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Resources Enabled to Assist the Community and Hunger (REACH): A Community Food Security Needs Assessment

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Abstract Food security is an indicator of a town's vitality. Northern Illinois Food Bank**,** Northern Illinois University, and the rural town of of Rochelle, saw a need to identify what the current food security status was to help bridge gaps for the underserved. The purpose of this community food security needs assessment was to determine (1) the perceptions of food security, (2) awareness of existing resources available to the underserved, (3) how well these resources were able to serve those in need, and (4) if there was a need to strengthen current resources. Additionally, perceived barriers to food security related to the accessibility, availability, and affordability of food were also addressed. This mixed-methods design used focus groups and surveys. Key stakeholders, gatekeepers, and community residents were targeted for various sampling methods. The focus group data was analyzed using Krueger's Methodology. Survey data used descriptive statistics to summarize demographic variables. Cronbach's alpha coefficient was used to test the internal consistency of self-efficacy items, and crosstab analysis by Pearson's chi-square test examined associations among categorical variables. Multinomial logistic regression was used to test the association between perception of barriers and motivators and age, gender, education level, employment status and number of children in household. Multiple linear regression was used to detect associations between risk factors and self-efficacy. Life skills are a necessity to this community in overcoming food insecurity. Self-efficacy was compromised related to eating healthier; however, there was an evident desire to receive nutrition education. Community members would like to see more programs and services offered in addition to food assistance programs, such as job and life skills training, and perhaps all located in the same place that is easily accessible for community members. Implications for future research and community collaborations derived from this community-based participatory research process are discussed.

Keywords: *food security, affordability, availability, accessibility, needs assessment*

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1. Introduction

Food insecurity is defined as "the uncertain availability of nutritionally adequate and safe foods, or limited ability to acquire food in socially acceptable ways" [1]. According to the United States Department of Agriculture (USDA), 14.3% of U.S. households and 20% of U.S. households with children were food insecure in 2013 [2]. This translates to 49.1 million households that experienced limited or uncertain availability of nutritionally adequate foods at some time during the year because of insufficient money or other resources. Food insecurity is dynamic as it has biopsychosocial impacts on individuals. Food insecurity has been linked with adverse health outcomes including developmental delays, higher anxiety and aggression in children, malnutrition, chronic disease, maternal obesity, poor maternal mental status, and depression [3]. The U.S. economic and healthcare systems are negatively impacted by food insecurity as poor health status can translate to more sick days, lower productivity, lower human capital and increases in health care utilization [3].

Maslow's Hierarchy of Needs identifies that basic needs (food, shelter, water) serve as the foundation of personal and exponential growth (self-fulfillment) [4]. Maslow stated that people are self- motivated to achieve certain needs, however, it's only when one need is fulfilled that a person seeks to fulfill the next one [4]. Thus, at the physiological level, a lack of food and constant hunger can negatively impact an individual's growth and stability and ultimately impact his or her ability to achieve the next level of safety. Within safety, one can achieve security of job and resources. This

hierarchy influences one's ability to break the cycle of poverty, or remain in the cycle.

Based on Maslow's Hierarchy theoretical interpretation, it would appear that food insecurity is best ameliorated by providing food to those in time of need. As a result, the primary, historical, goal of food banks and pantries has been to gather and distribute emergency food [3,5]. This traditional emergency food system helps to provide sustenance in the short term. However, evidence identifies that long term reliance on this system is becoming more evident [3,5] and inhibiting individuals to achieve Maslow's idea of self-actualization. Although food pantries were initially started as "emergency food programs" to address an acute food need, the longevity and growth of food pantries represents an institutionalization of these programs as a response to hunger. Some would argue that the role of food pantries is not to provide long-term aid, but when the "emergency" has lasted for more than three decades, it is time to examine the impact of these programs [6].

