



University of Kentucky
UKnowledge

Theses and Dissertations--Dietetics and Human
Nutrition

Dietetics and Human Nutrition

2015

The Perceptions, Knowledge, Benefits and Barriers of Hispanics Regarding the Dietary Guidelines for Americans

Luisyana De Amor Gamboa
University of Kentucky, luisyanaf@hotmail.com

[Right click to open a feedback form in a new tab to let us know how this document benefits you.](#)

Recommended Citation

Gamboa, Luisyana De Amor, "The Perceptions, Knowledge, Benefits and Barriers of Hispanics Regarding the Dietary Guidelines for Americans" (2015). *Theses and Dissertations--Dietetics and Human Nutrition*. 37.

https://uknowledge.uky.edu/foodsci_etds/37

This Master's Thesis is brought to you for free and open access by the Dietetics and Human Nutrition at UKnowledge. It has been accepted for inclusion in Theses and Dissertations--Dietetics and Human Nutrition by an authorized administrator of UKnowledge. For more information, please contact UKnowledge@lsv.uky.edu.

STUDENT AGREEMENT:

I represent that my thesis or dissertation and abstract are my original work. Proper attribution has been given to all outside sources. I understand that I am solely responsible for obtaining any needed copyright permissions. I have obtained needed written permission statement(s) from the owner(s) of each third-party copyrighted matter to be included in my work, allowing electronic distribution (if such use is not permitted by the fair use doctrine) which will be submitted to UKnowledge as Additional File.

I hereby grant to The University of Kentucky and its agents the irrevocable, non-exclusive, and royalty-free license to archive and make accessible my work in whole or in part in all forms of media, now or hereafter known. I agree that the document mentioned above may be made available immediately for worldwide access unless an embargo applies.

I retain all other ownership rights to the copyright of my work. I also retain the right to use in future works (such as articles or books) all or part of my work. I understand that I am free to register the copyright to my work.

REVIEW, APPROVAL AND ACCEPTANCE

The document mentioned above has been reviewed and accepted by the student's advisor, on behalf of the advisory committee, and by the Director of Graduate Studies (DGS), on behalf of the program; we verify that this is the final, approved version of the student's thesis including all changes required by the advisory committee. The undersigned agree to abide by the statements above.

Luisyana De Amor Gamboa, Student

Dr. Ingrid Adams, Major Professor

Dr. Kelly Webber, Director of Graduate Studies

THE PERCEPTIONS, KNOWLEDGE, BENEFITS AND BARRIERS
OF HISPANICS REGARDING THE DIETARY GUIDELINES FOR AMERICANS

THESIS

A thesis submitted in partial fulfillment of the
requirements for the degree of Master of Science in the
College of Agriculture, Food, and Environment
at the University of Kentucky

By

Luisyana De Amor Gamboa

Lexington, Kentucky

Chair, Ingrid Richards Adams, PhD, RD, LD Associate Professor

Lexington, Kentucky 2015

Copyright © Luisyana De Amor Gamboa 2015

ABSTRACT OF THESIS

THE PERCEPTIONS, KNOWLEDGE, BENEFITS AND BARRIERS OF HISPANICS REGARDING THE DIETARY GUIDELINES FOR AMERICANS

Background: Hispanics are the largest minority group in the U.S. and by the year 2060 the number of Hispanics is projected to double. They are disproportionately affected by obesity and chronic diseases which translate into decreased quality of life, loss of work opportunities and perceptions of injustice for the Hispanic population. The Dietary Guidelines (DG) provide information to help Americans make healthy food and physical activity choices and if followed can be a means of reducing the health disparity gap. However, culturally relevant recommendations specific to Hispanics' health and nutritional habits are often lacking. The purpose of this study was to examine the perceptions, knowledge, benefits and barriers of Hispanics regarding the recommendations in the DG, Choose MyPlate, and the Department of Health and Human Services physical activity guidelines. **Methods:** A qualitative research design was used. Focus groups were conducted in Spanish and audiotapes were transcribed and then, translated into English. Thematic analysis was used to identify different key concepts subgrouping these topics according to common emergent themes. **Results:** A total of 24 participants took part in the study. Participants viewed healthy eating in terms of portion sizes. They viewed the DG as helpful but felt they needed more information to follow the guidelines. Several barriers were identified in following the MyPlate: lack of availability of healthy, fresh, inexpensive grocery options in Hispanic neighborhoods. Participants described the benefits of physical activity as related to improved mental health and quality of life such as looking and feeling better. **Conclusion and Implications:** Promoting nutrition education that is culturally and linguistically appropriate for Hispanics might help facilitate the adoption of the DG and MyPlate recommendations. Also, improving the design of existing low-income neighborhoods is still a challenge to improve participation in physical activity among Hispanics'.

