth interviews with DVCP administrators and quantitative data from the Perceived Nutrition Environment Measures Survey (NEMS-P) which will investigate usage of the DVCP in Jackson and Williamson Counties in Southern Illinois (Green & Glanz, 2015). The convergent parallel mixed methods approach offers a holistic analysis of the program by collecting both qualitative and quantitative data in combination to provide a greater understanding of the research problem (Creswell, 2003). In addition, using a convergent parallel mixed methods design allows the researcher to obtain diverse yet complementary data to examine trends, facilitating factors, and barriers to DVCP usage from both provider and recipient perspectives.

Quantitative research is used to test theories by examining relationships among variables (Creswell, 2003). Variables are the operational forms of constructs which are adopted from theories, variables should match constructs when using theory-driven research (Glanz et al., 2008). Further, variables are then measured by an instrument so that numbered data can be

analyzed using statistical procedures (Gliner, Morgan, & Leech, 2009). Quantitative research approaches use closed-ended questions to test or verify theories or explanations. This approach condenses and reorganizes a complex problem to variables and measures information using statistics (Creswell, 2003).

A quantitative approach allows researchers to measure and interpret behaviors of the participant (Creswell, 2003; Gliner, Morgan, and Leech, 2009). However, participants in this study will not be placed in random groups, and the researcher will not randomly assign groups; therefore, this study is non-experimental in nature (Gliner, Morgan, and Leech, 2009). Additionally, the researcher in this study will compare multiple groups to determine if there is a difference. Comparing multiple groups is another form of nonexperimental research that describes and measures the degree or association between two or more variables (Creswell, 2003). However, participants in this study will be selected on the basis of convenience; that is participants are selected from the population in a nonprobability approach (Gliner, Morgan, and Leech, 2009). A quantitative, non-experimental, comparative approach is the best approach for the study because the target population is essentially grouped. That is, potential participants are informally either a part of SFMNP or WIC, or they are currently a SNAP recipient. Therefore, it would be unnecessary to place participants in groups given that they already part of one.

Alternatively, qualitative research is interpretative research in which the data tends to be open ended without predetermined responses (Creswell, 2003). As such, in qualitative inquiry the meaning of any problem is perceived from the participants viewpoint and the researcher is the observer (Sharma & Petosa, 2014). To study the research problem, in qualitative research the collection of data is in a natural setting and the analysis establishes patterns or themes (Creswell, 2007). Naturalistic inquiry attempts to examine human behavior in the natural setting to avoid

constraints of control or manipulation of any extraneous variables (Isaac & Michael, 1995). In addition, collecting data at the site where participants experience the issue or problem first hand is ideal and a major characteristic of qualitative research (Creswell, 2003). The convergent parallel mixed methods design uses the same constructs and variables for both forms of data (Creswell, 2003). By using the mixed methods approach, the researcher seeks to minimize the limitations of both approaches by better understanding program trends from both ends of the program, that is, from both administrators of the DVCP and recipients who use it.

Participants

Participant selection. The Jackson County Health Department, Senior Adult Services, the Murdale Farmers Market, the Williamson County Programs on Aging, and the Franklin-Williamson Bi-County Health Department will be selected as data collection and interview sites for the current study. The Jackson County Health Department is located in Murphysboro, Illinois and was selected because this location houses the WIC department. In addition, WIC eligible women and children are able to pick up WIC vouchers redeemable at designated farmers markets at the Jackson County Health Department. The researcher will also collect data at Senior Adult Services, which is a non-profit organization that provides activities, services, and support for persons over 60 years old. Senior Adult Services is located in Carbondale, Illinois and also enables eligible seniors in the county to pick up farmers market nutrition coupons. The third location to conduct interviews and data collection is the Murdale Farmers Market, which is located in Carbondale, Illinois. The Murdale Farmers Market has the authorization to administer the DVCP for Seniors, WIC, and SNAP recipients. As such, the Murdale Farmers Market can conduct the double value transactions which take place at a designated table or market stand. At the designated farmers market stand, SNAP recipients can use their Illinois electronic benefit

transfer (EBT) or Link card to purchase tokens redeemable at farmers market stands who sell fresh produce and meats. In addition, SNAP recipients can double their token value, senior citizens, and WIC recipients can double their FMNP coupons by participating in the DVCP. The DVCP only allows SNAP, seniors, and WIC recipients to use the double value “dollars” on fresh fruits and vegetables. Therefore, farmers market vendors who either do not participate in the program or who do not sell fresh fruits and vegetables are ineligible. Further, the Murdale Farmers Market partners with the Jackson County Health Department to implement the Link Up Illinois Double Value SNAP Nutrition Incentive Program. The fourth location to conduct a semi-structured interview and collect data is the Williamson County Programs on Aging located in Herrin, Illinois. The Williamson County Programs on Aging distributes the Senior Farmers Market coupons to senior citizens when available. Finally, the last location to conduct interviews and collect data is the Franklin-Williamson Bi-County Health Department. The Franklin-Williamson Bi-County Health Department is located in Marion, Illinois and houses a WIC department and administers WIC vouchers. As such, these five locations—the Jackson County Health Department, Murdale Farmers Market, Senior Adult Services organization, the Williamson County Programs on Aging and the Franklin-Williamson Bi-County Health Department—are ideal locations to reach the target sample for the study.

Quantitative sample selection and size. Nonprobability convenience sampling will be used in this study. There are many advantages to nonprobability sampling, particularly that it is not difficult or expensive and that the study is not unplanned (Neutens & Rubinson, 2014). Convenience sampling would be the best approach because the target population, i.e., all SNAP, seniors, and WIC recipients in the state of Illinois, is not readily accessible to the researcher

(Gliner, Morgan, and Leech, 2009). Therefore, a sample of convenience will be used, and participants will be recruited in locations where the researcher has access.

To determine an adequate sample size, the researcher first established the size of the population of interest in Illinois. Given that seniors and individuals enrolled in WIC must also be SNAP recipients to take advantage of the Link Up Illinois Double Value SNAP Nutrition Incentive Program, the researcher determined that the population size will be based off the of 12th congressional district of Illinois (National Institute of Food and Agriculture, 2017; USDA, 2017a). Congressional districts are based on population, and as such, the 12th congressional district covers both Jackson and Williamson counties. Within both counties are three farmers markets, the Link Up Illinois Double Value SNAP Nutrition Incentive Program is only offered at two markets, one of which is only open during the winter months (December to March) of the year, and the third farmers market only accepts FMNP WIC and Senior coupons (Experimental Station, 2017). The researcher used Raosoft (2011), an online sample size calculator to determine the minimum recommended sample size for the study. The United States Department of Agriculture (2017a) provides information for SNAP recipients by congressional districts, and according to the data for January 2018, there are 49,493 households receiving SNAP in the Illinois 12th congressional district. Based on the online sample size calculator, a total of 382 individuals would need to be recruited for the study.