Primary factors that fuel food insecurity are complex and interrelated. In order to develop the most effective interventions and programs that address food insecurity, one must understand the root causes. Key risk factors of food insecurity are unemployment, unexpected job loss, low-paying jobs, disability, medical costs, mental health problems, ethnic minorities and immigrant households, children in households headed by single women, households with incomes below the poverty line, high energy prices, rising food costs, high neighborhood housing costs, and living in non-metropolitan or rural settings [3]. Those surviving on limited budgets must often choose between competing necessities such as paying for food, rent, and medicine [7]. Thus, a true, sustainable intervention that targets the cycle of hunger and food insecurity must ultimately target the cycle of poverty including intergenerational unemployment and welfare dependency. As a result, the analysis of food insecurity moves beyond the idea of simply providing food in time of need and captures domains that influence human behavior. These domains not only include biological and physiological, but also social and psychological [3,4].

While maintaining the necessity of federal and emergency food assistance programs along with welfare is a need, another strategy to ameliorate food insecurity is through community food security. Community food security is an expansion of the concept of household food security, concerning the social, economic, and institutional factors within a community that play a role in acquisition of nutritious foods [8]. Hamm and Bellows describe community food security as "a condition in which all community residents obtain a safe, culturally acceptable, nutritionally adequate diet through a sustainable food system that maximizes community self-reliance, social justice, and democratic decision-making" [9]. Community food security is fundamental to the general health and wellbeing of its residents. According to the USDA, a community food security assessment can provide insight into the needs, challenges, and resources available to build stronger and healthier communities [8]. Northern Illinois Food Bank believes in the utility of a community food security assessment to fuel a systematic approach to alleviating food insecurity.

Northern Illinois Food Bank services 13 counties by providing nutritious meals to those in need through innovative programs and partnerships [10]. These partnerships include agencies that provide food through a variety of avenues to over 71,000 people in this region [10]. Northern Illinois Food Bank strives for food security through a systems-based approach. They not only provide access to nutritious foods via food pantries, but they also identify how basic needs are being met through the pantry system. Northern Illinois Food Bank also values community-based collaborative research with Northern Illinois University. Thus, a need was identified to understand specifically how resources related to food distribution were executed for the underserved.

Thus, the Northern Illinois Food Bank in conjunction with Northern Illinois University conducted a community food security needs assessment in a rural community. Rochelle, Illinois has a population of approximately 10,000 people, with a growing Latino population (23.5%) and estimated poverty rate of 10% of its inhabitants [11]. More striking is the percentage of children in this county living in poverty, at nearly 15% [11]. Sixty-six percent of the children enrolled in the Rochelle's elementary schools come from low-income households [12]. Many resources for individuals who are food insecure currently exist in Rochelle such as food pantries, social services, and after school food programs. The researchers' intent was to assess the current resources and to identify how gaps and services could be bridged, in order to better serve the individuals in need in their community.

The framework for this community needs assessment originated from the USDA's Community Food Security Assessment Toolkit (CFSAT) [8]. This toolkit serves as a basic guide to community assessment with standardized measurement tools and focused materials for assessing six components related to community food security. The CFSAT's six assessment components include profiling community characteristics, profiling community food resources, assessing household food security, food resource accessibility, food availability and affordability, and community food production resources [8]. Thus, this study included three of the CFSAT's assessment components related to food security along with the additional assessment methods to target the needs of this community. Through cross-sectional surveys, focus groups, and observations, assessments of the following were completed: perception of food security in this rural region, the awareness of current resources available to the underserved individuals, whether these resources work efficiently to serve those in need, and the self-efficacy of individuals who were food insecure related to feeding their families healthy meals.

Each component of the study included a theoretical framework. Theories used varied from Social Cognitive Theory (SCT) to the Health Belief Model (HBM). Specifically, self-efficacy, perceived benefits, and perceived barriers were assessed in various components of this study [13]. Theoretical constructs will be discussed within each component of the study where they were used. Self-efficacy has been shown to be a strong predictor of intention and behavior across a variety of health settings [14], and is thus integrated into many health behavior theories [13]. SCT describes self-efficacy as one's confidence in his or her abilities to perform a particular behavior despite obstacles or challenges [14]. In this study, perceived confidence in eating more healthfully was

