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Measuring Food Insecurity and the Effectiveness of Food Assistance among Female Food Bank Recipients: A Case Study of Opportunity Junction in Contra Costa County

Ernesto A. Lara

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Running Title: Food Insecurity and Effectiveness Among Female Food Bank Recipients

Measuring Food Insecurity and the Effectiveness of Food Assistance
among Female Food Bank Recipients:

A Case Study of Opportunity Junction in Contra Costa County

Submitted by

Ernesto A. Lara

For

EMPA 396 Graduate Research Project in Public Management

Golden Gate University

San Francisco, California

Faculty Advisors

Dr. Joaquin Gonzalez and

Dr. Mick McGee

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ABSTRACT

Food Assistance and Nutrition Programs are designed to provide support to obtain food and promote healthy eating habits for those who fall below the poverty line. This study examined the effectiveness of one program and measured the food insecurities of its female recipients at Food Bank at Opportunity Junction in Contra Costa County. The study also measured change in the nutrition and eating habits of its recipients. Data was collected from Opportunity Junction food bank recipients from questionnaires given during the recipients' 12 week program and focus group interviews. A review of the relevant literature analyzed similar studies of food insecurities and food bank programs and compared and contrasted their findings. The results of this study also provided public policy recommendations for food banks and other nutritional programs to help alleviate food insecurities.

The researcher of this study has volunteered over 100 hours in the Food Bank program at Opportunity Junction over the course of two years. A family member of the researcher was also a recipient of the Food Bank program at Opportunity Junction in 2013 and the family member has since graduated the program and was not part of the study. With this full disclosure of information, the researcher has conducted unbiased and objective research.

Chapter 1: Introduction

In the United States, 1 in 6 people struggle with hunger (Feeding America, 2014). The ratio remains the same in California, where an estimated 6 million people in the state struggle to access nutrition and adequate amounts of food to maintain a healthy lifestyle (Feeding America, 2014). Not surprisingly, women and children account for a majority of recipients of Food Assistance and nutrition programs both statewide and nationally. The National School Lunch Program (NSLP) provides nutritionally balanced meals to more than 31 million children each day (Food and Nutrition Services, 2012). Despite these efforts to feed the poor, food insecurity and obesity remains a serious problem in the United States.

What is Food Insecurity?

Food Insecurity is defined as “the lack of availability of nutritionally adequate and safe foods, or the lack of ability to acquire acceptable foods in a socially acceptable way” (Neter, J., 2014, pg. 2). Food insecurity has also been associated with unfavorable food choices and less healthy diet which includes a lower intake of fruits and vegetables (Neter, 2014, pg. 2). Conversely, Food security is the availability of nutritious foods and the ability to procure them.

This paper measured the food insecurities of female food bank recipients at Opportunity Junction and examined the effectiveness of food assistance by the food bank. The study included analysis to determine any significant changes in the nutrition and eating habit of its recipients and determined if the food assistance by the food bank is beneficial to the nutritional health of its recipients. The study also analyzed recipient’s views on expired foods and any changes in their views of expired food as socially acceptable.

The purpose of this study was to determine the prevalence of food insecurities of female recipients of the food bank at Opportunity Junction. The findings may or may not have supported recent studies conducted on food banks and food insecurity. The study also measured the tolerance level of recipients' consumption of expired foods. Public health officials and nutritionist were used as key informants for interviews and expert knowledge on the safety of food at the food bank.

Research Question

The research questioned in this study was: Have the recipients of Food Bank at Opportunity Junction changed their nutrition and eating habits after receiving food from the Food Bank of Contra Costa? This question derived from the assumptions and previous studies on food banks that food bank recipients are food insecure. This question assumed that food bank recipients have poor nutrition and eating habits, and suffer from obesity. As a volunteer for the food bank for over 2 years, I have observed behavior in nutrition and food choices that have led me to ask the question if the food bank is contributing to healthy eating habits or contributing to obesity and food insecurity.

Research Hypothesis

The research hypothesis for this study was: Recipients of Food Bank at Opportunity Junction changed their nutrition and eating habits after receiving food from the Food Bank of Contra Costa. Change can be measured in either a positive or negative direction. Is the food bank changing the recipient's nutrition and eating habits in a positive or negative way? Is the food bank working to help alleviate food insecurities or is the healthy food from the food bank being thrown away? The current level of obesity among female food pantry recipients has led the

investigation of this study to determine if the food bank program is working or if nutritional education programs are needed in conjunction with the food bank.

The study measured the behavior and habits of food bank recipients at Opportunity Junction in order to determine the effectiveness of the food bank program at Opportunity Junction. The study shows whether food assistance programs are an effective tool in combating food insecurities. This study also revealed how often recipients do not use food issued to them from the food bank and looks at other causal relations between education, diet, and other behavioral and healthy habits. The findings of this study included public policy recommendations for other public agencies and will be provided to key decision-makers in Contra Costa County to evaluate food and nutrition programs and food banks.