Qualitative sample selection and size. Purposeful sampling will be used for the qualitative portion of this study and is the most appropriate for naturalistic research (Isaac & Michael, 1995). With purposeful sampling, the researcher will intentionally select participants who have experience with the research problem (Creswell, 2007). The researcher in this study will specifically select individuals who play an administrative role in the DVCP for both Jackson

and Williamson Counties. Namely, local community leaders who are affiliated with The Jackson County Health Department, Senior Adult Services, the Murdale Farmers Market, the Williamson County Programs on Aging, and the Franklin-Williamson Bi-County Health Department will be recruited to participate in this study. Specifically, two individuals will be recruited from The Jackson County Health Department, that is, from the Health Education Department and the WIC department. The farmers market manager for the Murdale Farmers Market and the Program Coordinator of Senior Adult Services will also be asked to take part in the study. Lastly, the program coordinator for the Williamson County Programs on Aging and an individual from the WIC department will be recruited for interviews. A total of five interviews will be conducted for the qualitative portion of this study. However, if saturation has not been met, the researcher will continue to recruit participants until no new themes are established (Creswell, 2007).

Measures

Quantitative instrument development. Survey questions were adopted and modified from the Perceived Nutrition Environment Survey (Green & Glanz, 2015), and A Guide to SNAP/EBT at Farmers' Markets in North Carolina: Steps, Best Practices, and Resources (Bawden, 2013). All original authors have been contacted, and approval was received from each author to use the questions in this research project (see Appendix E). Item response options include a combination of open and closed-form questions with Likert-type scales. Closed-form questions provide a fixed response to questions by requiring participants to check or circle the appropriate choice of responses. Additionally, closed-form questions offer several advantages, including ease of answering the questions, less room for irrelevant responses, greater chance that participants will answer the question, and simplification of coding and analysis (Neutens & Rubinson, 2014).

The Perceived Nutrition Environment (NEMS-P) survey examines individuals' perception of their nutrition environment (Green & Glanz, 2015). The NEMS-P survey has previously been validated using a five-step process that included the development of the conceptual model and inventory of survey items, expert review, pilot testing and interviews, survey revision, and administration of the survey to participants (Green & Glanz, 2015). A Guide to SNAP/EBT at Farmers' Markets in North Carolina: Steps, Best Practices, and Resources is a document that services as a guide and resource for farmers markets to promote the use of SNAP and farmers market tokens (Bawden, 2013). Questions were modified and adapted to explicitly examine the Link Up Illinois Double Value SNAP Nutrition Incentive Program and to assess the farmers market. A Guide to SNAP/EBT at Farmers' Markets in North Carolina: Steps, Best Practices, and Resources is a public document, and the questions were sample items; therefore, no approval was needed to use the items.

Community Nutrition Environment constructs. The Perceived Nutrition Environment (NEMS-P) contains 118 items which are characterized by three main constructs: community nutrition environment, consumer nutrition environment, and the home food environment (Green & Glanz, 2015). The home food environment construct assesses the types of food individuals or families currently have in their homes. Participants are asked to indicate which foods were available in their home in the past week from a list of 18 items that include both unhealthy and healthy foods (Green & Glanz, 2015). Availability of food in the home will be measured on a dichotomous scale with response selections of yes or no. In addition, participants are asked to indicate how often ready-to-eat unhealthy and healthy foods were available in their home in the past week on a 4-point scale of never to almost always (Green & Glanz, 2015). Response items

measuring the availability of ready-to-eat foods in the home will be modified from a 4-point scale to a 5-point Likert scale.

The community nutrition environment construct examines the type of food outlets within a neighborhood, such as restaurants, stores, or farmers markets. Green and Glanz (2015) defined the community nutrition environment as an area within a twenty-minute walk or 10-15-minute drive from an individual's home. Two composite items measure the community nutrition environment: store and restaurant access. Response items for the community nutrition construct includes three multiple choice response items and two 4-point Likert response items ranging from not important to very important. The two response items measuring the community nutrition environment will be modified from a 4-point scale to a 5-point Likert scale.

Lastly, the consumer nutrition environment construct measures what items individuals encounter at food outlets, such as the availability of fresh produce, nutritional information, placement of food, and the variety of choices (Green & Glanz, 2015). The consumer nutrition environment construct includes 21 items on the affordability and availability of healthy foods, nutritional information, food motivation, placement, and promotion (Green & Glanz, 2015). There are six items measuring the availability and selection of fresh produce and are asked on a 5-point Likert scale of strongly disagree to strongly agree. Food motivation measures the importance of quality, price, and selection of foods in an individual's decision to shop at a particular store (Green & Glanz, 2015). Food motivation items are asked on a 4-point Likert scale of not at all important to very important. Affordability in stores is also assessed via response choices ranging from very inexpensive to very expensive (Green & Glanz, 2015). Further, food placement considers display items that might encourage consumption of healthy and unhealthy foods and the location of the items in food outlet. Food placement in stores and

food promotion items are asked using a 5-point Likert scale of strongly disagree to strongly agree (Green & Glanz, 2015). Moreover, psychosocial factors—includes 9 items measuring individuals' perceived importance of nutrition, food insecurity, and food motivation (Green & Glanz, 2015). Five of the response items measuring psychosocial factors will be modified and measured from a 3-point Likert scale to a 5-point Likert scale. Four of the response items are measured on a 6-point Likert scale. The NEMS-P survey is intended to discover if there is a relationship between an individual's environment and their eating behaviors.

For the present study, there are five sections of the instrument, totaling 53 questions (Appendix G): Farmers Market, Home Food Environment, Food Shopping, Your Thoughts and Habits about Food, and Demographic Questions. Within the "Farmers Market" section of the survey, there are a total of eight questions examining farmers market use, distance, and shopping patterns. The "Home Food Environment" section contains 14 questions exploring the type of food individuals have in their home, such as fruits and vegetables. "Food Shopping" includes 18 questions about participants' food environment and shopping attitudes. The fourth section of the survey, "Thoughts and Habits about Food," includes nine questions intended to measure individuals' attitudes and eating practices. Finally, the survey concludes with 11 demographic questions measuring the characteristics of the population, such as zip code, age, race, body mass index, employment status, living environment and educational attainment.