explored. The food pantry survey addressed participants' self-efficacy in fruit and vegetable consumption, dairy consumption, and general cooking abilities. To better understand the perceived barriers to food security, research questions were framed around the need to determine residents' perceptions on the accessibility, availability, and affordability of food in their community. According to the HBM, perceived benefits describes one's opinions on the value or usefulness of adopting a particular behavior, while perceived barriers describes one's opinions on the obstacles in the way of him or her adopting a specific behavior [15]. The food pantry survey addressed top benefits and barriers to eating more healthfully, and the focus group discussions addressed perceived barriers to food security in Rochelle. The study results provide targets for future interventions to strengthen food security and nutrition education.

2. Methods

The community needs assessment consisted of a mixed methods approach comprised of three components from the CFSAT including focus group interviews, a food pantry survey, and a community survey. Each phase was approved by the University's Institutional Review Board before conducting the study.

2.1. Focus Groups

Focus group interviews with several community groups were conducted to identify current resources available for the underserved population and to determine ways to capitalize on these resources to better serve those in need. Individual focus groups were comprised of the following participants: food pantry clients, non-profit directors and board members, nonprofit volunteers, and community members. Focus group participants for these four focus groups were recruited by convenience sampling in collaboration with the Northern Illinois Food Bank**,** Northern Illinois University and two food pantries in this Rochelle. Pantry clients were asked to sign up for the focus groups when visiting the pantry for food. They were informed that participation was voluntary and would not affect whether or not they received food. The other community groups were recruited by email. Reminder phone calls were made to participants the day before focus group implementation.

Focus group scripts were developed based on the USDA CFSAT [8] along with Kreuger's focus group methodology [16]. In the planning stages of focus group development, it was anticipated a Spanish translator would be necessary. A kitchen bowl and plate were offered as an incentive to all participants. Because different community groups were used, focus group questions were tailored to the target audiences used in each group. Community groups used for the focus groups included participants such as a pastor, church member, and tri-county service provider. Core questions for food pantry clients addressed whether needs were being met in the community, what food assistance programs their families use or have used in the past, and what could be changed to improve their resources. For the other community groups, questions addressed perceptions about the availability, affordability, and accessibility of foods in the community. Questions for these focus groups addressed the perceived level of food security, the biggest challenges to attaining food security in their community, how the community was currently addressing these barriers, and how resources could be improved.

2.2. Food Pantry Survey

A cross-sectional survey of food pantry clients was conducted to determine perceived benefits and barriers to eating healthfully, how confident they felt about choosing and preparing healthy foods, and what types of nutrition education, if any, should be offered at the pantry to increase their self-efficacy towards eating more healthfully. Food pantry participants were recruited using a nonprobability convenience sample in two food pantries in Rochelle. Inclusion criteria was that the participant be 18 years or older. Participants were asked if they would like to complete the survey while waiting in line to receive food. Clients were assured that participation was completely voluntary and would not influence their ability to receive food. Components of the survey were developed through a prior research study and produced a high internal consistency for items measuring self-efficacy (alpha > .77) [17].

This survey used six items to measure self-efficacy in choosing and preparing healthy foods. The six items included a 3-point smiley-face, Likert-type response choices. Respondents chose Sure=3, Somewhat Sure=2, or Not Sure=1 about how sure they could eat nutritious foods (i.e. fruits, vegetables, dairy) at every meal, to serve their family balanced meals, and to cook with basic ingredients (i.e. raw chicken, fresh tomatoes). Responses were summed to create scores ranging from a total of 1-18, with higher scores indicating higher self-efficacy. Perceived benefits were determined by answers to "what is the top reason you want to eat more healthfully?' and perceived barriers were determined by answers to "what is the top reason you do not eat more healthfully?" Respondents were instructed to choose only one answer from a selection of answer choices (i.e. to feel better, to lose weight, so my kids and grandkids will learn to eat better, etc.).

