

**Barriers to Fruit and Vegetable Consumption in the Low-Income Hispanic Population
within Fresno County**

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May 11, 2012
FN 229 - Research Seminar
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Abstract

Diets rich in fruit and vegetables promote a variety of health benefits, including decreased risk for certain cancers, cardiovascular disease, enhanced diabetes prevention, and improved weight management (Yeh et al., 2008). Hispanics represent over 50% of the population in Fresno County (U.S. Census Bureau, 2010); when compared to non-Hispanic whites, are at increased risk to develop these diseases (CDC, 2011). A recent study by the Fresno County Department of Public Health determined that 21.6% of the county had limited access to nutritionally adequate food, compared to the national average of 16.6% (Fresno Fresh Program, 2012). This present study examines the possible barriers to fruit and vegetable consumption of the low-income Hispanic population within Fresno County. A 15 question survey that targeted possible barriers to fruit and vegetable consumption was administered to 106 low-income Hispanics at a variety of locations within Fresno County. Fruit and vegetable consumption was positively associated with participants who owned a car, who grew their own fruit and vegetables, who stated they had enough time to prepare fruit and vegetables, and received financial assistance, however, this was not statistically significant. It may be beneficial to develop programs to educate residents of Fresno County on gardening and simple cooking methods to increase fruit and vegetable consumption.

Introduction

Ample research suggests that adequate consumption of fruit and vegetables can contribute substantially to the decreased risk of chronic disease. Diets rich in fruit and vegetables promote a variety of health benefits, including decreased risk for certain cancers, treating or preventing metabolic syndrome, reduced morbidity and mortality from heart disease and diabetes, enhanced diabetes prevention, and improved weight management (Yeh et al.,

2008). Recent studies have shown that only 28% of Americans meet the recommendation for fruit consumption of two or more servings per day, and only 49% meet the recommendation for vegetable consumption of three or more servings per day (Krebs-Smit et al.,2001). Also associated with decreased fruit and vegetable consumption are increased rates of overweight and obesity (Yeh et al., 2008).

Overweight is defined as a body mass index (BMI) of 25 or higher, and obesity is defined as a BMI of 30 or higher (BMI for Adults, 2012). A recent study revealed that the percentage of overweight and obese adults in Fresno County was 34.4% and 30.2% (California Health Interview Survey, 2009). This rising percentage of overweight and obese individuals in Fresno County is a major concern for health care professionals, leaving them anxious to discover the common factors that are contributing to this epidemic and how they can be changed to avoid further devastation.

With Fresno County being a major hub for agricultural production in California, producing over \$3.4 billion each year in agricultural sales, it is not expected that food insecurity or inadequate fruit and vegetable consumption would be a problem in this area (USDA, 2004). Unfortunately, this became a major concern when a survey conducted by Fresno County's Department of Public Health revealed that 21.6% of the population had limited access to nutritionally adequate food, compared to the national average of 16.6%; representing 83,000 people in Fresno County who experience food insecurity (Fresno Fresh Program, 2012). Research has shown that factors contributing to food insecurity include low levels of participation in food assistance programs, lack of legal documentation status in the United States, limited English skills, transportation barriers with poor access to supermarkets, and low income levels (MkNelly et al., 2006). These are factors are believed to play a significant role in

contributing to food insecurity in Fresno County as well when looking at the populations prevalent demographic: Hispanics.

Hispanics are the largest minority group within Fresno County accounting for 50.3% of the population (U.S. Census Bureau, 2010). According to the U.S. Center for Disease Control and Prevention (2011), when compared to non-Hispanic whites, Hispanics have higher rates of developing type two diabetes, cancer, cardiovascular disease, and obesity. The prevalence of diabetes and obesity are also more common in households that experience low income levels and food insecurity (CDC, 2011). Fresno County has the second highest rate of food insecurity in California, with 36% of all residents with incomes below 200% of the federal poverty level (Harrison et al., 2002).

The purpose of this study was to determine common factors that prevent low income Hispanics from consuming adequate fruit and vegetables within Fresno County. We conducted a 15 question survey at local food kitchens and through University of California Cooperative Extension that addressed different socio-economic and cultural factors existing in low income Hispanic populations within Fresno County,

Problem Statement

This research study investigates the question: What barriers affect the fruit and vegetable consumption in the low-income Hispanic population of Fresno County? Diets adequate in fruit and vegetables are essential to provide vitamins, minerals, and dietary fiber. Research has shown that those who consume more fruit and vegetables put themselves at lower risk for chronic disease and are more likely to have a healthier lifestyle overall (Yeh et al., 2008). Chronic diseases associated with diets poor in essential nutrients include diabetes, cardiovascular disease, certain cancers, and obesity (Yeh et al., 2008). Hispanics represent over 50% of the

population of Fresno County, and when compared to non-Hispanic whites, are more likely to develop these diseases (U.S. Census Bureau, 2010).