To ensure that participants understand the content of the survey, the researcher assessed the readability. Readability is how easily individuals can understand and read printed material (McLaughlin, 1968). Readability is important when administering any types of material, including a survey, because individuals must be able to understand the questions at hand, answering honestly and without guessing. Readability statistics for this study include the

following: the Flesch reading was 75.9, and the Flesch-Kincaid grade level score was 4.9.

Zakaluk and Samuels (1988) interprets the Flesch reading score of the present survey to be acceptable. That is, individuals who have completed 4th or 5th grade and who have an estimated reading level of 4th and 5th grade will be able to read the survey.

Quantitative instrument internal and external validity. To assess for reliability, the researcher will measure the internal consistency of the constructs in the survey. The Perceived Nutrition Environment survey measures three constructs, and to ensure that the instrument is consistent among items in each construct, the researcher will calculate Cronbach's alpha to determine inter-item reliability (Gliner, Morgan, and Leech, 2009). Literature suggests that a reliability coefficient of .80 will be acceptable for the purposes of this research (Gliner, Morgan, and Leech, 2009). To assess for validity, the researcher will measure the content of the survey by forming a panel of experts to review items on the survey to ensure they are relevant for the local population. The experts will review the items and for fit and clarity within the constructs.

Quantitative instrument expert review. The survey will be reviewed for content validity by Drs. Dawn Null and Robert McDermott, and the researcher will alter the instrument as necessary following expert review. At present, Dr. Null is an assistant professor in nutrition for Southern Illinois University, as well as a registered dietitian and a licensed nutritionist. Dr. Robert McDermott is currently a professor at Southern Illinois University in the Department of Public Health and Recreation Professions. These specific individuals were contacted and selected because of their expertise within their fields and their knowledge of nutrition, health education theories, survey development, and the three governmentally funded programs.

Pilot study. After making necessary revisions, a pilot study will be conducted in months April of 2018 to determine the reliability and validity of the survey instrument and to determine

if there are any problems associated with it. There are many advantages of conducting a pilot study before implementation. According to Isaac and Michael (1995), pilot studies permit preliminary testing of the research questions, permit a thorough check of the planned analytical and statistical procedures, reduce the number of treatment errors, and allow the researcher to receive feedback from the research subjects. To simultaneously assess face validity, the researcher will ensure that the survey is worded properly by asking participants to write comments and feedback about the survey.

In order to receive feedback from the research subjects, a convenience sample will be obtained from Senior Adult Services, the Murdale Farmers Market and the Jackson County Health Department. Isaac and Michael (1995) suggest obtaining between 10 and 30 participants for a pilot study. Accordingly, 15 participants will be recruited from the Murdale Farmers Market and asked to participate in the study. The researcher will attend the farmers market on Saturday(s) from 7 a.m. until 12 p.m. until 15 participants are recruited for the study. Once recruited, participants will read and complete the consent form, and the researcher will go over the document fully to ensure participants fully understand that participation is voluntary and can be stopped at any time. Participants will also be informed that their identities will be protected and personal identifying information will be not collected. Additionally, they will be informed their information will be kept confidential within reasonable limits. Given the primarily closed-format of the survey, it is estimated that participants will take approximately 20 minutes to complete it. Upon full completion of the survey, participants will be informed that they will be entered into a monthly drawing to win /receive a \$25.00 gift card to the Neighborhood Co-Op Grocery store located in the Murdale plaza, adjacent to the Murdale Farmers Market. The monthly drawing slip will be at the end of the survey where participants put their name and

phone number or email address to be contacted if they are a winner of the drawing. In addition, the monthly drawings will take place the last Saturday of each month and the researcher will use a random number generator to choose the monthly winner. If individuals choose not to participate in the study they will also be informed that they will not be entered into the drawing. As mentioned, participants will be asked to give comments about the survey which should express any concerns they may have about the survey, or questions they may not understand. The advantages of receiving remarks about the survey include the ability to overlook weak treatment effects, minimalism, easy calculation, and the ability to test the research questions (Isaac & Michael, 1995). After analyzing data from the pilot study, the researcher will make any necessary revisions and advance to the main study.

Qualitative interviews. The researcher will conduct semi-structured face to face interviews with local administrators of the DVCP. The interview will involve open-ended questions which are intended to prompt perceptions from the participants. There are several advantages of conducting qualitative interviews: (1) they are useful when participants cannot be observed, (2) participants can provide historical information, and (3) and it allows the researcher control over the questions asked (Creswell, 2007). The researcher will develop an interview protocol that will be standardized and used during all of the qualitative interviews. The interview protocol will contain an overview of the study, consent to participate and record the interview, and the interview questions. Creswell (2007) suggest probing for at least four to five questions for further explanation of participants' ideas. In this study, the researcher will probe for five questions, to follow up and ask individuals to elaborate on their responses.

Qualitative instrument expert review. The qualitative interview questions will be reviewed for content validity by Drs. Sarah Patrick and Paula Vineyard-Most, and the researcher

will alter the research questions as necessary following expert review. At present, Dr. Sarah Patrick is the administrator for the Jackson County Health Department, as well as a distinguished professor in epidemiology. Paula Vinyard-Most is currently the WIC Program Manager and Breastfeeding Coordinator for Jackson County Health Department. These specific individuals were contacted and selected because of their expertise within their fields and their knowledge of nutrition, health education theories, survey development, and the three governmentally funded programs.

Qualitative instrument validity and reliability. In qualitative validity, the researcher checks for the accuracy of findings by utilizing certain procedures (Creswell, 2007). The researcher will use rich descriptions to convey the findings and will present discrepant information that is opposite to the themes. Using rich descriptions of the findings can add to the validity of the findings by offering many perspectives about a theme, thus making the results more realistic (Creswell, 2007). Additionally, presenting data on the different perspectives that contradict the general perspective of the research theme makes the study more realistic and valid (Creswell, 2007). Likewise, qualitative reliability indicates that the researchers approach is consistent across different researchers and studies (Creswell, 2007). There are several qualitative reliability procedures that will be used in this study. The researcher will check the transcripts of the interviews to ensure that no mistakes or errors occurred during transcription (Creswell, 2007). In addition, the researcher will make sure that coding of the data is consistent, to do so, the researcher will constantly compare the data with the developed codes (Creswell, 2007).