Keywords: Hispanics, Dietary Guidelines for Americans, MyPlate, Physical Activity Guidelines.

Luisyana De Amor Gamboa

November, 2015

THE PERCEPTIONS, KNOWLEDGE, BENEFITS AND BARRIERS OF HISPANICS
REGARDING THE DIETARY GUIDELINES FOR AMERICANS

By

Luisyana De Amor Gamboa

Dr. Ingrid Adams PhD., RD, LD

Director of Thesis

Dr. Kelly Webber PhD, MPH, RD, LD

Director of Graduate Studies

November, 2015

Date

DEDICATIONS

To my husband,

Miguel

For his unconditional love and support

&

My mother, for her love, encouragement and for being the most enthusiastic cheerleader

&

My father in law, for his long distance affection and support

ACKNOWLEDGEMENTS

This thesis stands as a testament of unconditional love and encouragement. First, I would like to express my sincere gratitude to my advisor, Dr. Ingrid Adams, for the continuous support on my thesis research, for her patience, motivation, and immense knowledge. Her guidance helped me during all the time of research and writing this thesis. She gave me the confidence necessary to make this thesis possible. I could not imagine having a better advisor and mentor for my thesis research study. I would like to express my deepest gratitude to Dr. Sandra Bastin for her continued guidance, support, and providing me with an excellent atmosphere for doing research. I would also like to acknowledge Dr. Angelica Reina for her expertise in research with the Hispanic population. Her insightful comments and encouragement were crucial to the structure of this study. Special thanks go to Pastor Vicente Rivera, who helped me during the recruitment process and provided me a space to conduct the study at the Consolidated Baptist Church in Lexington, Kentucky. Thanks to the participants who voluntarily participated in this study. Without their precious support it would not be possible to conduct this research. Last but not least, I would like to thank my family. As for my husband Miguel, I would like to thank him for his unconditional love. He is my best friend and my rock. Without his patience and sacrifice, I could not have completed this thesis. I am grateful for the love and encouragement of my mother; she is my most enthusiastic cheerleader and she is by far the strongest woman I have ever known. My heartfelt regard goes to my father in law, Miguel Gamboa, for his love, moral support and encouragement, without which I never would have been able to achieve my goals. A special thanks to my father Luis, my younger brother Luis Alberto, mother-in-law Laura, and brother-in-law Alejandro, for their love and long distance affection. Their infallible love and support has always been my strength and will remain my inspiration throughout my life.

TABLE OF CONTENTS

ACKNOWLEDGEMENTS.....	iii
TABLE OF CONTENTS.....	iv
LIST OF TABLES.....	vi
CHAPTER ONE.....	1
Introduction.....	1
Purpose Statement.....	2
Objectives.....	2
Justification.....	3
Assumptions.....	3
Limitations.....	3
CHAPTER TWO.....	4
Review of Related Literature.....	4
Hispanics in the U.S. and in Kentucky.....	4
Health Status of Hispanics.....	5
Obesity.....	5
Diabetes.....	6
Hypertension.....	6
The Dietary Guidelines for Americans.....	7
Food Patterns, Nutrition Considerations, Interventions and Lack of Access to Healthy Food among Hispanics.....	7
Food patterns.....	7
Nutrition considerations.....	9
Nutrition interventions.....	10
Lack of access to healthy food.....	11
Physical Activity Patterns in Hispanics.....	11
CHAPTER THREE.....	13
Methodology.....	13
Objectives.....	13
Research Design.....	13
Subjects.....	13
Description of Procedures.....	14
Data Analysis.....	14
CHAPTER FOUR.....	15
Results.....	15
Demographics.....	15
Objective 1: Description of Healthy Eating.....	16
Objective 2: Knowledge, Perceptions, Benefits and Barriers related to the DG.....	17
Knowledge of the DG.....	17