According to California Health Interview Survey, in 2009, 52% of the residents of Fresno County (73,000 people) ate less than the recommended five servings of fruit and vegetables daily. Discovering the barriers that prevent low-income Hispanic residents of Fresno County from eating adequate fruit and vegetables will enable health care providers and/or community educators to overcome these barriers and find solutions to the problems, ultimately increasing fruit and vegetable intake in this population.

Literature Review

The common focus of the literature relates to existing barriers that affect the fruit and vegetable consumption within low-income populations. Each of the articles defined adequate fruit and vegetable consumption as being more or equal to five servings each day from both fruit and vegetables. Six articles were found that addressed significant difficulties in obtaining adequate fruits and vegetables as well as issues that may interfere with their consumption.

Two of the studies addressed multiple factors that contribute to inadequate fruit and vegetable consumption. The first article titled “Understanding Barriers and Facilitators of Fruit and Vegetable Consumption among a Diverse Multi-ethnic Population in the USA” (Yeh et al., 2008), accounted for age related barriers and barriers associated with ethnicity. Twelve focus groups, ranging from 9 to 16 participants, 90 minutes each, were conducted involving African American, Hispanic and Caucasian men and women representing the primary ethnic groups in the USA. Common barriers found in the participants less than 50 years of age were fruit and vegetable price, fast food was found more convenient, participants were too tired after work to prepare food or go to a grocery store, and lack of cooking skills was commonly noted. Of the

participants over 50 years of age, they value homegrown fruit and vegetable because they are free and acknowledged that fruits and vegetables were healthier and can contribute to weight loss. Within both age groups, both stated benefits of fruit and vegetable consumption in losing weight and admitted to increasing consumption if children were present. Another barrier addressed was ethnicity, predominantly African American and Hispanic populations. Of these groups, both admitted that cost was a major factor contributing to decreased consumption of fruit and vegetable as well as lack of energy and preparation time. Many complained that fruits and vegetables have a short shelf and are either consumed too quickly or spoil too fast. In addition, these groups claimed to lack familiar fruit and vegetable tools for traditional preparation styles. Decrease in home gardens and agricultural based households related to small backyards and both working parents; mother's use to stay home and garden. Also, participants claimed that they are tempted by the media for more "palatable" foods such as pizza or hamburgers. Within the Caucasian group, fruits and vegetables were feared due to adverse health effects from consuming fruits and vegetables contaminated with pesticides. In addition, participants claimed that they do not eat fruits and vegetables simply because they do not like the taste.

The second study is titled "Not Enough Fruit and Vegetables or Too Many Cookies, Candies, Salty Snacks, and Soft Drinks?" (Cohen et al., 2010). This study looked at fruit and vegetable consumption in association to "discretionary calories," or consumption of other foods containing highly processed and fatty ingredients, and lack of physical activity. This study used a cross sectional survey within 228 urban census tracts in Los Angeles County and Southern Louisiana. This study calculated the average "discretionary calories" consumed from participants in Los Angeles and Southern Louisiana. In Los Angeles, the average daily calories from candies, cookies, sugary drinks, soda, and alcohol was 438, and in Southern Louisiana was

617. These calories exceed dietary guidelines in Los Angeles by 60% and in Southern Louisiana by 120%. In contrast, fruit and vegetable consumption fell short at 10% fewer in Los Angeles, and 20% fewer in Southern Louisiana. The study concluded that the overconsumption of discretionary calories was so much larger than the under-consumption of fruit and vegetable, any interventions of increasing physical activity or fruit and vegetable consumption will have limited impact.

Two other studies addressed factors in food availability, accessibility and affordability within low income populations. The first article titled “Food Store Access and Household Fruit and Vegetable use Among Participants in the US Food Stamp Program” (Rose, 2004), surveyed nearly 1000 participants on barriers that prevent them from accessing fresh fruits and vegetables. This study accounted for different socio-demographic characteristics such as African American, Hispanic, and Caucasian households, as well as the highest education level within the household. Distance from nearby grocery stores versus convenient supermarkets was addressed in the survey as well as ownership of a motor vehicle. The study found that households in which fruit and vegetable consumption was very inadequate, the highest degree of education was no more than a high school diploma and nearly half did not own a car. Of the participants that did not own a car, another third did not have access to a grocery store for more than five miles. The study found overall that fruit and vegetable consumption was increased significantly when participants lived within one mile from a grocery store, with or without a motor vehicle.

The second study is a report that was conducted within Fresno County in 2005, and was used as a model survey for our research. This report was conducted by the Fresno Metro Ministry and was sponsored by the Food Policy Council to improve food access and reduce nutritional health disparities (Jessup et al., 2005). A total of 80 surveyors were trained,

conducting over 850 survey-assessments of consumers and 131 retail store surveys. Their survey looked at barriers that affect food accessibility and affordability and quality in Fresno County. They found that convenience and close to home being an overarching determiner of where and why they shopped as well as issues of selection, quality, and preference. Participants admitted to resulting in fast food consumption often, being nearly half of the 963 participants. Many participants admitted to relying on liquor stores for food and not using nutrition programs even though they know they qualified. One of the most significant barriers found was transportation. A surprising 33% of participants claimed they did not own a car, and of the 33%, 18% depended on carpooling and 6% used public transportation. This study also found that many of the participants that did not consume adequate fruits and vegetables would like to consume more however they are too expensive and do not last long at home (short shelf life). Lastly, this article also addressed the issue of transportation and found that participants that did not own a car and lived far away from a grocery store consumed much less fruit and vegetables.