Procedures

Institutional Review Board Approval (IRB) will be obtained from Southern Illinois University. There will be no need for IRB approval from either the Murdale Farmers Market, the

Jackson County Health Department, or the Franklin-Williamson Bi-County Health Department, per Miriam Link-Mullison, then-administrator for the Jackson County Health Department, Ann Stahlheber, the Farmers Market Manager, and Kevin Kaytor, administrator for the Franklin-Williamson Bi-County Health Department (see Appendix B, C). The qualifications for participation in the current study include the following: individuals must be recipients of the Farmers Market Nutrition Program (FMNP) (WIC or seniors) and SNAP, be able to read and understand English, and be at least 18 years of age.

Quantitative procedures. The researcher will approach participants at the Jackson County health department in the primary waiting room of the WIC office which is located close to the entrance of the health department. At Murdale Farmers Market, the researcher will recruit participants at the Jackson County Health Departments outreach stand where WIC, seniors, and SNAP recipients receive double value coupons to shop at the market. The researcher will approach participants at the Franklin-Williamson Bi-County Health Department in the front waiting room closest to the WIC departments entrance. In addition, the researcher will approach participants at the Williamson County Programs on Aging in the waiting area where individuals wait to receive their FMNP vouchers. Lastly, the researcher will recruit participants from Senior Adult Services in their cafeteria during social functions and after the lunch hour. The researcher will ask individuals if they are a part of the aforementioned programs and if they would like to participate in the study. Once recruited, participants will read and complete the consent form (see Appendix F), and the researcher will go over the document fully to ensure that the participant fully understands that participation is voluntary and can be stopped at any time. Participants will also be informed that their identities will be protected and personal identifying

information will be not collected. Further, participants will be informed that the information the researcher receives will be kept confidential.

Qualitative procedures. The researcher will contact individuals via telephone to recruit participants for face to face semi structured interviews. Upon agreeance to participate, the researcher will schedule the interview at the participant's employment facility. The interview will take place in the participant's natural setting, and the researcher will use the standardized protocol to begin the interview process. The researcher will read the informed consent and offer opportunity for the participant to refuse participation the study if so desired. If participants refuse to participate in the study, the researcher will stop the process and thank them for their time. With consent of the participant, interviews will be audio-recorded. If the participant refuses to be audio recorded, the researcher will instead take notes on the interview. The researcher plans to conduct five interviews with the expectation that it will be enough to reach thematic saturation.

Data Analysis

Quantitative data analysis. Independent variables are changed or controlled to test the effects on the dependent variable. In this study, the researcher defines the independent variables as individuals' psychosocial factors, community nutrition environment, consumer nutrition environment, and the price of food. Likewise, the dependent variables are defined in this study as Link Up Illinois Double Value SNAP Nutrition Incentive Program (DVCP), food purchase behaviors, food choices, and healthy food in the homes.

The analysis performed and the corresponding survey items for each research question are detailed in Table 2. For all research questions, descriptive statistics will be run to determine all scores on the NEMS-P survey. To examine research question one, a binomial logistic

regression will be conducted to assess if the independent variables—demographic information, predict the dependent variable—use of the DVCP. A binomial logistic regression is often referred to as logistic regression. Logistic regression predicts the probability that an event will occur based on more than one independent variable that could be continuous or categorical (Gliner, Morgan & Leech, 2009). For research question two, an ordinal regression will be conducted to investigate whether or not the independent variables—demographic information predicts the dependent variable—the number of times individuals shop at the farmers market. Ordinal regression is a statistical technique used to predict behavior of an ordinal level dependent variable with a set of independent variables. Ordinal variables have a set of values that vary within a certain range and could be an infinite set of values within the range (Gliner, Morgan, & Leech, 2009). In ordinal regression, the dependent variable is the ordered response category variable and the independent variable is categorical. To examine research questions three to six, a binomial logistic regression will be conducted to assess if the independent variables—community, home and consumer nutrition environment, and psychosocial factors predict the dependent variable—use of the DVCP. For research question seven to ten, a multinomial logistic regression will be conducted to investigate whether the independent variables—community, home and consumer nutrition environment, and psychosocial factors predict the dependent variable—number of times shopped at the farmers market. Multinomial logistic regression allows for more than two categories of the dependent variable and uses maximum likelihood estimation to evaluate the probability of categorical membership (Gliner, Morgan & Leech, 2009).

Qualitative data analysis. The audio recorded interviews will be transcribed verbatim into a Microsoft Word document and read for accuracy. Participants and their data will be

assigned a pseudonym to protect their identities. Data will be organized, managed and coded using the qualitative data software ATLAS.ti 8. Coding is the process of organizing the data by grouping chunks of text and writing a word that representing the category (Creswell, 2007). Coding involves using the actual language of the participant and using a term to represent or label the language into categories. Additionally, an independent coder will analyze the transcripts to compare with initial coding results. If discrepancies are present, the two coders will discuss their findings to reach consensus. In the event that consensus cannot be reached, a third reader will be identified to code the data.

Summary

This chapter discussed the research design, method, sampling procedures, data collection, and analysis for the present study. Also, the chapter outlined participant recruitment, instrumentation, and measures to determine reliability and validity of the instrument. Details of the statistical analysis that will be performed to the corresponding survey item and research question was also provided in this chapter. Prior to conducting the main study and pilot study, a panel of experts will review the instrument for content validity. Subsequently pilot testing will be conducted at two of the locations used for the main study. Finally, this chapter discussed procedures for instrument revisions and the subsequent implementation of the study.

Table 5
Summary of Quantitative Data Analysis Procedures

Research Question	Hypothesis	Independent Variable		Dependent Variable		Statistical Test
		Variable	Survey Item(s)	Variable	Survey Item(s)	
1. Does DVCP use differ by demographic characteristics?	1.1 DVCP use will differ by race/ethnicity.	Race/Ethnicity	46	DVCP	8	Binomial Logistic Regression
	1.2 DVCP use will differ by gender.	Gender	45	DVCP	8	
	1.3 DVCP use will differ by age.	Age	44	DVCP	8	
	1.4 DVCP use will differ by body mass index.	Body Mass Index	48 - 49	DVCP	8	
	1.5 DVCP use will differ by employment status.	Employment Status	50	DVCP	8	
	1.6 DVCP use will differ by educational level.	Education Level	51	DVCP	8	
	1.7 DVCP use will differ by living environment.	Living Environment	53	DVCP	8	
2. Does the # of times an individual has shopped at a farmers market	2.1 Shopping will differ by race/ethnicity.	Race/Ethnicity	46	# times shopped at FM	2, 3	Ordinal Regression

differ by demographic characteristics?	2.2 Farmers market shopping will differ by gender.	Gender	45	Number of times shopped at the FM	2, 3	
	2.3 Farmers market shopping will differ by age.	Age	44	Number of times shopped at the FM	2, 3	
	2.4 Farmers market shopping will differ by body mass index.	Body Mass Index	48 - 49	Number of times shopped at the FM	2, 3	
	2.5 Farmers market shopping will differ by employment status.	Employment Status	50	Number of times shopped at the FM	2, 3	
	2.6 Farmers market shopping will differ by educational level.	Educational Level	51	Number of times shopped at the FM	2, 3	
	2.7 Farmers market shopping will differ by living environment.	Living Environment	53	Number of times shopped at the FM	2, 3	
	3. Is community nutrition environment predictive of DVCP use?	3.1 Higher scores for community nutrition environment will predict greater DVCP use.	Community Nutrition Environment	23 - 26	DVCP	8