Criticism of Food Bank Programs

Early critics of food banks argued that they provided insufficient nutrition with their food items such as canned goods that contained high sugar/high salt content (Cortuga & Beebe, 2002). However, many food banks began to turn away from canned foods and food drives and have drawn on the assistance of nutritionists to run clients through workshops on buying food, planning, and making meals (Schram, 1996). Food banks in Minnesota and New York began implementing their own nutrition programs such as the Expanded Food and Nutrition and Education Program (Schram, 1996). Critics argue that the privatization of food nutrition programs coupled with a decrease in funding of public food programs pose significant health risks to the poor including obesity, food insecurity, and malnutrition (Schram, 1996).

Chapter 2: Review of Literature

A review of the academic and scholarly literature on food banks has reoccurring themes of food insecurities, nutrition, obesity, and effectiveness of food assistance at food banks. A majority of academic work set out to discredit food banks as inefficient, unreliable, and unable to support a nutritional food program. Many scholars also look at the underlying themes of race, class, gender, and politics.

In *Diet Quality is Low among Female Food Pantry Clients in Eastern Alabama* (2009), authors Duffy (PhD), Zizza (RD, PhD), and Tayle (PhD) conduct a cross sectional study on female food pantry recipients in Lee County, Alabama. This study is important for the purposes of this paper for its participants come from similar socio-economic backgrounds and are female food bank recipients who will be studied in a one county jurisdiction.

The main outcome of the Lee County, Alabama study measures diet quality, adult obesity, and household food security (Duffy, et al. 2009). The results revealed that diet quality of the women was generally poor and found a correlation between poor diet quality, low education levels, and smoking cigarettes. The study concluded that food pantry clients have characteristically high levels of food insecurity, obesity, and poor diet quality (Duffy, et al, 2009). The study recommended increased efforts to improve nutrition education and outreach.

Similarly, a recent Dutch public health study also found a high prevalence of food insecurity among food bank recipients in *Food Insecurity among Dutch Food Bank Recipients: A Cross Sectional Study* (2014). Authors Neter, Dijkstra, Vissler and Bouwer concluded that in their discovery of high prevalence of food insecurities among food bank recipients they identified subgroups with increased risks (Neter, et al, 2014). These at risk subgroups included

women, those with low education levels, and households with children (Neter et al, 2014). The study included a questionnaire and interviews. The authors also concluded that more research is needed on the underlying determinants of food insecurity and the effectiveness of food assistance by food banks (Neter, et al, 2014). This study is important for the study of female food clients at Opportunity Junction in that the research methodology will be used for point of reference.

Measuring the effectiveness of food banks was conducted In *A Qualitative Study of Nutrition-Based Initiatives at Selected Food Banks in the Food Banks in the Feeding America Networks* (2013). Authors Handforth, Hennink and Schwartz conduct qualitative research to reveal how “some food banks are effectively altering their operational strategies to address concerns about poor nutrition” (Handforth, Hennink & Swartz, 2013, pg 414). The independent variable and the focus of study is the Feeding America Food Banks. The dependent variable is “effectively altering their operational strategies to address concerns about poor nutrition” (Handforth et al., 2013 pg 414). The research method included recruiting 49 food banks (selected purposively) based on their use of nutrition based initiatives, variations on size, and geographical location (Handforth et al., 2013). Semi-structured interviews with management personnel from the selected Feeding America food banks were conducted and interview recipients were given a \$25 gift card (Handforth et al., 2013). There appears to be a bias in the selection process of the food banks. Rather than randomly selecting food banks with (or without) nutrition based initiatives, the study “selected purposively” its interview recipients (Handforth et al., 2013). Also, most of the interview recipients were management personnel and policy implementers who were proponents of nutrition based initiatives (Handforth et al., 2013). Many of the nutrition based initiatives from the food banks included a “no soda, no candy” distribution policy and an increase in fresh produce as a replacement (Handforth et al., 2013).

The study concluded that more research is needed including those studies that can assess whether recipients of the food bank, who no longer obtain soda and candy from food pantries, purchase replacements or just decrease their consumption (Handforth et al., 2013). This article also referenced a study that surveyed recipients of the Central New York Food Bank and the recipients' preference to receive meat, poultry, fish, vegetables, and fruit instead of soda, candy, and snack foods (Handforth et al., 2013, pg. 411). This reference and study is closely related to Food Bank of Contra Costa and the effectiveness of food assistance.

Chapter 3: Research Methods

Research Design

The research design is a qualitative case study. The purpose was to examine in greater depth the issue of food insecurity among food bank recipients and the effectiveness of the food assistance program in Contra Costa County. The researcher observed and studied the behavior and nutrition habits of food bank recipients at Opportunity Junction, a non-profit organization that fights poverty by helping low income Contra Costa County residents gain the skills and confidence to support themselves and their families (Opportunity Junction, 2014). The researcher measured obesity, food insecurity, nutrition and diets of Opportunity Junction clients. The focus was on the current 22 recipients of the food bank program at Opportunity Junction. The methods of collecting data included a questionnaire with nineteen multiple choice questions using Likert scales for analysis and evaluation. The rating scales were used to measure client behaviors, attitudes, and other phenomenon related to nutrition and health. Other methods of collecting data included key informant interviews of recipients, food bank staff and nutrition and public health experts. The methods of data analysis included the interpretation of data to find the prevalence and associations related to food distribution, obesity and food insecurity.