Participants were also asked to select if they would enjoy learning about healthy eating at the pantry, if they would attend programs about healthy eating if offered at no cost, and to select the top thing they would want to learn about from a list of nutrition education topics (i.e. stretching food dollars, feeding picky children, healthy foods and nutrition, etc). Demographic information (i.e. age, gender, marital status, race, household size, highest level of education) and utilization of food assistance programs were also collected in the survey. Surveys were administered through tablets and offered in both English and Spanish using SurveyMonkey [18]. Food bank staff and university graduate assistants were available to read aloud survey questions if preferred by participants. A kitchen bowl and plate were offered as incentives for those who chose to participate.

2.3. Community Survey

A cross-sectional survey of the general community was performed to assess perception of food security in the area, awareness of existing community resources, and identified gaps where resources could be bridged.

A nonprobability convenience sample of patrons was recruited outside the Walmart Super Center and Cinco de Mayo Festival in Rochelle. Inclusion criteria were that the participant be 18 years or older. As Walmart patrons entered or exited the store, Northern Illinois University graduate students informed them about the option to participate in the survey. The survey was developed through a previous study, which included a review of literature, use of the USDA toolkit [8] and expert review and was taken via tablets using SurveyMonkey [18].

Six items measured perceptions of food security with nominal smiley-face, Likert-type response choices. Respondents answered Disagree, Neutral, or Agree about whether they can find and afford food, whether they worry about paying for or running out of food, if they know where to donate food, and if they know where to seek help in their community. The community survey also addressed demographics, utilization of food assistance programs, and preferences to receiving information about resources/ programs in their community. Surveys were administered by tablets and offered in both English and Spanish. Food bank staff and graduate assistants were available to read aloud survey questions if preferred by participants. A kitchen bowl and plate were offered as incentives for those who chose to participate.

2.4. Data Analysis

The focus group discussions were transcribed, coded, and entered into a database. The qualitative data was analyzed using Krueger's Methodology of thematic coding to identify trends in data. Survey data were analyzed using SAS version 9.2 for Windows. Significance level was set at $p<0.05$. Descriptive statistics were used to summarize demographic variables. Cronbach's alpha coefficient was used to test the internal consistency of self-efficacy items, and crosstab analysis by Pearson's chi-square test examined association among categorical variables. Multinomial logistic regression was used to test the association between perception of barrier and motivator and age, gender, education level, employment status and number of children in household. Multiple linear regression was used to detect association between risk factors and self-efficacy in choosing and preparing healthy foods.

3. Results

3.1. Focus Groups

The four focus groups (n=14) were categorized as pantry clients, nonprofit directors and board members, nonprofit staff and volunteers, and community members. The identified themes for perceived benefits and values of this particular community were family, children/youth focus, Christian-centered, unity and support of Rochelle's people, and physical location being far away from large cities. The following are some examples of focus group responses.

Community is very giving if the need is there (FP2-M)

When everyone comes together to accomplish things (FP4-F)

The Christian base, love of children, small Rochelle (FP4-F)

The accessibility, availability, and affordability of food according to focus group members were affected because of the following themes: lack of transportation to and from stores, participants stated areas of Rochelle were considered a food desert in which there was not adequate access to fresh, healthy, and affordable food, food was not available for those with special dietary needs, such as food allergies, lack of food variety, cost of foods were lower outside of Rochelle, and there was a lack of confidence with cooking healthfully.

1) Accessibility of foods in Rochelle:

But if you don't have a car and you have 2 small children it's probably not going to be that easy to get groceries. Not impossible but it's not going to be easy (FP2-F)

To get from your home to someplace such as like Walmart or Aldi because you have to go through the one main intersection. I just feel like walking there has a certain stigma to it (FP2-M)

Really just 2 small stores that are Hispanic that are walkable. Everything else you need transportation (FP4-F)

Senior center provides a bus if you call them, seniors ride for nothing or a nominal fee so they have access (FP2-F)

2) Availability of foods in Rochelle:

We have 3 grocery stores in Rochelle. (FP2-M)

Coming from a mother with a child with major food allergies we don't have a big gluten-free section in all of our stores, we have to leave Rochelle to find things. If your diet has restrictions it could pose a huge difficult for you to get food (FP2-F)