4.	Is consumer nutrition environment predictive of DVCP use?	4.1 Higher scores for consumer nutrition environment will predict greater DVCP use.	Consumer Nutrition Environment	15 – 20, 28 – 30	DVCP	8	Binomial Logistic Regression
5.	Is home food environment predictive of DVCP use?	5.1 Higher scores for food environment will predict greater DVCP use.	Home Food Environment	9 – 14	DVCP	8	Binomial Logistic Regression
6.	Are psychosocial factors (i.e., perceptions and actual behaviors) predictive of DVCP use?	6.1 Psychosocial factors will predict DVCP use.	Psychosocial Factors	33 - 42	DVCP	8	Binomial Logistic Regression
7.	Is community nutrition environment predictive of individuals shopping at farmers markets?	7.1 Higher scores for community nutrition environment will predict more shopping at farmers markets.	Community Nutrition Environment	23 - 26	Number of times shopped at the FM		Multinomial Logistic Regression
8.	Is consumer nutrition environment predictive of individuals shopping at farmers markets?	8.1 Higher scores for consumer nutrition environment will predict more shopping at farmers markets.	Consumer Nutrition Environment	15 – 20, 28 – 30	Number of times shopped at the FM		Multinomial Logistic Regression
9.	Is home food environment predictive of individuals shopping at farmers markets?	9.1 Higher scores for home food environment will predict more shopping at farmers markets.	Home Food Environment	9 – 14	Number of times shopped at the FM		Multinomial Logistic Regression

10. Are psychosocial factors (i.e., perceptions and actual behaviors) predictive of individuals shopping at farmers markets?	10.1 Psychosocial factors will predict number of times shopped at the farmers market.	Psychosocial Factors	33 - 42	Number of times shopped at the FM	Multinomial Logistic Regression
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Appendix A



Dominique Rose <dmarose@gmail.com>

WIC Farmer's Market

2 messages

Nance, Jennifer L. <Jennifer.L.Nance@illinois.gov>
To: "dmarose@gmail.com" <dmarose@gmail.com>

Fri, Jun 23, 2017 at 3:06 PM

Hi Dominique

As of May 2017, Jackson County has a total of 114 pregnant women, 96 breastfeeding women, 80 postpartum women, and 463 children on their WIC program. I would encourage you to meet with Karen Brown at Jackson Co to discuss these numbers.

As for the Farmers' Market program – our Bureau chief isn't quite sure how the number of vouchers redeemed will be helpful to you. We (DHS / WIC) over issue FM checks because we know redemption is historically low. She would like to know more clearly what you are trying to work out before actual numbers can be provided.

Here are some links that may be of interest to you as well:

<https://www.illinois.gov/aging/CommunityServices/Pages/farmersmarket.aspx>

information on SFMNP, including their list of distributing agencies and link to statewide market location (not certain this list is exclusive to markets that take SNAP and/or FMNP)

<https://www.agr.state.il.us/markets/farmers/> list of all markets from Dep of Ag

<http://www.dhs.state.il.us/page.aspx?module=1&item=30520> – includes a guide for participants and farmers.

Please let me know if you have additional questions or need further clarification.

Have a great weekend!

Jenny

Jennifer Nance MS, RDN, LDN, CLS

Nutritionist Consultant, Region 5

Illinois Department of Human Services

1107 West DeYoung St

Marion, IL 62959

Office [618-993-7491](tel:618-993-7491)

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Appendix B



JACKSON COUNTY HEALTH DEPARTMENT

P.O. Box 307, 415 | HEALTH DEPARTMENT RD, MURPHYSBORO, IL 62966-0307
 PH: 618-684-3143 FAX: 618-684-6023

www.jchdonline.org [facebook/JCHOnline](https://www.facebook.com/JCHOnline) twitter.com/jchalthdept

May 8, 2017

Dominique Rose, M.Ed, CHES
 Health Education Teaching Assistant and Doctoral Candidate
 Department of Public Health and Recreation Professions
 Pulliam Hall 108 Carbondale, IL 62901

Dear Ms. Rose,

I wish to express my enthusiastic support for your dissertation research, entitled "The Examination of WIC and SNAP Food Purchase Behavior and the Challenges of Farmers' Market Use," designed to collect instrumental data for the evaluation of the Double Up Food Bucks Program and the local farmers market. With the collaborative efforts of both Southern Illinois University, Carbondale, the Murdale Farmers Market, and the Jackson County Health Department your research will propel to new levels of discovery and productivity.

As Administrator, I can assure you that the Jackson County Health Department will provide the infrastructure to facilitate your dissertation research. Specifically, the Department has designated that existing resources such as the space that is already in use but will now also support this research program and equipment that is currently in a facility may now be used to support this research in order to accomplish the objectives of your dissertation research. I am highly supportive of your efforts and if there is anything more I can do to assist this effort, please let me know.

Best regards,

Miriam Link-Mullison
 Administrator

Jackson County Health Department complies with applicable Federal civil rights laws and does not discriminate on the basis of race, color, national origin, age, disability, or sex.

ATTENTION: Language assistance services, free of charge, are available to you. Call 1-618-684-3143.

Jackson County Health Department cumple con las leyes federales de derechos civiles aplicables y no discrimina por motivos de raza, color, nacionalidad, edad, discapacidad o sexo.

ATENCIÓN: si habla español, tiene a su disposición servicios gratuitos de asistencia lingüística. Llame al 1-618-684-3143.

Jackson County Health Department postupuje zgodnie z obowiązującymi federalnymi prawami obywatelskimi i nie dopuszcza się dyskryminacji ze względu na rasę, kolor skóry, pochodzenie, wiek, niepełnosprawność bądź płeć.