Research Questions and sub-questions

The main research question for this study was: Have the recipients of Food Bank at Opportunity Junction changed their nutrition and eating habits after receiving food from the Food Bank of Contra Costa? The sub-questions examined in this study include:

- (1) Is the food bank changing the recipient's nutrition and eating habits in a positive or negative way?
- (2) What is the prevalence of obesity in the recipients?
- (3) What is the impact and association between smoking, education and poor nutrition?
- (4) Is the food bank working to help alleviate food insecurities or is the healthy food from the food bank being thrown away?
- (5) What is the prevalence of discarding food from the food bank?
- (6) Has the level of tolerance changed on eating expired foods?

This qualitative case study provided responses to the research question and sub-questions using a survey and interview questions of opportunity junctions clients and key informants and discovered the prevalence of poor eating and nutrition habits, obesity, and food insecurity.

Research Hypothesis

Recipients of the food bank at Opportunity Junction changed their nutrition and eating habits after receiving food from the food bank. The research approach used a questionnaire with Likert scales to determine the level of change to nutrition and eating habits. The rating scale went from "Not Changed at All" to "Completely Changed" with varied degrees of "Not Changed" and "Changed" including "Neutral". For questions related to food security and health the Likert scale ranges from "Not Satisfied at All" to "Completely Satisfied" and "Not Healthy at All" to "Very Healthy". Questions related to expired and discarded foods range from "Never", "Occasionally" and "Always" with "Rarely" and "Sometimes" for variants in degrees.

Dependent and Independent Variables

The food bank recipients are the dependent variables. The independent variables are the food bank and other nutrition programs, frequency of food distribution, attendance in the program, and other program elements. The impact of the variables determines the program success and effectiveness for the purposes of this study. The examinations of both dependent and independent variables were used to determine associations and impacts between recipients and the food bank program.

Controlling for Threats to Internal and External Validity

Recipients receiving other public food assistance pose a threat to internal validity. The recipients of Food Bank at Opportunity Junction may also be recipients of other public assistance food nutrition programs such as WIC and CalFresh. It will be important to determine if the Food Bank program is changing nutrition and eating habits of its recipients or are the other government assistance food nutrition programs also having influence. In the data collection process, supplemental interview questions will be used to determine which recipients receive other food assistance benefits. This data will be used to cross tabulate research findings.

External validity

The research should have external validity with other non-profit feeding programs. The results and conclusions could also be applied to other non-profit feeding programs. The research was conducted in a real-life setting, and the results could be applied to other real –world context (i.e. other food bank programs). The survey and interviews used a representative sample of food bank recipients. Based on previous food bank studies, the representative sample consisted mainly

of low-income, women of color. The results from this representative sample could be used in other jurisdictions where the representative samples are primarily low income women of color. A replication in a different context will also provide that the conclusion has validity as in the case of Diet Quality is Low Among Female Food Pantry Clients in Eastern Alabama (2009). The representative sample in this study was also primarily low income women of color.

Data Collection

Primary data was collected using a survey questionnaire (see Appendix A) and conducting key informant interviews. The questionnaire consisted of 19 multiple choice questions and was designed to be completed in 10 minutes. Fifteen structured interviews (see Appendix B) were completed with key informants including Eva Chan, Public Health Nutritionist and Gloria Dern, Public Health Nurse. The key informant interviews were completed after the survey questionnaire data was collected and provided supplementary data to the study.

Twenty-two recipients of the food bank at Opportunity Junction were given the questionnaire on January 30, 2015. All twenty-two recipients completed the survey and returned the questionnaire to the researcher. The recipients were recent graduates and interns of Opportunity Junctions' job placement program. The recipients were all women, unemployed, and low income. This group was selected specifically to measure food insecurities because this population has historically and in recent studies shown a disproportionate number and prevalence of food insecurity. The survey questions were designed using the model provided by the 2014 Dutch study Food Insecurity Among Dutch Food Bank Recipients: a cross sectional study. Survey question from the Dutch study were redesigned to measure the prevalence of food

insecurity of food bank recipients at Opportunity Junction. Age, height, and weight questions were also calculated to determine Body Mass Index (BMI) and level of obesity. Two survey questions regarding smoking habits and education also draw from the study Diet Quality is Low Among Female Food Pantry Clients in Eastern Alabama (2009). The relevance of these questions determined a relationship between smoking, low education level and poor diet quality.

Supplemental key informant information was collected using structured interviews of food bank recipients and Opportunity Junction management staff. Public health and nutrition experts were also interviewed as key informants to answer questions regarding diet quality, health, nutrition, and food insecurity.