Perceptions regarding the DG.....	18
Benefits regarding the DG.....	19
Barriers regarding the DG.....	20
Objective 3: Knowledge, Perceptions, Benefits and Barriers related to MyPlate.....	21
Knowledge of MyPlate.....	21
Fruit and vegetable consumption.....	21
Lean protein consumption.....	23
Consumption of oils instead of solid fats.....	24
Low-fat milk consumption.....	26
Seafood consumption.....	28
Objective 4: Hispanics knowledge, perceptions, benefits and barriers related to the Physical Activity Guidelines for Americans.....	30
Description of moderate physical activity.....	30
Benefits related to physical activity.....	31
Perceptions of physical activity.....	31
Barriers related to physical activity.....	31
CHAPTER FIVE.....	33
Objective 1: Hispanics' Perceptions of Healthy Eating.....	33
Objective 2: Knowledge, Perceptions, Benefits, and Barriers of the DG.....	35
Awareness.....	36
Access.....	37
Objective 3: Knowledge, Perceptions, Benefits, and Barriers of the Choose MyPlate recommendations for healthy eating.....	38
Objective 4: Knowledge, Perceptions, Benefits, and Barriers related to the Physical Activity Guidelines for Americans.....	39
Description of moderate physical activity.....	40
Mental health.....	41
Barriers.....	41
CHAPTER SIX.....	43
Conclusion.....	43
Assumptions and Limitations.....	44
Future Research and Practice.....	45
APPENDICES.....	46
Appendix A: Focus Group Guidebook: Spanish version.....	46
Appendix B: Focus Group Guidebook: English version.....	50
REFERENCES.....	53
VITA.....	58

LIST OF TABLES

Table 1. Demographic Characteristics of Study
Participants.....16

CHAPTER ONE

Introduction

The Hispanic population, comprised of Cubans, Puerto Ricans, Mexicans, and South or Central Americans, is considered the largest ethnic minority group in the United States. Mexicans, at 66 percent of the Hispanic population, are the largest subgroup, followed by Central and South Americans (13 percent), Puerto Ricans (9.4 percent), and Cubans (3.9 percent) (CDC, 2012). According to the 2010 U.S Census, there are 54 million (17 percent) people of Hispanic origin in the U. S., making them the largest ethnic minority group in the nation (Population Estimates, 2013). Almost half of the 1.1 million people added to the U.S. between July 2012 and July 2013 were Hispanics. The number of Hispanics in the U.S. is projected to grow to 128.8 million (31 percent) by the year 2060 (U.S. Census Bureau, 2013).

Statistics show that compared to the rest of the population, Hispanics are disproportionately affected by obesity (CDC, 2012). Hispanic Americans are 1.2 times as likely to be obese than non-Hispanic Whites (CDC, 2012). Approximately 78 percent of Hispanic women are overweight or obese, as compared to 60.3 percent of non-Hispanic white women. Obesity increases the risk for type 2 diabetes, heart disease, and certain types of cancers (CDC, 2014). Statistics reveal that Hispanic adults are 1.7 times more likely than non-Hispanic white adults to have been diagnosed with diabetes and to suffer severe complication from the disease (CDC, 2012). Additionally, Hispanics males are 1.6 times more likely than non-Hispanic white males to start treatment for end-stage renal disease related to diabetes, and to die from diabetes (Ogden et al., 2014).

According to a survey conducted by the CDC, high blood pressure among Hispanics is a particular concern. Over a quarter (26.1 percent) reported having high blood pressure, and 30.4 percent of them were not taking medication to reduce their risk for heart attack and stroke (CDC, 2014). One of the most critical contributing factors to heart disease is hypertension that can be directly related to obesity. Hypertension can lead to premature death and disability from cardiovascular complications. Among Hispanics who faced a stroke, 72 percent had high blood pressure, compared to 66 percent in non- Hispanic whites (Ogden et al., 2014).