UWAGA: Jeżeli mówisz po polsku, możesz skorzystać z bezpłatnej pomocy językowej. Zadzwoń pod numer 1-618-684-3143.

Appendix C

Monday, May 8, 2017

Carbondale Farmers Market
c/o Ann Stahlheber, Market Manager
4650 Rhine Road
Alto Pass, Illinois 62905

To Whom It May Concern:

I wish to express my support for your dissertation research, entitled "The Examination of WIC and SNAP Food Purchase Behavior and the Challenges of Farmers' Market Use," designed to collect data for the evaluation of the Double Up Food Bucks program at the Carbondale Farmers Market.

The Carbondale Farmers Market will be glad to provide the infrastructure to facilitate your dissertation research and evaluation of the program. We are working with the Jackson County Health Department and Southern Illinois University to provide them with a specific space to work with the SNAP and WIC program and the dissertation research can also be accommodated in that space. I am highly supportive of your efforts and if there is anything more I can do to assist this effort, please let me know.

Best regards,



Ann Stahlheber, Market Manager.

Appendix D



Dominique Rose <dmrose@gmail.com>

Re: NEMS-P Survey

1 message

Margaret Clawson <mclawson@mail.med.upenn.edu>
To: Dominique Rose <dmrose@siu.edu>

Tue, May 23, 2017 at 6:19 AM

Hi

You can certainly modify the NEMS-P. Just like with all of the NEMS materials, we know that everyone has different goals and objectives. We will be excited to hear about your dissertation. Please let me know if you have any other questions.

Warm regards,

Margaret

Margaret Clawson, MPH
Training and Partnerships Coordinator
mclawson@mail.med.upenn.edu
404-314-7935

Work hours: Tuesday & Thursday 9:00am -1:00pm EST, email checked daily.

From: "Dominique Rose" <dmrose@siu.edu>
To: mclawson@mail.med.upenn.edu, nems@zimbra.upenn.edu
Sent: Monday, May 22, 2017 9:55:03 AM
Subject: NEMS-P Survey

Good Morning,

My name is Dominique Rose and I am a doctoral candidate in Public Health and Health Education. I am currently in the process of seeking approval from IRB and wanted to know if I can modify the NEMS-P survey for my dissertation research. Please get back to me at your earliest convenience, thank you for your time and consideration.

Best Regards,

Dominique Rose, MEd, CHES

Health Education Teaching Assistant and Doctoral Candidate

Department of Public Health and Recreation Professions

Pulliam Hall 108 | Office Hours: MW 10-11 & W 12-1p

Phone: [618-453-2777](tel:618-453-2777)[Southern Illinois University, Carbondale](http://SouthernIllinoisUniversity.edu)

475 Clocktower Drive

Mail Code 4632

Carbondale, Illinois 62901

Appendix E

The Perceived Nutrition Environment of SNAP, WIC, and senior citizens and Administrative Scope of the Double Value Program**Consent Form**

Dominique Rose, Southern Illinois University Department of Public Health and Recreation Professions
dmarose@siu.edu

Hello, my name is Dominique Rose. I am a graduate student at Southern Illinois University-Carbondale. You are invited to take part in a research study of The Perceived Nutrition Environment of SNAP, WIC, and senior citizens and Administrative Scope of the Double Value Program.

What the study is about: The purpose of the study is to examine the perceived nutrition environment of senior citizens, WIC, and SNAP recipients and Farmers Market Use, specifically the Double Value Program.

What you will be asked to do: Participants will be asked to take a survey which will take about 30 minutes to complete.

Risks and benefits: There are no anticipated risks to you if you participate in this study, beyond those encountered in everyday life. Participants will be entered to win a \$25.00 gift card to The Neighborhood Co-Op Grocery store for participating in the study. In addition, participants will be contributing to the researcher's field of knowledge.

Taking part is voluntary: Taking part in this study is completely voluntary. If you choose to be in the study you can withdraw at any time without consequences of any kind. Participating in this study does not mean that you are giving up any of your legal rights.

Your answers will be confidential: All of your responses will be kept confidential within reasonable limits. Only those directly involved with this project will have access to the data. Please do not put your name or any identifiable information on this survey. When you have completed the survey, please return it to the principle investigator.

If you have questions or want a copy or summary of the study results: Contact the researcher at the email address or phone number above. You will be given a copy of this form to keep for your records. If you have any questions about whether you have been treated in an illegal or unethical way, please contact the research advisor Dr. Aaron Diehr, aaron@siu.edu or 618-453-2777.

Statement of Consent: I have read the above information, and have received answers to any questions. I affirm that I am 18 years of age or older. I consent to take part in the research study of The Examination of Seniors, WIC, and SNAP Food Purchase Behavior and Farmers' Market Use.

Thank you for taking the time to assist me in this research.

Participant's Signature

Date

This project has been reviewed and approved by the SIUC Human Subjects Committee. Questions concerning your rights as a participant in this research may be addressed to the Committee Chairperson, Office of

Sponsored Projects Administration, Southern Illinois University, Carbondale, IL 62901-4709. Phone (618) 453-4533. E-mail siuhsc@siu.edu

Appendix F

Survey Background: Thank you for taking to the time to complete this survey. We would like to learn more about the way you think about food choices in your neighborhood. Please answer the following questions about your food environment, your home, and yourself.

Note: This survey is to be completed by a person who is 18 years or older and does some or most of the food shopping for the household.

Directions: For each of the following statements please place a check mark for your answer:

I. Farmers Market

1. In which programs are you currently enrolled in? (Check all that apply)

<input type="checkbox"/> SNAP	<input type="checkbox"/> Senior Farmers Market Nutrition Coupon
<input type="checkbox"/> WIC	<input type="checkbox"/> None
2. Before today how many times have you shopped at the farmers market?

<input type="checkbox"/> 0	<input type="checkbox"/> 6-10
<input type="checkbox"/> 1-5	<input type="checkbox"/> 11+
3. In the past year how many times have you shopped at the farmers market?

<input type="checkbox"/> 1-5	<input type="checkbox"/> 11-14
<input type="checkbox"/> 6-10	<input type="checkbox"/> 15+
4. How do you usually travel to the farmers market?

<input type="checkbox"/> Walk	<input type="checkbox"/> Drive
<input type="checkbox"/> Bus	<input type="checkbox"/> Get a ride
<input type="checkbox"/> Bike	<input type="checkbox"/> Carpool
5. How many miles is the farmers market from your home?