Two studies addressed factors in availability and accessibility within low income, ethnic families. The first study, titled “Correlates of Availability and Accessibility of Fruits and Vegetables in Homes of Low-Income Hispanic Families,” (Dave et al., 2010) conducted surveys of parents of low-income public elementary school children. This cross-sectional study examined the association between parental factors, child’s preferences for fruits and vegetables, and the availability and accessibility of fruits and vegetables in the homes of low-income Hispanic families with children between 5-12 years old. A total of 184 parents completed a questionnaire regarding their demographics, language spoken at home, and food insecurity and a survey that addressed topics such as parental factors and child’s preferences. The results showed that food

insecurity, language spoken at home, parent's marital status, employment status, and household income significantly correlated with the availability and accessibility of fruits and vegetables.

The second study, titled "Neighborhood Socioeconomic Status and Fruit and Vegetable Intake among Whites, Blacks, and Mexican Americans in the United States," (Dubowitz et al., 2008) looked at the associations between fruit and vegetable intake and the socioeconomic status of neighborhoods and whether that and racial differences influenced fruit and vegetable intake. This study merged individual-level data with county and census tract-level US Census data of the geo-coded residential addresses from the Third National Health and Nutrition Examination Survey. They created a 3-level hierarchical model using individual characteristics and an index of socioeconomic status as variables for predicting fruit and vegetable intake. The results showed that as neighborhood socioeconomic status increased, so did that consumption of fruits and vegetables. An increase of 1-SD in SES was associated with a consumption of 2 additional servings of fruits and vegetables per week. The results also showed that older age, male sex, higher education attainment, and higher family income was associated with a greater intake of fruits and vegetables. Both these research studies indicate that SES plays a pivotal role in the consumption of fruits and vegetables with low-income Hispanic populations.

Methodology

This study was approved by the Institutional Review Board at the California State University, Fresno. A 15 question survey was developed to target possible barriers related to fruit and vegetable consumption. This survey included questions regarding age, gender, marital status, income, transportation, household size, education levels, distance from nearest grocery store, as well as other factors. The target population for the survey was low-income Hispanic adults who live within the county of Fresno.

To survey was administered at a local food bank called the Bulldog Pantry and in four low-income adult learning classes. These classes were put on by the University of California Cooperative Extension and approval to administer the survey to the adult learners was provided by the Nutrition Education Supervision, Sharon Blakely. Two Spanish-speaking volunteers were recruited to administer the surveys. One surveyor was an undergraduate student at the California State University, Fresno and the other volunteer was an employee with the University of California Cooperative Extension. The participants were given the survey to complete themselves or were given the option of completing the survey with either of the two surveyors.

To analyze the data, each question on the survey, which targeted a possible barrier, was compared to that participant’s response to how many servings of fruit and vegetables they consumed per day. **Table 1** shows the numerical value that was assigned to each possible response to the question regarding how many fruit and vegetables do you consume per day. The answers were then compared using statistical analysis to assess for significance.

Table 1. Answer Value for Statistical Analysis

Servings of F/V	Numerical Value
Almost Never	1
Sometimes	2
1-2	3
3-4	4
5+	5

Results

A total of 106 participants were surveyed; however, four surveys were removed from statistical analysis due to the inability to determine if they qualified as low-income. Some surveys were turned in with missing answers, but the questions that they did complete were still used to complete the statistical analysis. Population demographics include 83% female, 65% married, 84% spoke Spanish only, and 56% received financial assistance. **Figure 1** shows percentages for household size. Nearly 60% of participants had five or more people in their household, with 23% being six or over. **Figure 2** shows the number of trips to the grocery store per month. The most common answer was traveling to the grocery store two times per month, with 33% of participants surveyed.

Figure 1. Participant's Household Size

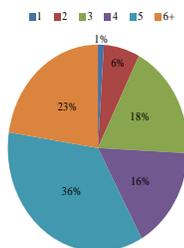


Figure 2. Trips to Grocery Store Per Month

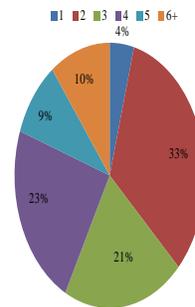


Figure 3 analyzes fruit and vegetable consumption related to age of participants. Ages were categorized in groups including 20-35 years old, 36-50 years old and 51 years old and over. The results showed that as age increases, fruit and vegetable consumption decreases with a mean value of 3.77 for 20-35 year olds, 3.42 for 36-50 year olds, and 3.27 for 51 years and over; however, this was not statistically significant.