Operational Definitions

Recipients of the Food Bank of Contra Costa at Opportunity Junction: refers to low income Contra Costa County female residents enrolled in the Opportunity Junction job training program in Antioch, CA. The maximum number of participants enrolled is 23 adults per class and each class last approximately 7 months (Freidman, 2014). There can also be 13-20 interns enrolled concurrently for a maximum total of 43 recipients at any given time (Freidman, 2014). All participants in the Opportunity Junction program automatically qualify to receive food from the Food Bank of Contra Costa once a week (Freidman, 2014).

Low income refers to those individuals and families that fall below the federal poverty level approx. \$23,000 for a family of four. (U.S. Department of Health and Human Services, 2014).

Opportunity Junction is a non-profit job training and job placement program located at 3102 Delta Fair Blvd, Antioch, CA and was founded in 1999.

Food from the Food Bank of Contra Costa consists of food items such as fruits, vegetables, whole grain breads, proteins and dairy that is delivered weekly to Opportunity Junction (Friedman, 2014). Soda and sugary foods with no nutritional value are excluded from the Food Bank, Opportunity Junction and its recipients (Center for Weight and Health, 2011).

Nutrition and eating habits will be defined as follows:

Nutrition and eating habits will be defined as the behavior of healthy or unhealthy eating purchases. Healthy eating habits refers to purchasing nutritious foods such as fruits, vegetables, grains, proteins and dairy and as outlined by the new federal Choose My Plate eating guidelines that has replaced the Food Pyramid by the United States Department of Agriculture (United States Department of Agriculture, 2014). Unhealthy eating purchases will defined as eating/purchasing sugary foods and snacks with no nutritional value. Shopping habits will be defined as the behavior of purposefully buying healthy nutritious foods.

For the purposes of this study, a *change in nutrition and eating habits* represented the percentage those recipients who answered “changed” or “completely changed” on the questionnaire.

Outdated Terminology

For the purposes of this paper, the terms “food stamps and food vouchers” will not be used. These terms are dated and the currency of food stamps and vouchers are no longer in use (Osborne & Plastrik, 2000). Some of the previous research on Food and Nutrition programs utilize these terms and also refer to past program policies such as Aid to Families with Dependent Children (AFDC), the federal assistance program that ended in 1996 (Rushefsky, 2008).

Chapter 4: Results and Findings

The research question examined was: Have the recipients of Food Bank at Opportunity Junction changed their nutrition and eating habits after receiving food from the Food Bank of Contra Costa? The research hypothesis was: Recipients of the food bank changed their nutrition and eating habits after receiving food from the food bank. The preliminary results and finding revealed that the recipients have not changed their nutrition and eating habits after receiving food from the food bank and that there is a significant prevalence of obesity and food insecurity among the recipients. Furthermore, the results and findings uncover a relationship between smoking and diet.

The preliminary results and finding were based on a survey given to 23 recipients of Food Bank at Opportunity Junction. The survey data consisted of 19 questions and each questions raw data was analyzed and the results were provided below. Supplemental interview questions were provided by key informants and the literature review was also re-examined to provide links and analysis of the preliminary data.

Survey Data

Question 1: How satisfied are you with the quality of food from the food bank?

Completely Satisfied	Satisfied	Neutral	Unsatisfied	Completely Unsatisfied
7	3	12	0	0

N=22

The raw data reveals that 10 recipients were satisfied or completely satisfied with the quality of food from the food bank. However, over half of the recipients surveyed (12 out of 22)

found the quality of food to be “Neutral”. Over half of the recipients may have chosen “Neutral” perhaps because they did not want to show disfavor with the quality of food and “bite the hand that feeds them”. One respondent crossed out the word “Neutral” on survey question #1 and wrote in “Somewhat Satisfied” indicating a more descriptive response. Zero recipients surveyed were unsatisfied with the quality of food. Supplemental interview question #1 asked the recipients to describe the quality of food from the food bank.

Question 2: How satisfied are you with the healthiness of the food from the Food Bank?

Completely Satisfied	Satisfied	Neutral	Unsatisfied	Completely Unsatisfied
10	9	2	1	0

N=22

The raw data shows that 19 out of 22 surveyed were satisfied or completely satisfied with the healthiness of the food from the food bank. This differs greatly from question one response where only 10 respondents were satisfied with the quality of food. The respondents make a clear distinction and understanding between “quality” satisfaction and “healthiness” satisfaction of food. Quality may very well be a “preference” towards name brands or recognizable comfort foods where “healthy” is universally understood as nutritious foods. Two respondents were neutral and one respondent was unsatisfied with the healthiness of the food. Supplemental interview question #2 asked what the respondents what they consider to be healthy eating.

Question 3: Prior to beginning the program at Opportunity Junction, how healthy would you consider your eating habits?

Completely Unhealthy	Unhealthy	Neutral	Healthy	Very Healthy
0	3	13	3	3

N=22

Similar to question # 1, over half of respondents 13/22 considered their eating habits “Neutral” prior to beginning the program at Opportunity Junction. A “neutral” response can be translated to mean either “Somewhat healthy” or “Somewhat unhealthy”. Whereas in question #2, respondents were overwhelmingly satisfied with the healthiness of the food, a majority of respondents in question #3 could not commit to answering the healthiness of their eating habits prior to starting the program. Although 3 respondents considered their eating habits unhealthy and (6 out of 22) or 27% considered their eating habits healthy very healthy.