<input type="checkbox"/> 1-10 miles	<input type="checkbox"/> 20-30 miles
<input type="checkbox"/> 11-19 miles	<input type="checkbox"/> 31+ miles
6. What do you usually buy at the farmers market? (Check all that apply)

<input type="checkbox"/> Produce (fruits and vegetables)	<input type="checkbox"/> Prepared Foods (ready to eat)
<input type="checkbox"/> Poultry/Meat	<input type="checkbox"/> Eggs
<input type="checkbox"/> Baked Goods	<input type="checkbox"/> Other: _____
7. What forms of payment to use at the farmers market? (Check all that apply)

<input type="checkbox"/> Cash	<input type="checkbox"/> WIC Farmers Market Nutrition Coupons
<input type="checkbox"/> Debit/Credit	<input type="checkbox"/> Senior Farmers Market Coupons
<input type="checkbox"/> SNAP Tokens	
8. Have you used the double value coupons this season?

<input type="checkbox"/> Yes	<input type="checkbox"/> I do not know about the double value coupon program
<input type="checkbox"/> No	

II. Home Food Environment

9. Which of these appliances do you have in your home to cook or store food? (Check all that apply)?

- | | |
|---|--|
| <input type="checkbox"/> Refrigerator | <input type="checkbox"/> Other countertop cooking appliance (toaster oven, slow cooker, or electric grill) |
| <input type="checkbox"/> Freezer | |
| <input type="checkbox"/> Microwave oven | |
| <input type="checkbox"/> Stove | |
| <input type="checkbox"/> Oven | |

10. Please indicate whether each of these food items were available in your home in the past week:

	Yes	No
Bananas	<input type="checkbox"/>	<input type="checkbox"/>
Apples	<input type="checkbox"/>	<input type="checkbox"/>
Grapes	<input type="checkbox"/>	<input type="checkbox"/>
Candy or cookies	<input type="checkbox"/>	<input type="checkbox"/>
Snacks chips (potato chips, corn chips, tortilla chips, etc.)	<input type="checkbox"/>	<input type="checkbox"/>
Regular whole milk	<input type="checkbox"/>	<input type="checkbox"/>
Low-fat milk	<input type="checkbox"/>	<input type="checkbox"/>
Drinks with sugar (Kool-Aid, soda, sweet tea)	<input type="checkbox"/>	<input type="checkbox"/>
Diet Soda	<input type="checkbox"/>	<input type="checkbox"/>
Carrots	<input type="checkbox"/>	<input type="checkbox"/>
Tomatoes	<input type="checkbox"/>	<input type="checkbox"/>
Dark leafy greens (spinach, collards, kale, etc.)	<input type="checkbox"/>	<input type="checkbox"/>
Regular hot dogs	<input type="checkbox"/>	<input type="checkbox"/>
Reduced-fat hot dogs	<input type="checkbox"/>	<input type="checkbox"/>
White bread	<input type="checkbox"/>	<input type="checkbox"/>
Whole grain bread	<input type="checkbox"/>	<input type="checkbox"/>
White rice	<input type="checkbox"/>	<input type="checkbox"/>
Brown rice	<input type="checkbox"/>	<input type="checkbox"/>

In your home, how often do you...?

	Never	Seldom	Sometimes	Often	Almost Always
11. Have fruits and vegetables in the refrigerator	1	2	3	4	5
12. Have candy or chips available to eat	1	2	3	4	5
13. Have fruit available in a bowl or on the counter	1	2	3	4	5
14. Have ice cream, cake pastries, or ready-to-eat sweet baked goods (cookies, brownies, etc.)	1	2	3	4	5

III. Food Shopping Questions

Directions: Please indicate your level of agreement with the following statements by circling the number on the following scale. Select only one.

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
15. It is easy to buy fresh produce in my neighborhood.	1	2	3	4	5
16. The fresh produce in my neighborhood is of high quality.	1	2	3	4	5
17. There is a large selection of fresh fruits and vegetables in my neighborhood.	1	2	3	4	5
18. It is easy to buy low-fat products, such as low-fat milk or lean meats, in my neighborhood.	1	2	3	4	5
19. The low-fat products in my neighborhood are of high quality	1	2	3	4	5
20. There is a large selection of low-fat products in my neighborhood.	1	2	3	4	5

21. How often do you usually shop for food?

- More than once a week
 Once a week
 Once every 1-2 weeks
 Once a month
 Other: _____

22. What type of store is the store where you buy most of your food?

- Supermarket
 Small grocery store
 Corner store or convenience store
 Farmers Market
 Supercenter (like Walmart or Sam's Club)
 Other: _____

23. Thinking about where you buy most of your food, how do you usually travel to this store?

- Walk
 Bicycle
 Bus or other public transportation
 Drive your own car
 Get a ride
 Other: _____

24. About how long would it take to get from your home to the store where you buy most of your food if you drove there?

- 10 minutes or less
 11-20 minutes
 21-30 minute
 More than 30 minutes

How important are each of the following factors in your decision to shop at the store where you buy most of your food?

	Not important	Slightly important	Neither Important nor Unimportant	Important	Very Important
25. Near your home	1	2	3	4	5
26. Near or on the way to other places where you spend time	1	2	3	4	5
27. Your friend/relatives shop at this store	1	2	3	4	5
28. Selection of foods	1	2	3	4	5
29. Quality of foods	1	2	3	4	5
30. Prices of foods	1	2	3	4	5
31. Access to public transportation	1	2	3	4	5

32. Where do you usually purchase fruits and vegetables? (Check all that apply)

- | | |
|--|---|
| <input type="checkbox"/> Supermarket | <input type="checkbox"/> Supercenter (like Walmart or Sam's Club) |
| <input type="checkbox"/> Small grocery store | <input type="checkbox"/> Other: _____ |
| <input type="checkbox"/> Corner store or convenience store | <input type="checkbox"/> I don't buy fresh fruit and vegetables |
| <input type="checkbox"/> Farmers Market | |

IV. Thoughts and Habits About Food

Directions: When you shop for food, please indicate the importance of the following by circling the number. Select only one.

	Not important	Slightly important	Neither Important nor Unimportant	Important	Very Important
33. Taste	1	2	3	4	5
34. Nutrition	1	2	3	4	5
35. Cost	1	2	3	4	5
36. Convenience	1	2	3	4	5
37. Weight Control	1	2	3	4	5

Directions: Think about what you usually eat, including all meals, snacks, and eating out, about how often do you usually eat or drink each of the following items?