Figure 3. Fruit and Vegetable Consumption Related to Age (Mean 3.5~ 2-3 servings of fruit and vegetables)

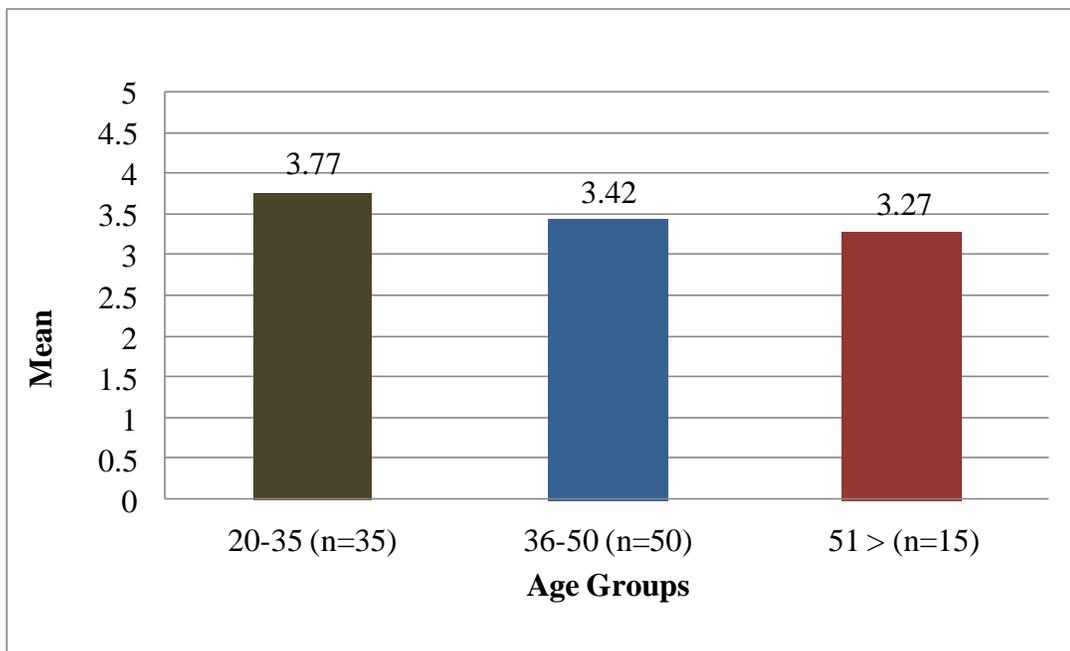


Table 2. Fruit and Vegetable Consumption Related to Age (Mean 3.5~ 2-3 servings of fruit and vegetables)

Age	1-2 servings /day	3-4 servings/day	5+ servings /day	Sometimes	Almost Never	Mean	P value
20-35	11	12	9	3	0	3.77	.4018
36-50	18	13	9	10	0	3.42	.4604
51<	6	4	2	2	1	3.27	.4018
Total	35	29	20	15	1	3.52	

Figure 4 analyzes the fruit and vegetable consumption related to monthly income. The majority of the participants fell into the \$0-999 category, and only two participants fell in to the highest income bracket at \$3000-3999. The mean shows no observable trends, however, the participant sample pool was not evenly distributed in all income brackets, so significant difference cannot be found.

Figure 4. Fruit and Vegetable Consumption Related to Monthly Income (Mean 3.5~2-3 servings of fruit and vegetables)

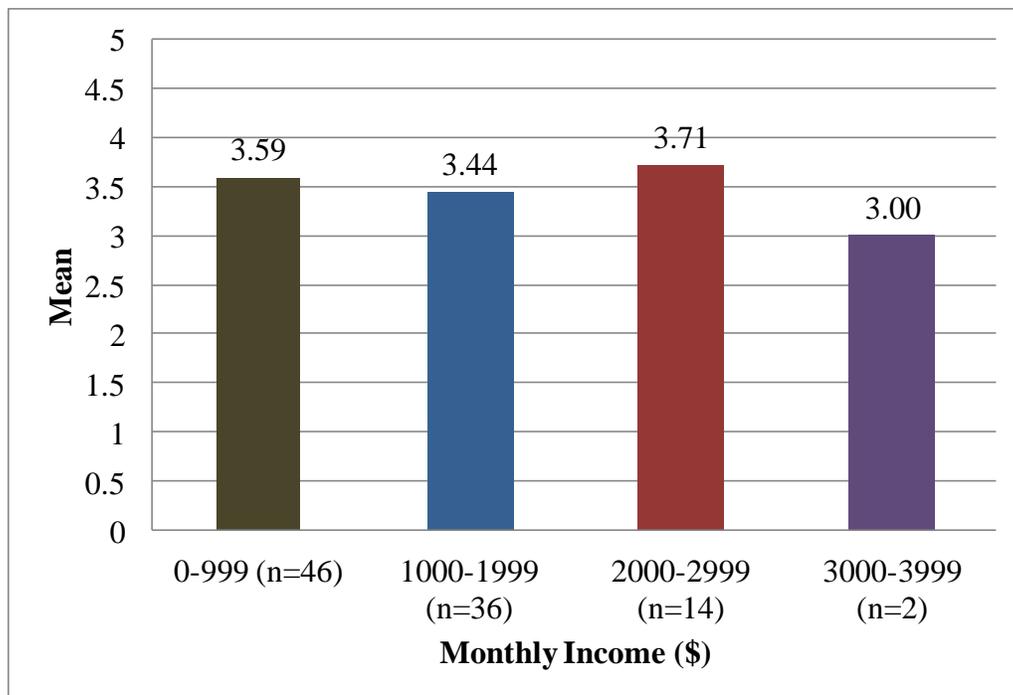


Table 3. Fruit and Vegetable Consumption Related to Monthly Income (Mean 3.5~2-3 servings of fruit and vegetables)