Sometimes have to drive around to get a good bargain, that's the hard thing, if you don't have a car and in poverty, can't afford to get everything at Walmart then go to Aldi. (FP4-F)

3) Affordability of foods in Rochelle:

The other two stores will price match but one you have to prove it (FP1-M)

Everyone talks about how expensive it is, especially meat. (FP1-F)

Perceptions in regards to barriers to food security were medical expenses prioritized over food expenses, SNAP (Supplemental Nutrition and Assistance Program) benefits cut and/or insufficient, lack of awareness of food insecurity in the area, unsustainable short-term options (such that food pantries supply food and clothing once or twice a month which is a short term fix for the hungry) for those in need, growing numbers of the working poor, disability/chronic illness, emotional and psychological troubles (such as pride, shame, guilt, denial, depression, stigma and/or negative judgement) related to food insecurity status.

People in a smaller community are more leery to go to a food pantry because they don't want it to get out. (FP1-F)

Her child was with her one time here and then they saw somebody else at school and they made a pact that neither of the kids would tell that they both had to come to the food pantry. And I just thought that was sad (FP1-F)

When I first started going to the pantries I would hide my face. It was embarrassing for me. Cause I'd worked all my life. My children and I would eat only macaroni

and cheese and Kool-Aid for a whole entire week. I had to let go of my pride to go to a pantry. (FP3-F)

The lack of jobs. Or maybe it's both parents work but at minimum wage. That's another thing that's bad. They can't make it with a family. (FP1-F)

They need to know how to manage their money (FP2-F)

I think the resources are available, but it may just be knowing where to get them (FP2-F)

There's a certain group falling through the cracks (FP2-F)

It was either paying your medical bill and buying medication or food (FP3-F)

At pantries fresh produce spoils because people don't take it because they aren't used to eating it. (FP4-F)

Lastly, focus group members expressed a need for youth prevention programs after school, regular community meetings to facilitate communication throughout city resources, such as through a coalition, job skills and life skills (topics mentioned included cooking, couponing, balancing check books, washing clothes, etc.) training, and located in the same place that is most easily accessible for all community members.

I would love to see employment center for job training. (FP4-F)

Knowing how to sew, read a recipe, laundry, writing a check, balancing a check book, write a resume, all those kinds of things that a life skills class would teach (FP2-F)

Empowering people to take responsibility and accountability for their own lives. (FP2-F)

Need counseling. A lot of people are depressed. None of this is coming out of churches and not coming out of community either. (FP4-F)

There's so many mentally ill people, and there's no place for them to go. (FP3-F)

Image classes that increases self-worth and through that they teach interviewing and resuming building (FP2-F)

Boy and Girls Club or a Rec center, Big Brother, Big Sister mentoring program I would love to see that type of thing here because you're either in sports or in trouble or playing video games at home (FP2-F).

3.2. Food Pantry Survey

3.2.1. Demographic Results

A total of 107 food pantry clients voluntarily completed the survey. The sample ranged from 20 to 50 years old, with a mean age of 45.9 (SD=16.4) years. The majority of participants (65.4%) were female. All demographic responses are presented in Table 1.

3.2.2. Self-efficacy Results

Responses for the three items making up the self-efficacy measure were summed to compute a score that could range from 1-18, which higher score equating to higher self-efficacy. For this sample, scores ranged from 6-18. The mean score for self-efficacy of choosing and preparing healthy foods was 14.45 (SD=1.2). The Cronbach's alpha for the three items measuring self-efficacy was α=0.74, indicating relatively high internal consistency.

Multiple linear regression analysis indicated that there was no association between self-efficacy and these risk factors (p<0.05). Self-efficacy was measured by six questions, and the percentage of those who responded that they were not at all sure or somewhat sure in their abilities is listed in Table 2.