Question 4: Prior to beginning the program at Opportunity Junction, how often did you use food beyond the expiration date?

Never	Rarely	Occasionally	Almost Always	Always
6	8	6	0	2

N=22

Raw data for question #4 showed no majority of respondents using food beyond the expiration date. With 8 out of 22 respondents answered “rarely” and 6 answered “never”. These two categories make up 14 respondents who did not use or rarely used food beyond the expiration point. Six respondents occasionally used food beyond the expiration point and 2 claimed to always use food beyond the expiration point. Question 4 will be reevaluated and compared to Question 8.

Question 5: How has receiving food from the food bank changed or not changed your eating habits?

Completely Unchanged	Unchanged	Neutral	Changed	Completely Changed
0	7	6	9	0

N=22

Nine out of 22 respondents or approximately 40% of respondents revealed that the food bank has changed their eating habits. Another 6 respondents answered neutral and 7 respondents answered unchanged. Taking the “neutral” respondents once again reveals neither an inclination towards change or unchanged and those respondents who may not want to favor on side or the other. In this instance, neutral may signify content with their eating habits.

Question 6: How has receiving food from the food bank changed or not changed your food nutrition and meal planning?

Completely Unchanged	Unchanged	Neutral	Changed	Completely Changed
1	5	9	5	2

N=22

Nine out of 22 respondents (or 40%) answered “Neutral” in change/no change in food nutrition and meal planning. Six respondents answered unchanged and 7 respondents answered changed to some degree. Responses again appear to be across the scale with the cluster around neutral. This clustering of behavior around neutral is a sociological phenomenon described by Sanford Schram in his chapter Suffer in Silence (Schram, 1995). Schram argues that research

data from poor people can produce neutral information on their behavior which may generate data that can be appropriated for various political ends and not taking to account for the broader political-economics context of this behavior (Schram, 1995). Supplemental Interview question #3 further analyzed how if any change in nutrition and eating habits had occurred.

Question 7: Now that you have almost completed the program, how healthy would you consider your eating habits?

Completely Unhealthy	Unhealthy	Neutral	Healthy	Very Healthy
0	1	7	13	1

N=22

A majority of participants (14 out of 22) considered themselves to now have healthy or very healthy eating habits after completing the program at Opportunity Junction. This differs from Question #3 where prior to beginning the program, only (6 out 22) considered their eating habits healthy or very healthy. Seven out of 22 participants were neutral where in Question #3, (13 out of 22) participants were neutral a drop in number of 6 participants. This indicates a change of 8 participants who now considered their eating habits as healthy. Only one participant now considers themselves to have unhealthy eating habits as oppose to 3 participants prior to beginning the program.

Question 8: Now that you have almost completed the program, how often do you use food beyond the expiration date?

Never	Rarely	Occasionally/ Sometimes	Almost Always	Always
2	6	12	2	0

N=22

Raw data showed that over half of respondents (12 out of 22) occasionally or sometimes use food beyond the expiration date. This number is a double increase from 6 respondents who prior to using the program used food beyond the expiration date. Also the number of participants who never used food beyond the expiration date dropped from 6 to 2. This data shows a trend towards using food beyond the expiration date as socially acceptable.

Question 9: How often have you thrown away food from the food bank?

Never	Rarely	Occasionally/ Sometimes	Almost Always	Always
6	5	8	3	0

N=22

The raw data shows that half of respondents (11 out of 22) never or rarely throw away food from the food bank. While 8 out of 22 respondents occasionally or sometimes throw away food from the food bank. Three respondents almost always throw away food from the food bank and one respondent marked “bread” next to her answer. The topic of quality bread will be discussed by the public health nutritionist during the key informant interviews.

Question 10: How often do you smoke cigarettes, e-cigarettes, vapor pens or other smoking devices?

Never	Rarely	Occasionally/ Sometimes	Daily	Several times a day
13	3	3	3	0

N=22

Over half of the respondents (13 out of 22) reportedly never smoked. This number may demonstrate that California education and ban on smoking in public spaces is working. For those participants who smoked rarely, occasionally or daily (9 out of 22) further analysis will be revealed during the discussion on race and education levels.

Question 11: How often did you eat fruits and vegetables prior to starting Opportunity Junction?

Never	Rarely	Occasionally/ Sometimes	Daily	Several times a day
0	1	11	8	2

Raw data shows that half of respondents (11 out of 22) ate fruits and vegetables occasionally/sometimes prior to starting Opportunity Junction. This data shows that half of respondent were not eating the daily recommended allowance of fruits and vegetable as outlined in the federal eating guidelines Choose My Plate. This is a clear indicator of food insecurity. Conversely, (10 out of 22) respondents ate fruits and vegetable daily of several times a day which meets the federal guidelines.

Question 12: How often do you eat fruits and vegetables now?