Monthly Income	1-2 servings/day	3-4 servings/day	5+ servings/day	Sometimes	Almost Never	Mean	P-value
0-999	14	12	12	7	1	3.59	.4799
1000-1999	15	14	3	4	0	3.44	.4598
2000-2999	4	4	4	2	0	3.71	.4319
3000-3999	0	1	0	1	0	3.00	.2930
Total	33	31	19	14	1	3.54	

Figure 5 below analyzes the fruit and vegetable consumption related to education level. Over 50% of participants highest education level completed were high school, which represented the greatest average consumption for fruit and vegetables. Surprisingly, participants that stated they had completed college had the lowest average for fruit and vegetable consumption. Unfortunately, this value is insignificant due to the fact that the sample pool only included three participants.

Figure 5. Fruit and Vegetable Consumption Related to Education Level (Mean 3.5~2-3 servings of fruit and vegetables)

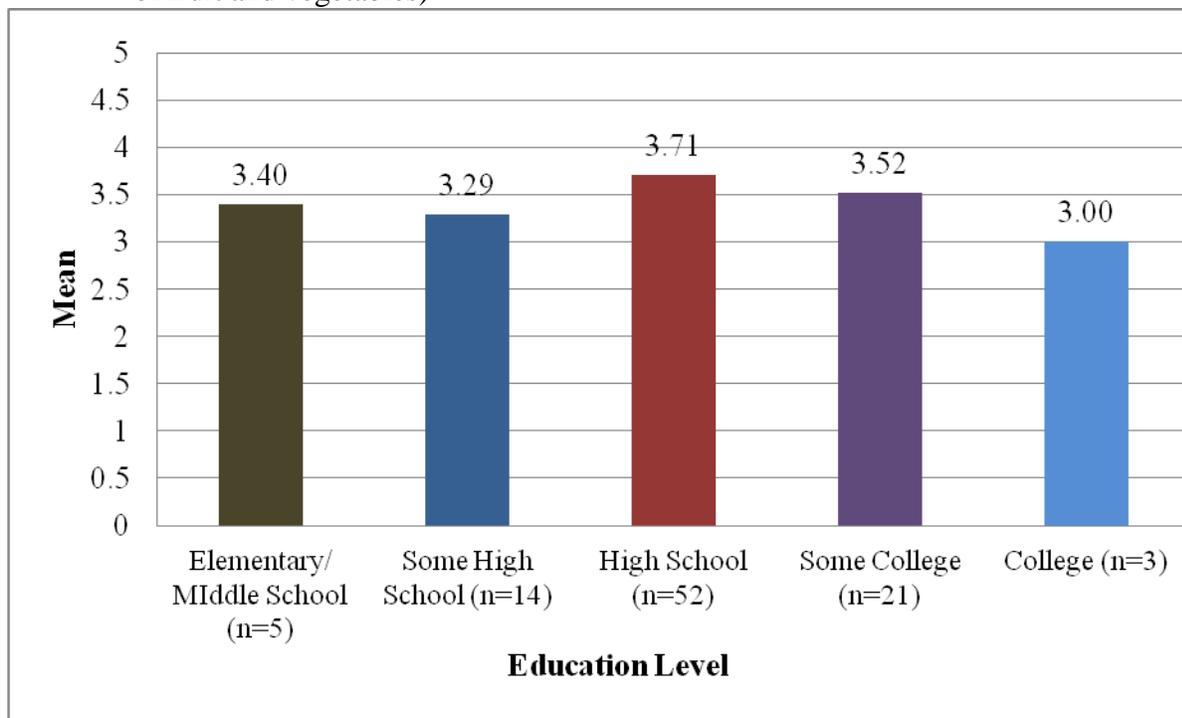


Table 4. Fruit and Vegetable Consumption Related to Education Level (Mean 3.5~2-3 servings of fruit and vegetables)

Education	1-2 servings /day	3-4 serving s/day	5+ servings /day	Sometimes	Almost Never	Mean	P-value
Elementary/Middle	2	1	1	1	0	3.40	.4326
Some High School	4	4	2	4	0	3.29	.3899
High School	18	19	11	4	0	3.71	.4444
Some College	5	5	6	4	1	3.52	.4801
College	3	0	0	0	0	3.00	.2847
Total	32	29	20	13	1	3.57	

Figure 6 analyzes the fruit and vegetable consumption related to distance to nearest grocery store. Distance was broken into four categories: less than one mile, one to five miles, five to ten miles, and greater than ten miles. Surprisingly, the groups with the highest average consumption of fruit and vegetables were in the five to ten and more than ten mile categories. Due to the sample size being low in these two categories, this may not accurately reflect a correlation between fruit and vegetable consumption and distance to the nearest grocery store.