According to the Surgeon General's vision for a Healthy and Fit Nation report, the growth in obesity is the result of different environmental factors and lifestyles that includes an unhealthy diet and lack of physical activity. Although chronic diseases are among the most common and costly health problems, they are among the most preventable. By eating nutritious foods and being physically active many Hispanics can reduce the risk of devastating effects of chronic disease

(CDC, 2012). However, many Hispanics have poorer diets and engage in less physical activities than non-Hispanic Whites (Gordon-Larsen, Adair & Popkin, 2002; Cortes, et al, 2013).

The Dietary Guidelines for Americans (DG) provide evidence-based nutritional information and advice for all individuals over the age of two. The recommendations of the DG help Americans make healthy choices in the areas of nutrition and physical activity so that they can live healthy lives. Choose MyPlate is currently used by the United States Department of Agriculture (USDA) as a nutrition guide. It replaced the USDA's MyPyramid guide in 2011. English and Spanish versions of this eating guide exist.

Klinger (cited in Schroeder, 2014) mentioned that the 2015 DG Advisory Committee needs to consider the health and nutrition status of U.S. Hispanics. It was recommended that preventive measures and nutritional care should start with culturally relevant guidelines specific to the Hispanic population's health and nutrition needs. Additionally, it was suggested that MyPlate recommendations should be culturally appropriate to Hispanics eating patterns and menus should include more Hispanic foods and recipes. Mercado (2014) presented "The Latino Way Food Guide" that considers the different eating patterns among Hispanics in the U.S. This food guide reflects the nutritional needs, food preferences, traditions, and include the different eating patterns of the multiple Hispanic groups in the U.S. The main purpose of this guide is to reduce the "cultural gap" and improve nutrition education for the Hispanic population in the U.S.

Few studies in the literature have examined the knowledge, perceptions, benefits and barriers of Hispanics to the recommendations in the DG. Nutritional education materials are available for the Hispanic population living in the U.S, but at the same time is considered limited because these materials are not adapted to their cultural preferences and dietary patterns (U.S. Department of Agriculture, 2013). Health and nutrition education programs that are made available in Spanish tend not to be sensitive to cultural differences. This study attempts to fill the gap in this area. There is a need to examine this issue in order to educate and raise awareness of the importance of making healthy nutrition and physical activity choices for Hispanics who are presently experiencing disparity in obesity and chronic diseases.

Purpose Statement

The purpose of this study was to examine the knowledge, perceptions, benefits and barriers of Hispanics to the recommendations in the DG for Americans, Choose MyPlate, and the Department of Health and Human Services physical activity guidelines.

Objectives

1. To describe the perceptions of healthy eating among Hispanics.
2. To determine the knowledge, perceptions, benefits and barriers of Hispanics regarding

the recommendations in the DG for Americans

3. To explain the knowledge, perceptions, benefits and barriers of Hispanics regarding to MyPlate recommendations for healthy eating related to:
 - i. Filling half their plate with fruit and vegetables
 - ii. Filling one-quarter of their plate with lean protein
 - iii. Consuming oils instead of solid fats
 - iv. Consuming low-fat milk products
 - v. Consuming seafood
4. To explain the knowledge, perceptions, benefits and barriers of Hispanics related to the physical activity guidelines for Americans

Justification

Hispanics are the largest minority group in the U.S. and by the year 2060 the number of Hispanics is projected to double. Hispanics are disproportionately affected by obesity and chronic diseases which translate into decreased quality of life, loss of work opportunities and perceptions of injustice for the Hispanic population. For the American society, these health disparities translate into less productivity, higher health care costs and social inequity. (Ogden et al., 2014).

The DG provides information to help Americans make healthy food and physical activity choices and, if followed, can be a means of reducing the health disparity gap. However, culturally relevant guidelines specific to health and nutritional habits of Hispanics are often lacking in these guidelines (Evenson, 2004).

There is a need for research on the knowledge, perceptions, benefits and barriers that the Hispanic population experience using the DG, Choose MyPlate, and the (DHHS) physical activity guidelines. Results from this research could provide information that could help tailor culturally appropriate messages and guidelines for the Hispanic population and facilitate their adoption.

Assumptions

Several assumptions have been made for this study. First, participants will share freely their knowledge, perceptions, benefits and barriers about the DG and MyPlate recommendations for healthy eating. Second, the participants' are assumed to answer the questions truthfully.