Never	Rarely	Occasionally/ Sometimes	Daily	Several times a day
0	0	10	9	3

Raw data shows that (10 out of 22) respondents eat fruits and vegetable now as oppose to (11 out of 22) prior to starting the program. With a decrease in one, the data shows that the food bank distribution of fruits and vegetables did not have an effect on daily intake of fruits and vegetables. And that a large number of food participants (45%) are considered to be food insecure. However, the majority of participants (12 out of 22) are eating daily fruits and vegetables.

Question 13: How beneficial to your health was the food bank program to you at Opportunity Junction?

Completely Unbeneficial	Unbeneficial	Neutral	Beneficial	Very Beneficial
0	0	5	7	10

N=22

The highest number of respondents (17 out of 22) found the food bank to be beneficial or very beneficial to their health. Despite not eating fruits and vegetables on a daily basis (which may be a preference) participants found the food bank program very beneficial/beneficial. Zero participants found the program unbeneficial and 5 respondents were neutral or sufferers in silence.

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Question 14 Age:

22-25	26-30	31-39	40-55	Over 55
2	3	10	7	0

N=22

Raw data shows that 10 out of 22 participants are between the ages of 31-39. Seven out of 22 participants are age 40 and older and five participants are 30 and younger. This shows that a majority of the participants in the program are middle aged women. Age, height and weight stats will be used to determine BMI (Body Mass Index) and level of obesity.

Question 15: Height:

The heights range from 5'0 to 5'8.

Question 16: Weight:

The weights range from 130 lbs to 230 lbs.

Analysis of age, height and weight to determine BMI (CDC, 2015).

BMI Below 18.5	BMI 18.5-24.9	BMI 25.0- 29.9	BMI 30.0-34.9	BMI 35.0 +
Underweight	Normal	Overweight	Obese	Morbid Obesity
0	3	8	5	6

N=22

Half of all participants (11 out of 22) were obese or morbidly obese. While 8 participants were considered to be overweight, according to Centers for Disease Control BMI Calculator, only 3

participants came between normal weight ranges. The level of obesity is consistent with the number of participants who eat fruits and vegetables sometimes/occasionally.

Question 17: Ethnicity

Black/African American	White/European	Hispanic	Asian	Mixed Race
8	4	8	2	0

N=22

The raw data shows that 8 out of 22 respondents were African-American women. Eight out of 22 respondents were Hispanic/Latino women. Four women were white and 2 women were Asian. Therefore, for the purposes of this study, the majority (18 out of 22) respondents were women of color. When the data is cross tabulated with smoking, half of the participants who are women of color were smokers.

Question 18: Highest Level of Education

High School/GED	Some College	AA/Certificate Program	BA/BS Degree	Masters, Doctorate Degree
8	10	3	0	1

N=22

The majority of participants 10 out of 22 had attended some college but had not completed a program or degree. Eight participants had a high school/GED only with no college. Three participants claimed to have completed an AA or certificate program. And one participant

had a Masters degree. The data shows that 18 out of 22 participants had not completed a college level program or degree with 21 out 22 not completing a bachelors' degree.

Question 18: Number of Children in Household

None	1-2	3-4	5-6	6+
5	10	8	0	1

N=22

Raw Data shows that 10 household have between 1-2 children living with them. Household with 3-4 children comprise of 8 households. Thus 18 out of 22 household have between 1-4 children living with them. While only 5 household have no children and one household has 6 or more children. This data shows that a majority of households have children living with them.

Summary of Key Findings from the Survey Data

The survey data revealed that there is a prevalence of food insecurity and obesity with half of participants considered obese according to CDC guidelines and 10 out of 22 participants eating fruits and vegetables only occasionally or sometimes which is below the average set forth by USDA guidelines. The data also revealed that half of the women of color surveyed were smokers and overweight. The survey also revealed an increased tolerance towards eating food beyond the expiration date after receiving food from the food bank.

Interview Data

Question 1: Please describe the quality of food from the food bank?

Interview responses varied from fresh and natural to fair quality. Public Health Nutritionist/Dietician Eva Chan was also given a sample bag of food items from the food bank. Chan commented about the quality of the whole grain bread as an excellent choice for daily fiber intake and whole grains. She agrees that the loaves of bread were consistent with high end expensive loaves that range from \$5-7 dollars in grocery stores. Chan also noted the pending expiration date of some items. Overall, Nutritionist Chan found the food samples to contain all the basic elements of the Choose My Plate guidelines but commented that the portion size would only last several days and not sustain an individual more than a week.

An analysis of this issue of supply not meeting demand is also a recurring theme in other public health scholarly works regarding food banks. Researcher Tarasuk concluded that despite their extensive history, “food banks have limited capacity to respond to the needs of those who seek assistance” (Tarasuk, 2014). Food banks also rely heavily on volunteers and donations with available resources being exhausted to meet the clients’ needs (Tarasuk, 2014). Thus, many public health and nutrition experts agree that food assistance from food bank is unreliable and not dependable.

Question 2: What do you consider to be healthy eating?