Figure 6. Fruit and Vegetable Consumption Related to Distance to the Nearest Grocery Store (Mean 3.5~2-3 servings of fruit and vegetables)

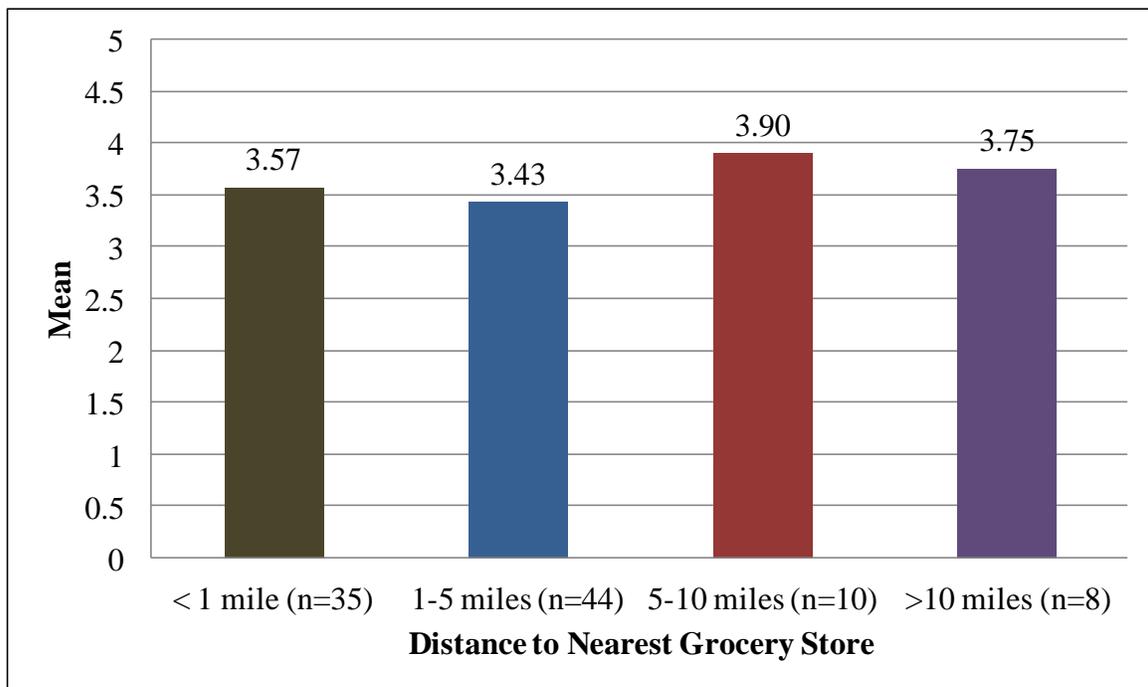


Table 5. Fruit and Vegetable Consumption Related to Distance to the Nearest Grocery Store (Mean 3.5~2-3 servings of fruit and vegetables)

Distance to Nearest Store?	1-2 servings/day	3-4 servings/day	5+ servings/day	Sometimes	Almost Never	Mean	P-value
< 1 mile	10	9	9	7	0	3.57	.4960
1-5 miles	18	14	6	5	1	3.43	.4485
5-10 miles	2	4	3	1	0	3.90	.3765
> 10 miles	2	3	2	1	0	3.75	.4250
Total	32	30	20	14	1	3.56	

Figure 7 below analyzes the fruit and vegetable consumption related to mode of transportation. Over 70% of the participants surveyed stated that they owned a car. Other participants stated they used public transportation (bus), or walked to the nearest grocery store. Participants who used a car to get to the grocery store had the highest mean of fruit and vegetable consumption at 3.64, however, fruit and vegetable consumption was not significantly different between the different modes of transportation.

Figure 7. Fruit and Vegetable Consumption Related to Mode of Transportation to grocery Store (Mean 3.5~2-3 servings of fruit and vegetables)