Table 1. Demographic of Food Pantry Survey

Characteristic (n=107)	n (%)
Marriage Status	
Married	45 (42.1%)
Divorced	20 (18.7%)
Never married	17 (15.9%)
Separated	15 (14.0%)
Widowed	11 (10.3%)
Children	
No children	43 (40.2%)
One child	14 (13.1%)
Two children	22 (20.6%)
Three children	16 (15.0%)
Four or more children	11 (10.3%)
Ethnicity	
White (not Hispanic)	70 (65.4%)
Hispanic or Latino	22 (20.6%)
Black or African American	6 (5.6%)
Other	9 (8.4%)
Education	
High school diploma/GED	46 (43.0%)
Some college	32 (30.0%)
Finished grade 9-11	17 (15.9%)
Finished grade K-8	7 (6.5%)
College graduate degree	5 (4.7%)
Employment status	
Full-time	15 (14.0%)
Part-time	15 (14.0%)
Not employed (looking for work)	30 (28.0%)
Not employed (not looking for work or unable to work)	26 (24.3%)
Retired	16 (15.0%)

Table 2. Self-efficacy Results

Question (How sure are you that you can..?) (n=107)	Response (Not at all sure/somewhat sure) n (%)
Eat fruits and vegetables every day, at every meal?	46 (43.0%)
Eat fruits and vegetables as snacks?	45 (42.1%)
Fill half plate with fruits and vegetables every day, at every meal?	68 (64.6%)
Eat or drink milk or dairy products every day, at every meal?	46 (43.0%)
Cook with basic ingredients?	32 (30.0%)
Feed family balanced meals every day?	58 (54.2%)

Chi-square analysis indicated there were four main motivators to eating healthy food in this sample (P<0.0001). The top perceived benefit to eating more healthfully was to feel better (36%, n=38), followed by 'to live longer' (14%, n=15), 'to lose weight' (13%, n=14), and to prevent disease (11% n=11). The Chi-square test also revealed the top barrier to eating more healthfully was cost (68%, n=73) (P<0.0001). Foods that pantry clients wanted more available in the pantry included proteins (47%, n=49), dairy (24%, n=25), and fruits/vegetables (17%, n=18). A majority of pantry clients wanted to learn about healthy eating (78%, n=82) and preferred nutrition education during pantry hours while waiting in line for food. (p<0.001). Further analysis identified the top four nutrition education topics that clients were interested in (p<0.001) including shopping and stretching food dollars (37%, n=32), how to cook tasty, low cost food (17%,

n=15), how to feed picky eaters (15%, n=13) and learning about healthy foods and nutrition (14%, n=12).

3.3. Community Survey

3.3.1. Demographic Results

A total of 262 patrons participated in the survey outside of Walmart and the Cinco de Mayo Festival in Rochelle. The sample ranged from 18 to 89 years old, with a mean of 45 years old (SD+/-14). The majority of respondents (68%) were female. Table 3 shows all demographic and resource responses. Forty-five percent of the sample perceived they experienced low or very low food security.

Table 3. Community Survey Results: Demographic and Resource Questions

Characteristic (n=262)	n(%)
Education	
College graduate	68(26)
Some college	89(34)
High school diploma	79(30)
Grades k-11	26(10)
Employment Status	
Full-time	113(43.0)
Part-time	48(18.4)
Not employed (looking for work)	25(9.4)
Not employed (not looking for work or unable to work)	22(8.2)
Retired (still working)	10(3.7)
Retired (not working)	41(15.6)
Student	4(1.6)
Household income	
Less than $25,000	70(26.3)
$25,000-44,999	64(24.3)
$45,000-64,999	51(19.3)
$65,000-84,999	37(13.6)
$85,000 and above	43(16.5)
Family food cost (per week)	
Less than $100	71(27.1)
$100-149	100(38.2)
$150-199	63(23.9)
$200-249	15(5.6)
$250 and above	14(5.2)
Needed Assistance with these Resources - Yes	
Food	181(69.0)
Medical	105(40.0)
Utilities	102(39.0)
Money	84(32.0)

4. Discussion and Conclusion

To understand food security status and resource needs of a community, the voice of the residents must be heard. A multi-faceted approach based on the USDA Community Food Security Assessment Toolkit using focus group and survey research helped give insight to the needs and concerns of this community. Using a mixed methods approach provided a way to integrate various data collection methods to give a better understanding of the research questions [8].