Most respondents replied with “eating fruits and vegetables” as healthy eating. One participant replied that a variety of grains, proteins, dairy and fats make up healthy eating to her. Nutritionist Chan agreed that following the federal guidelines of Choose My Plate would be the best consideration of healthy eating. No respondents considered sugary snacks or drinks to be considered healthy eating.

Question 3: How if at all, has the food bank changed your eating habits?

Most respondents revealed that food from the food bank placed more an emphasis on eating fruits and vegetables. However, a majority of participants said that the food bank has not changed their eating habits but it has helped them with obtaining food. A few respondents said that they have tried new foods that they normally would not have tried or purchase. Most comments also were on trying new types of breads and whole grains. One respondent was very appreciative of the amount of healthy bread given out by the food bank but it has not changes her eating habits.

Question 4: What other food nutrition programs do you participate in? WIC, Cal-Fresh etc?

Out of 15 respondents' interviews, 13 have participated in other food and nutrition programs including WIC and Cal-Fresh. Two respondents indicated that they had lost their food stamps and unemployment benefits after they started Opportunity Junction.

Question 5: How if at all, have these other food and nutrition programs changed your nutrition and eating habits?

Most respondents revealed that the programs provided essential food items to themselves and their families but did not change or influence their nutrition and eating habits. The exception was the WIC program, where participants said that their newborn children's eating habits were improved upon since WIC only allows purchasing certain nutrition items for their children but this did not affect the adults eating habits.

Key Interview Findings

The major key finding is that the recipients of food bank at Opportunity Junction have not changed their nutrition and eating habits after receiving food from the food bank. While the

survey data revealed that 40% of participants are “food insecure” based on their eating habits and behavior, the interviews found all fifteen respondents were food insecure based on their responses to food. The overall consensus was that the food bank program was beneficial and helpful but had not changed the participants eating habits or behavior. Based on key informant interviews, the food bank program is ineffective at providing dependable and reliable food sources to recipients. Public Health experts also cautioned about eating expired foods and not providing monitors to review the safety of the food being received.

Chapter 5: Conclusions and Recommendations

Conclusions

Conclusion 1: The food bank program at Opportunity Junction has not been effective at lowering food insecurity or decreasing obesity. Based on the study findings, there has been no significant change in the poor nutrition and eating habits of its recipients. There results reveal that food assistance by the food bank is not beneficial to the nutritional health of its recipients. The prevalence of obesity and food security is found in 50% of recipients.

Conclusion 2: A full or part time public health nurse and/or dietician added to the staff of food bank organizations will help mitigate the problems of client food insecurity and obesity. Previous studies of nutrition-based initiatives at food banks, such as the Handforth study (2013) in the literature review, have proven that nutritionist-based programs are effective at combating food insecurity and obesity.

Conclusion 4: Educational, health and nutrition programs at food bank organizations proved increase awareness of healthy eating habits and smoking cessation. In this study, key informant interviews with Public Health nutrition experts agreed with the conclusion that there is need for food intervention, health education, and smoking cessation with food bank programs.

Conclusion 5: Anti-smoking campaigns are more effective when they are focused on middle-aged women of color who are at a higher risk of becoming smokers and overweight. The findings revealed that half the women of color surveyed were smokers and overweight with low intake of fruits and vegetables. The results also revealed that no white female participants

identified as smokers. The current anti-smoking campaigns have not been effective at targeting this minority population as it has with the general population.

Recommendations

Recommendation 1: By April 1, 2015, the Board of Opportunity Junction should review the contents and recommendations of this study and develop a plan of action to implement policies to reduce the prevalence of food insecurity and obesity.

Recommendation 2: By July 1, 2015, Opportunity Junction should hire a part-time nutritionist/dietician for the food bank program. The nutritionist would provide nutritional health classes for recipients of the food bank. The nutritionist/dietician would provide solutions to alleviating food insecurity including offering meal planning, recipes and weight loss services. Funding sources for hiring new staff nutritionist would come from existing funding sources most notably from big oil corporations and large banking institutions.

Recommendation 3: By July 1, 2015, Opportunity Junction must implement a no-smoking policy for its participants, staff and volunteers in order to maintain its mission of “self sufficiency” for its low income female recipients. The findings of both this study, and the Lee County, Alabama study, demonstrate the need to educate poor women of color about the risks and associations of smoking, low diet quality and food insecurity (Duffy, 2009).

Areas for Further Study

Further research should be completed to follow-up on the findings of this study with other food banks in Contra Costa County, the San Francisco Bay Area and other jurisdictions to determine the effectiveness of food assistance programs. The findings from this case study

should be disseminated to other food bank programs for replication and for external validity with other non-profit feeding programs. Results from this study and other food bank studies should be gathered and collected in Health Source database - Nursing Academic Editions for area for further research.

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APPENDIX A

Food Bank Questionnaire

My name is Ernesto Lara and I am currently completing my master's degree at Golden Gate University. I am inviting you to participate in a brief survey to obtain your personal perspectives on food bank at Opportunity Junction.