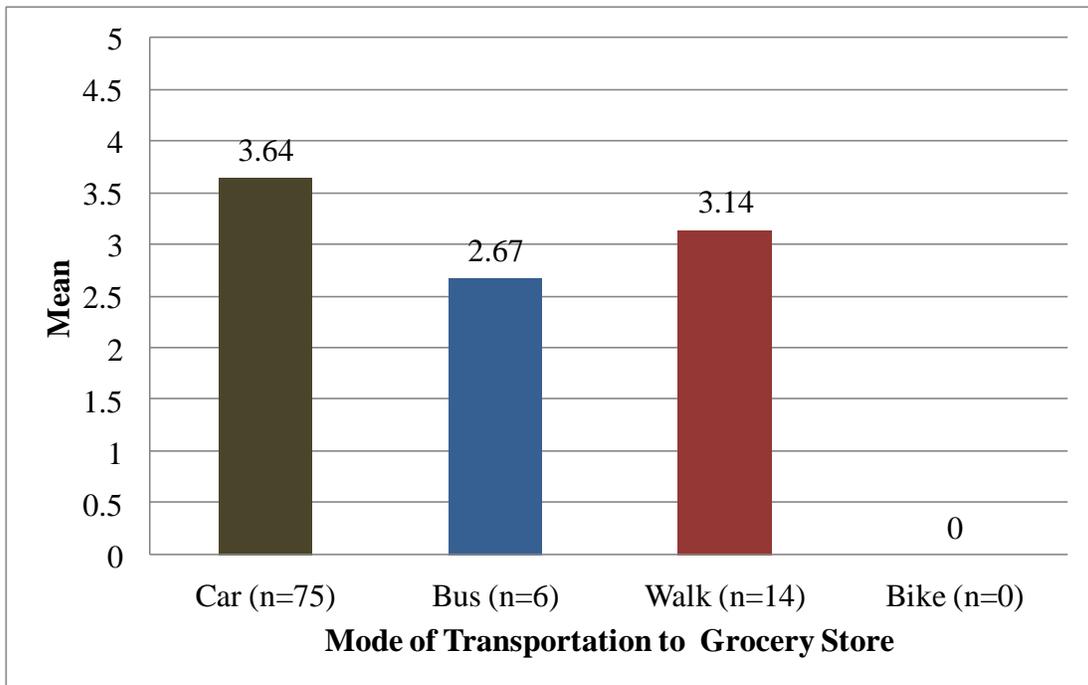


Table 6. Fruit and Vegetable Consumption Related to Distance to the Nearest Grocery Store (Mean 3.5~2-3 servings of fruit and vegetables)

Transportation to Store?	1-2 servings/day	3-4 servings/day	5+ servings/day	Sometimes	Almost Never	Mean	P-value
Car	23	25	17	9	1	3.64	.4445
Bus	4	0	0	2	0	2.67	.2042
Walk	5	4	1	4	0	3.14	.3600
Bike	0	0	0	0	0	-	-
Total	32	29	18	15	1	3.50	

Table 7 shows three questions from the survey that targeted specific barriers to fruit and vegetable consumption. The first question examined whether growing fruits and vegetables had a significant effect on fruit and vegetable consumption. Although the mean was higher for participants who stated they do grow their own fruits and vegetables, this data was not statistically significant due to low sample size.

The same is true in regards to participants having enough time to prepare their own fruit and vegetables. The mean was lower for participants who stated they did not have enough time to prepare their own fruit and vegetables, but again this was not statistically significant due to low sample size. The last question examined whether participants receiving financial assistance consumed more fruits and vegetables. The mean was higher for participants that stated they did receive financial assistance, but the means are very similar and the sample size is small, therefore, the data is not statistically significant.

Table 7. Fruit and Vegetable Consumption Factors (Mean 3.5~2-3 servings of fruit and vegetables)

	Mean	P-value
Do you grow your own fruits or vegetables?		
Yes	3.72 (n=18)	0.4367
No	3.42 (n=79)	0.4446
Do you have enough time to prepare fruits and vegetables?		
Yes	3.63 (n=91)	0.4759
No	2.88 (n=9)	0.2435
Do you receive financial assistance?		
Yes	3.62 (n=53)	0.4920
No	3.41 (n=41)	0.4089

Discussion

There were several possible barriers to fruit and vegetable consumption evaluated by this research study. The survey that was developed contained questions regarding age, education level, monthly income, transportation to grocery store, and distance to nearest grocery store, whether they grew their own fruit or vegetables, if they received financial assistance, and whether they believed they had enough time to prepare fruit and vegetables in their home. After analyzing the questions in the survey it was determined that none of the possible barriers showed any significant statistical difference in fruit and vegetable consumption. Although significant difference was not found, trends associated fruit and vegetable consumption were noted. These trends included increased fruit and vegetable intake when participants stated that they owned a car, when they grew their own fruit and vegetables, and when they believed that they had enough time to prepare fruit and vegetables at home. Also, an important trend noted in this study was age: as age increased, fruit and vegetable intake declined.

This study had several limitations, including limitations with the survey and with the participants. One of the limitations with the survey was not defining the serving size of a fruit or vegetable. Participants may not know what a serving of fruit or vegetable is; this may have skewed the data if participants under or over reported the number of servings they consumed per day. Additionally, when asking about the frequency of consumption of fruit and vegetables, the survey included answers such as “almost never” and “sometimes.” These answers are very vague and for those who have difficulty counting a serving size, “almost never” and “sometimes” are easier to answer and may have been chosen more often over the true amount. In regards to the question about income, it was not specified if monthly income was individual or household. During analysis of data, it was decided to assume that income noted was total household. This

may cause inaccuracy if noted income was in fact individual, the participant may no longer be low-income, and therefore, would not qualify for this study. Another question of concern regarded the number of trips to the grocery store. This question did not differentiate between a grocery store or a convenience store, or any other location where groceries are sold such as farmer's markets.