	2 or more times a day	Once a day	5-6 times per week	3-4 times per week	1-3 times per month	Less than once a month or never
38. Fruit not containing juice	1	2	3	4	5	6
39. Fruit juice, such as orange, grapefruit, or tomato	1	2	3	4	5	6
40. Green salad	1	2	3	4	5	6
41. Vegetables, not counting potatoes or salad	1	2	3	4	5	6

V. Demographic Questions

43. What is your zip code? _____
44. In what year were you born? _____
45. Are you...?
- Male Prefer not to answer
- Female
46. What is your racial background or ethnicity?
- Black/African American American Indian or Alaskan Native
- White/Caucasian Other: _____
- Latino/Hispanic
- Asian/South Asian/Pacific Islander
47. In general, would you say your health is:
- Poor Very Good
- Fair Excellent
- Good
48. How tall are you without shoes? _____feet and _____inches
49. How much do you weigh without shoes? _____pounds
50. How would you describe your current employment status?
- Full time employment (35 hours a week or more year-round)
- Part time employment
- Unemployed, actively seeking employment
- Not employed, not seeking employment (student, retired, home-maker, disabled, etc.)
51. What is your highest level of education?
- 8th grade or less Some college or technical school
- Some high school College graduate or more, such as graduate or professional degree
- High school graduate or GED certificate
52. Do you currently receive any of the following?
- SNAP (Supplemental Nutrition Assistance Program or Food Stamps)
- WIC benefits
- Government cash assistance including TANF, SSI, SSDI, or GA (but not including social security benefits)
53. How would you describe your living environment?
- I own a house I don't currently have a home
- I rent
- I rent with other members of my family

Thank you for taking the time to complete the survey.

.....

If you would like to participate in the drawing to win a \$25 gift card please provide your name and email or phone number to be contacted if your name is drawn:

Name: _____

Email: _____ or Phone Number: _____

Appendix G

Script:

Hello. My name is Dominique Rose and I am a graduate student at Southern Illinois University-Carbondale and I am conducting a study of the current trends of the Link Up Illinois Double Value SNAP Nutrition Incentives Program and the administrative scope of the program.

Would you like to hear more information about what the project entails and how it will be conducted?

If no: Thank you for your time, have a great day!

If yes: Great! For this research project, participants have to be 18 or over. Are you at least 18?

If no: Unfortunately, you do not qualify for this research project. I apologize for any inconvenience, thank you for your time.

If yes: Great! You will be asked a series of questions via interview format. The interview will last about an average of 45 minutes depending on your responses.

If at any time you feel uncomfortable answering a question, please say so. Participation is voluntary, and if you would like to stop the interview you can do so at any time.

All of your responses to the questions I ask will be kept confidential within reasonable limits, pseudonyms will be used to protect your identity, and only those who are directly involved in this project will have access to the data.

Would you like to interview today or schedule a time at a later day this week?

If schedule: Great, what day works best for you?

If today: Great, thank you for taking the time out today, next I would like to go over the consent form and have you sign it.

Appendix H: Qualitative Consent Form

The Perceived Nutrition Environment of SNAP, WIC, and senior citizens and the Administrative Scope of the Double Value Program

Consent to Participate in Research

I (participant), agree to participate in this research project conducted by Dominique Rose, graduate student in the department of Public Health and Recreation Professions.

I understand the purpose of this study is to determine the administrative scope of the Double Value Program in southern Illinois.

I understand my participation is strictly voluntary and may refuse to answer any question without penalty. I am also informed that my participation will last 45 minutes.

I understand that my responses to the questions will be audio/videotaped, and that these tapes will be transcribed/stored and kept for 365 days in a locked file cabinet. Afterward, these tapes will be destroyed.

I understand questions or concerns about this study are to be directed to Dominique Rose, 618-453-2777, dmarose@siu.edu or her advisor Dr. Aaron Diehr, 618-453-2777, aaron@siu.edu.

I have read the information above and any questions I asked have been answered to my satisfaction. I agree to participate in this activity and know my responses will be tape recorded. I understand a copy of this form will be made available to me for the relevant information and phone numbers.

“I agree _____ I disagree _____ to have my responses recorded on audio/video tape.”

“I agree _____ I disagree _____ that Dominique Rose may quote me in her paper”

Participant signature and date

This project has been reviewed and approved by the SIUC Human Subjects Committee. Questions concerning your rights as a participant in this research may be addressed to the Committee Chairperson, Office of Sponsored Projects Administration, SIUC, Carbondale, IL 62901-4709. Phone (618 453 4533. Email: siuhsc@siu.edu.

Appendix I: Qualitative Interview Questions

Interview Questions:

1. What are the demographics of the individuals you serve through your agency in terms of race, age, family size, education level?
2. How do people typically find out about the Double Value Coupon Program (DVCP)?
 - a. Roughly what proportion of people come in and mention it to you vs. those who first learn about the program through your agency?
 - b. For individuals who had not heard of the program prior to meeting with you, what sorts of issues do they discuss with you that might make you think they would be a good “fit” for the DVCP?
3. What are the demographics of individuals who seek out information about the DVCP? (Probing: Do they come from certain areas of town/the county? Do they share any particular demographic characteristics?)
 - a. Are there any key demographic segments of the population your agency serves that you think might not be adequately seeking out and/or receiving the benefits of the DVCP?
 - b. (If “yes”) Why do you think that disparity might exist?
 - c. Are there individuals you think are receiving DVCP benefits but not *redeeming* them adequately?
 - d. (If “yes”) What issues do you think might exist that would make it difficult for individuals to redeem their coupons?
4. In what ways does your organization promote the DVCP? You can speak to word-of-mouth, advertising, and any other sorts of methods or materials you might use.
5. What do you think are some of the barriers to exposure and/or expanding the reach of the DVCP throughout Southern Illinois?
 - a. What do you think would be the best way(s) to reduce those barriers and better market the DVCP?
6. Speaking now on overall community health, what specific ways do you feel that the DVCP “fills a gap” to improve the community nutrition environment?
 - a. (If the answer is “none” or “it doesn’t”) Why do you feel that it doesn’t improve the community nutrition environment? Specifically, what areas do you feel are ineffective?
7. What community or state partnerships do you feel are necessary to improve the community nutrition environment for disparate communities or populations?
 - a. Are any of these partnerships currently established? If so, which ones? If not, why do you think they have not yet been established?
8. Finally, what do you think might be some ways both to *improve* and to *sustain* the DVCP?
9. Do you have any further insight you would like to provide either about the overall community nutrition environment in Southern Illinois or about the DVCP?

Thank you for taking the time to assist me in this research. If you have any questions please feel free to contact me or my advisor listed on the consent form.