Limitations

Focus group methodology has its limitations. The focus group relied heavily on assisted discussion to produce results; consequently, the facilitation of the discussion was critical.

CHAPTER TWO

Review of Related Literature

This review of literature is divided into five main sections. The first section provides background information on statistics on Hispanics in the U.S. and in Kentucky. The second examines the health status of Hispanics both in the U.S. and in Kentucky. Section three focuses on the DG and provides a history of the guidelines as well as dietary guides. The fourth section provides information on food patterns, nutrition considerations, interventions and lack of access to healthy food among Hispanics. Finally, the fifth section provides background information on physical activity and the built environment among Hispanics.

Hispanics in the U.S. and in Kentucky

The 2010 Census Bureau indicates that 308.7 million people resided in the U.S on 2010, of which 54 million (or 17 percent) were of Hispanic or Latino origin. The Hispanic population showed a significant increase from 35.3 million in 2000, when this group made up 13 percent of the U.S population (U.S Census Bureau, 2010).

According to the latest population projections from the Census Bureau, the U. S will be shaped by immigration and higher fertility rates among minorities. Furthermore, according to these projections the Caucasian population is expected to decline, while other minority groups will increase by the year 2050. The State of Kentucky may also follow this trend, but it will take longer, perhaps by the end of the century, because of a smaller minority population residing in Kentucky (U.S Census Bureau, 2010).

Statistics indicate that within the last decade, only ten counties in Kentucky had a decline in Hispanic population though Hispanic growth was much more pervasive throughout the remaining counties. Kentucky's Hispanic population consists of about three percent (3%) of the state's total population, recorded as 132,836. More notable is that Kentucky's Hispanic population grew by an astonishing 122 percent in the decade from 2000 to 2010 (U.S Census Bureau, 2010).

It is clear that Hispanics make a significant contribution to the labor force as they increasingly represent a significant share of workers and taxpayers. However, it is during an economic recession that Hispanics are extremely vulnerable as they experience high poverty rates. Working families with children are those most affected. According to the U.S. Census, the median income of Hispanics 16 years of age and older is \$18,000 in Kentucky, compared to \$25,500 for non-Hispanic whites in the same age group. (U.S Census Bureau, 2010).

Given these trends and projections of demographic shifts, Kentucky's public schools will have to be conscientious and proactive about their responsibility for English language training along with the inevitable social assimilation of a growing number of Hispanic immigrant children

in the coming years. It is projected that this segment of the population will likely continue to be concentrated in what's known as the urban triangle and Western Kentucky. At present, Kentucky ranks 47th overall in terms of students who are Hispanic and will no doubt continue to be ranked near the bottom in the nation (Pew Hispanic Center, 2010).

The city of Lexington is the second largest in the state of Kentucky, yet the Hispanic population is not as large proportionately as it is, for example, in Texas, California and other Southwestern states. Nonetheless, there are programs in place to educate Hispanics with respect to healthy food choices, using the DG established in MyPlate. These guidelines have been translated to MyPlate for better understanding and implementation. However, there has not been any research conducted to examine specifically the knowledge, perceptions, benefits and barriers of Hispanics regarding the DG and MyPlate recommendations for healthy eating.

Health Status of Hispanics

Over three decades ago, the “Hispanic Paradox” was a new term coined as a phenomenon that showed how Hispanics tended to have lower than average rates of some chronic diseases, keeping in mind that many lived in poor social economic conditions (Abraido-Lanza et al., 2005). However, the San Antonio Heart Study contradicted this paradox, showing that Mexican-Americans indeed had a higher risk of cardiovascular and coronary diseases than did non-Hispanic Whites (Hunt et al., 2003). The most common chronic conditions for this group are obesity, heart disease, cancer and diabetes. The study also indicated that Hispanics have higher mortality rates from diabetes mellitus than non-Hispanic Whites (National Hispanic Medical Association, 2004).