Participants for this study were low-income Hispanics, and were targeted at locations such as Bulldog Pantry and University of California Cooperative Extension (UCCE) nutrition education classes. This brings limitation to the study because participants from the Bulldog Pantry may be receiving more fruit and vegetables than if they did not have access to this service, potentially skewing the data. Also, participants from UCCE have been educated on the importance of fruit and vegetables, and are more likely to consume more than if they had not received nutrition education.

Summary

Many individuals do not consume adequate fruit and vegetables, with only 28% of Americans meeting the recommendation for fruit consumption of two or more servings per day, and only 49% meet the recommendation for vegetable consumption of three or more servings per day (Krebs-Smith et al., 2001). Diets rich in fruit and vegetables promote a variety of health benefits, including decreased risk for certain cancers, treating or preventing metabolic syndrome, reduced morbidity and mortality from heart disease and diabetes, enhanced diabetes prevention, and improved weight management (Yeh et al., 2008). The Hispanic population, which is the largest minority group in Fresno County representing 50.3%, are at increased risk over non-Hispanic whites for developing these diseases or medical complications (U.S. Census Bureau,

2010). Additionally, Fresno County has the second highest rate of food insecurity in California, with 36% of all residents with incomes below 200% of the federal poverty level (Harrison et al., 2002). With these statistics, it is becoming increasingly imperative to analyze what the most common barriers to fruit and vegetable consumption in the low-income Hispanic population within Fresno County.

To determine these barriers, a survey was developed that looked at different obstacles that this population may encounter that prevent adequate fruit and vegetable intake. The survey targeted aspects such as distance to nearest grocery store, mode of transportation to grocery store, household size, monthly income, age, education level, etc. A total of 106 participants were surveyed, and 100 of those surveys were used for statistical analysis. Due to small population size, there was no statistical significance found with any of the possible barriers, however, there were observable trends. Increased fruit and vegetable consumption was seen with people who grow their own fruit and vegetables, owned a car, and have adequate time for preparation of fruit and vegetables. Fruit and vegetable consumption tended to decline with age however, this was statistically insignificant. In conclusion, it may be beneficial to develop programs that enhance gardening at home and easier methods to prepare fruit and vegetables to increase fruit and vegetable intake with the low-income Hispanic population of Fresno County.

Future Recommendations

Although this research did not show a statistically significant difference between any of the targeted barriers, there were several trends that may be of interest to future programs looking to increase fruit and vegetable consumption. Based on this research, it may be beneficial to develop programs that teach people the principles of gardening and that gardening can be done in small backyards and even on patios or balconies. Also, the research suggests that this population

feels they do not have enough time to prepare fruit and vegetables at home. Fruit and vegetable intake may increase if participants were taught simple and quick preparation/cooking methods they can use at home.

In regards to future research, developing a study based on the correlation between the type of employment (such as labor vs. administrative) or shift workers (such as night vs. day) and its possible influence on fruit and vegetable consumption may be beneficial. This was a barrier outlined in other research studies that was not targeted in the current study. Also, researching the nutrition-related knowledge of low-income Hispanics on different food groups and health benefits may allow researchers to get a better understanding of the drivers of fruit and vegetable consumption of this population. Lastly, a study to determine if fruit and vegetable consumption changes during seasons when culturally popular fruit and vegetables are grown may be advantageous to understanding the barriers of fruit and vegetable consumption. The survey in this current study was administered in the January, a time when certain fruit and vegetables are not in season. If this particular population consumes less fruit and vegetables during the winter time, they may have not have completed the survey accurately, which would have affected the results of this study.

Reflection of Presentations

We found the initial presentation in class to be very helpful in preparing us for the presentation at the Central Valley California Dietetic Association (CVCDA) meeting. Honestly, we did not expect Dr. Herzig and the interns to discover as many errors on our slides as they did. Dr. Herzig and the interns provided us with much detailed feedback on how to improve our presentation before presenting it at the CVCDA meeting. Not only did they discover minor grammar and punctuation errors, but they gave us their opinions on the order and arrangement of

our slides, colors used in charts and graphs, proper citations, and more. Using class time to rehearse and “polish” our presentation proved to be very helpful before presenting at the CVCDA meeting, as well as encourage us to be more detail oriented in order to avoid making such errors on future presentations.

After we made the proper corrections recommended by Dr. Herzig and the interns, we rehearsed our presentation one more time to make sure each slide followed smoothly and make any additional changes we found necessary. During our presentation, we both felt very confident with our slides and what information we had on our research. Presenting our research and results at the CVCDA meeting was a wonderful experience. Of course, we would be lying if we said we weren't very nervous, but we feel that we both did an amazing job presenting our study to the members of the CVCDA. We did receive a “contributing opinion” by an audience member throughout our presentation which could have thrown us off, however, we handled it very professionally and made the best of the situation.

Overall, using the feedback that we received from Dr. Herzig and the interns, we feel that this experience has made us focus more on detail in both conducting a research study and creating a professional presentation. Initially, we were surprised that we had made such errors within our research and our presentation; however, we learned very much from this experience and feel confident that we would not repeat these errors if we were to conduct a research study again.

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