4.1. Focus Groups

This rural community's core values appeared to revolve around family, children, Christ, unity of Rochelle's people, and location (away from the city). Values as such can contribute to community collaboration to enrich the community itself and improve food security status [20]. Pantry clients of this community expressed having trouble with availability, affordability, and accessibility of food in the area. Clients felt that special dietary needs were not met by food availability in this community and that some foods are much more affordable if bought outside of Rochelle. A similar finding in a focus group study in a rural community found that lack of competition in the community not only restricted access to food resources, but residents also reported higher food costs, and some felt that food quality and variety were poor at times [21]. Additionally, lack of transportation to and from stores contributed to decreased accessibility along with food deserts that reduced accessibility to fresh, healthy, and affordable food. These results are similar to another needs assessment that identified barriers to using food programs. Structured interviews revealed that clients identified barriers to using food programs as lack of transportation and the food programs having insufficient quantities of food or inconvenient operating hours, thus creating barriers to food security [22]. Based on focus group results, it also appears that community members feel that healthy foods are available, but knowledge is low on how to prepare these foods. Findings from a pantry needs assessment conducted in a nearby Rochelle identified the top two perceived barriers that prevented clients from eating healthy foods were cost and taste. A majority of the sample had interest in nutrition-education programs, especially those related to stretching food dollars, cooking tasty, low-cost food, and identifying healthy foods [23]. Additionally, in a quasi-experimental study, it was identified that self-efficacy related to serving more healthful meals with whole grains significantly increased for the group that was able to try the recipe and have the opportunity to make it at home [17]. Thus, it appears that nutrition education has a potential place in improving perceived food security status.

Community members would like to see more programs and services offered in addition to food assistance programs, such as job and life skills training, and perhaps all located in the same place that is easily accessible for all community members. Smith and Mortin [21] concluded in their focus group study with individuals who were low income was the need for supportive networks and community gardens as a way to ameliorate food insecurity. Themes in this study that influenced food access and choice included (a) personal and household determinants of food; (b) social and cultural environment; and (c) structure of place or the external environment. This evidence emphasizes the need for communities with food insecurity to move beyond providing emergency food and address the institutional and community structure to produce sustainable solutions that support food security.

Focus group results parallel a problem that existed in the city of New Hartford, Connecticut. However, through community participatory research, this problem was ameliorated [19]. A food pantry called Freshplace within the Chrysalis Center recognized underlying causes of food insecurity and developed an innovative, collaborative approach to foster food security and self-sufficiency [19]. This Food Center model, much like the research question in the current study of "Community Care Center",

targets underserved individuals by providing nutritious foods in a client choice pantry and targets other aspects of basic needs and empowerment including Cooking Matters(C) cooking classes, job skills training, nutrition education and counselling, and referral services under the guidance of a project manager [19]. They engage in community-based participatory research to provide evidenced based outcomes of the program. Their goal is to build long-term food security and self-sufficiency, which is defined as holding a paying job or being in a state of well-being, with limited reliance on welfare benefits [19]. Thus, it appears an evidenced-based model has been created that could not only be replicated to improve food insecurity in Rochelle but many other towns with similar issues.

4.2. Food Pantry Survey

Based on the food pantry survey, the perception of pantry clients revealed they feel compromised in self-efficacy related to dairy, fruit and vegetable consumption. The items that showed the highest compromised self-efficacy level was related to the following items "Fill half plate with f/v every day, at every meal?" and "feed family balanced meals everyday". Self-efficacy has been shown to be a predictor to successful behavior change and maintenance of healthful behaviors by creating the intention to make the change [24]. The Freshplace program goal, as mentioned above, is to help individuals set small, achievable goals for behavior change that, when accomplished, will improve their confidence in coping not only with nutrition in general, but all basic needs. This model alludes to the idea of improving self-efficacy to create confidence in achieving a health behavior. Members of this program can participate in a 6-week cooking classes, use computers to search for jobs and work on resumes, and consult with dietitians, who provide nutrition education on site [6]. This model provides a framework for addressing the compromised self-efficacy levels in the current population.