The survey should take you approximately 10 minutes to complete. Please complete the survey and return to the instructor by the end of class today. Your name is not required to complete this survey. Your answers will be kept confidential and anonymous. The survey will only be used by me for the purpose of completing my project. I will not publicly release your responses or other information about you.

•If you have questions or difficulty completing the survey, e-mail me at ernestoalara@gmail.com. My hope is that you complete the survey by today.

Thank you in advance for participating and for helping me complete my research study. Your participation and input is important.

1. How satisfied are you with the quality of food from the Food Bank?
 - a. Completely Unsatisfied
 - b. Unsatisfied
 - c. Neutral
 - d. Satisfied
 - e. Completely Satisfied
2. How satisfied are you with the healthiness of the food from the Food Bank?
 - a. Completely Unsatisfied
 - b. Unsatisfied
 - c. Neutral
 - d. Satisfied
 - e. Completely Satisfied
3. Prior to beginning the program at Opportunity Junction, how healthy would you consider your eating habits?
 - a. Completely Unhealthy
 - b. Unhealthy
 - c. Neutral
 - d. Healthy
 - e. Very Healthy

4. Prior to beginning the program at Opportunity Junction, how often did you use food beyond the expiration date?
 - a. Never
 - b. Rarely
 - c. Occasionally
 - d. Almost Always
 - e. Always
5. How has receiving food from the Food Bank changed or not changed your eating habits?
 - a. Completely Unchanged
 - b. Unchanged
 - c. Neutral
 - d. Changed
 - e. Completely Changed
6. How has receiving food from the Food Bank changed or not changed your food nutrition habits and meal planning?
 - a. Completely Unchanged
 - b. Unchanged
 - c. Neutral
 - d. Changed
 - e. Completely Changed
7. Now that you have almost completed the program, how healthy would you consider your eating habits?
 - a. Completely Unhealthy
 - b. Unhealthy
 - c. Neutral
 - d. Healthy
 - e. Very Healthy
8. Now that you have almost completed the program, how often do you use food beyond the expiration date?
 - a. Never
 - b. Rarely
 - c. Occasionally
 - d. Sometimes
 - e. Almost Always
 - f. Always

9. How often have you thrown away food from the Food Bank?
 - a. Never
 - b. Rarely
 - c. Occasionally
 - d. Sometimes
 - e. Almost Always
 - f. Always
10. How often do you smoke cigarettes, e-cigarettes, vapor pens or other smoking devices?
 - a. Never
 - b. Rarely
 - c. Occasionally
 - d. Sometimes
 - e. Daily
 - f. Several times a day
11. How often did you eat fruits and vegetables prior to starting Opportunity Junction?
 - a. Never
 - b. Rarely
 - c. Occasionally
 - d. Sometimes
 - e. Daily
 - f. Several times a day
12. How often do you eat fruits and vegetable now?
 - a. Never
 - b. Rarely
 - c. Occasionally
 - d. Sometimes
 - e. Daily
 - f. Several times a day
13. How beneficial to your health was the food bank program to you at Opportunity Junction?
 - a. Completely Unbeneficial
 - b. Unbeneficial
 - c. Neutral
 - d. Beneficial
 - e. Very Beneficial

14. Age:

- a. 18-21
- b. 22-25
- c. 26-30
- e. 31-39
- f. 40-55
- g. Over 55

15. Height:_____

16. Weight:_____

17. Ethnicity:

- a. Black, African-American, Afro-Caribbean or African Diaspora
- b. White, Caucasian, European
- c. Hispanic, Latino, Chicano, Spanish
- d. Native American
- e. Asian
- f. Middle Eastern
- g. Other/Mixed, please specify:_____

18. Highest Level of Education:

- a. Some high school
- b. High school diploma/GED
- c. Some college
- d. AA Degree/Certificate
- e. BA/BS Degree
- f. Masters, Doctorate or other graduate degree

19. Number of Children in Household:

- a. None
- b. One
- c. Two
- d. Three
- e. Four
- f. Five
- g. Six or more

Please write your comments and suggestions regarding the Food Bank program at Opportunity Junction on the back of this survey.

Appendix B

FOOD BANK INTERVIEW INSTRUCTIONS

I am inviting you to participate in a brief interview on Food Bank at Opportunity Junction. My name is Ernesto Lara and I am completing my master's degree in public administration at Golden Gate University. I'd like to get your personal perspectives on this topic.

The interview should take you approximately 20 minutes to complete. Your answers will be kept confidential and anonymous and will be used by me for the purpose of completing my degree. I will not publicly release your responses or other information about you.

I hope that you will participate in this interview because your input is important. Thank you for participating and for helping me complete my research study.

Interview Questions:

- 1) Please describe the quality of food from the food bank?
- 2) What do you consider to be “healthy eating”?
- 3) How, if at all, has the food bank changed your eating habits?
- 4) What other food nutrition programs do you participate in? WIC, Cal-Fresh etc?
- 5) How, if at all, has these other food and nutrition programs changed your nutrition and eating habits?