Additionally, pantry clients overwhelmingly showed a willingness to learn about healthy eating. Stages of Change theoretical model is used in Freshplace and identifies that those showing willingness to learn, are at an appropriate stage to process information that ultimately can lead to successful behavior change [6]. Specifically, the top topic chosen most was "shopping and stretching food dollars". This parallels a similar study conducted in another local community nearby [17]. When cost is a perceived barrier to eating healthier, individuals are less likely to participate in healthful behavior change related to eating [23]. There lies an opportunity to help Rochelle food pantry clients choose, prepare and eat more healthfully by having nutrition education available to them at the pantries during pantry hours.

4.3. Community Survey

This survey that was implemented at the local Wal-Mart and Cinco De Mayo festival included a majority of female participants with income levels $44,999 and below, working full time or part time, and having a college degree or some college experience (Table 3). This is somewhat reflective of a typical Wal-Mart patron being a white, 50-year-old female with an annual household income of $53,125 [25]. Food security status proved to be compromised based on responses to the USDA's food security status items. This is similar to many rural communities [3]. Of special note, the community that now houses Freshplace had identified compromised food security status as a reason to develop an innovative food pantry that moves beyond just providing emergency food [6]. Eighty-five percent of their sample (n=118) perceived they were food insecure based on the USDA Food Security Module (reference) whereas this sample (n=262) identified 45% of the sample perceiving they were very low or low food insecure. The differences are perhaps related to annual income (34% below the poverty level for Freshplace participants) and also geographic location (rural versus inner city). Three months post initiation of Freshplace, the sample (n=81) showed significant difference in changes in food security scores overtime, with Freshplace members improving scores compared to the control group. Their community, research based participatory program is proving to build long-term food security and self-sufficiency [6] using a model that moves beyond food as a temporary "fix".

Residents from this Rochelle are seeking help for assistance with the top categories selected being food, followed by medical expenses, utilities, and then money. This is logical with those living in poverty and using food pantries. One study revealed that a third of chronically ill adults cannot afford both food and medicine, thus, creating circumstances that require "trade-offs" in deciding whether to purchase medicine or their food [26].

In this particular community, participants felt somewhat confident about where to seek out food assistance. However, food security status can better be addressed by providing assistance beyond food, to better meet the needs of the community [7].

5. Limitations

The convenience sampling strategy was used as a data collection method and thus a limitation included a sampling bias that may affect the generalizability of the results. Although efforts were made to get a representative sample in all mixed methods approach (reaching out to the Cinco De Mayo Festival), the Hispanic community was underrepresented. The second limitation was the study was cross-sectional rather than longitudinal in approach due to time and financial constraints.

6. Conclusions

The original research questions emphasized identifying food security status and benefits and barriers to eating more healthfully. In this rural town, perceived food insecurity did exist. However, the mixed methods approach revealed that community members feel that life skills are a necessity to this community in overcoming food insecurity. Self-efficacy was compromised related to eating healthier; however, there was an evident willingness in wanting nutrition education. An observation made by the researchers was that this community exemplified a willingness overall to assist in the research with the end goal to improve community resources which reflected the values brought forth in the focus groups.

Community members would like to see more programs and services offered in addition to food assistance programs, such as job skills and life skills training, and perhaps all located in the same place that is easily accessible for all community members. This model is seen in FreshPlace. As stated about the FreshPlace program: *The Freshplace community–university partnership recognizes that it takes more than food to end hunger—it requires addressing the many underlying issues of poverty that impact a family's ability to access enough food. Freshplace is changing the conversation about hunger from simply providing food to providing case management, referrals, and linkages to other programs to address the multifaceted causes of hunger [6]*. The ideal intervention to assist not only in food security status, but moving towards self-sufficiency for this community will include not only addressing food needs, but also all basic and social needs like the Freshplace model.

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Statement of Competing Interests

The authors have no competing interests.

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