Obesity

Obesity is the most prevalent risk factor for chronic disease and it is more evident among minority groups such as Hispanics (Neuhouser, et al., 2004). Obesity is known to be a risk factor for a variety of other chronic conditions such as diabetes, high cholesterol, stroke, heart disease, cancer, and arthritis (Malnick & Knolber, 2006). According to the National Health and Nutrition Survey (NHANES) 2003–2004, 75.8 percent of Hispanics in the U.S were determined to be either overweight, obese, or otherwise, with a body mass index (BMI) over 25 and above. The BMI factor's a person's weight and height ratio and to screen the patient for certain illnesses that could eventually lead to chronic health issues (CDC, 2014). More notable were significant differences in obesity by gender, as 42 percent of Hispanic women were categorized as obese, compared to 31.6 percent of Hispanic men (Ogden et al., 2006). The CDC reported that Hispanic adults as a group were ranked the second highest in obesity incidence when compared to other minority groups (CDC, 2012). Additionally, the Office of Minority Health (2014) reported that Hispanic adults ages 18 or older were 1.2 times more likely to be overweight than non-Hispanic White adults in the same

age range (U.S Office of Minority Health, 2014).

Health related conditions, particularly obesity, have been shown to contribute to a disproportionate economic burden all over the United States. Many Hispanic families struggle to afford health care, do not seek medical treatment when needed or lack access to healthcare. As a consequence, productivity in the workplace is affected since obese individuals can be less productive at work than healthier workers (Horowitz, et al., 2004). The economic impact on society is presented by the decline of overall life expectancy for Hispanics as a result of obesity and obesity-related health risks. Obesity and health related illnesses have created a tremendous economic impact on many states, which are actively looking for ways to fund health programs. Many families cannot afford the cost of healthcare or may not even be eligible to apply for certain healthcare services. Since Obesity results is a negative factor that affects productivity in the workplace, there is no doubt that chronic illness is the leading cause of absenteeism in the workplace (Pronk, Martinson, Kessler, Beck, Simon & Wang, 2004).

Hispanics have been predominantly affected by the overwhelming and increasing effect of obesity. According to the Surgeon General's Vision for a Healthy and Fit Nation report, the growth in obesity is the result of several environmental factors, including easily accessible tasty and energy-dense foods. Regardless, the main causes of obesity remain a poor diet and the lack of physical activity (Office of the Surgeon General, 2010).

Diabetes

Because the rate of diagnosed diabetes is higher among minorities. It has been shown that 13.2 percent of Hispanics have diabetes compared to 7.6 percent of non-Hispanic whites. The sharp increase of Hispanics in the U.S population are concerning public health professionals, researchers, and policy makers alike. Research shows that although self-management is poor among ethnic minorities, it is even more so among Hispanics (Fortman, Gallo & Phillis-Tsimikas, 2011). In addition, Hispanics tend to have more severe complications than many other minority groups (American Diabetes Association, 2013). There is a need for interventions that would improve self-management among Hispanic populations.

Hypertension

According to a survey conducted by the CDC (2014) , over a quarter (26.1 percent) reported having high blood pressure, with 30.4 percent of them were not taking medication to reduce their risk for heart attack and stroke. One of the most critical contributing factors to heart disease is hypertension this can be directly related to obesity. Hypertension can lead to premature death and disability from cardiovascular complications. Among Hispanics who faced a stroke, 72 percent had high blood pressure, compared to 66 percent in non-Hispanic Whites (Ogden et al., 2014).

The Dietary Guidelines for Americans

The 2010 DG is considered a tool for healthy eating for all Americans ages 2 years and older, embracing those at increased risk of chronic disease. Nearly 15 percent of Americans are not able to acquire suitable food to meet their needs. This tool is intended for use of nutrition educators to help the population choose healthy and nutritionally adequate food items (USDA, 2010).

The main purpose of the DGs is to recapitulate knowledge approaching individual nutrients and food components into a consistent set of recommendations for healthy eating that can be embraced by the public. The DG recommendations include two main concepts:

- Calorie balance over time to attain a healthy weight: Controlling the calories consumed from food and beverages, and increase the calories they expend through physical activity
- Emphasis on the consumption of nutrient-dense food items while the consumption of sodium, solid fats, added sugars, and refined grains to achieve healthy eating patterns

The information provided by the DG is used by health care professionals in developing educational materials for the public and executing nutrition-related programs.

Food Patterns, Nutrition Considerations, Interventions and Lack of Access to Healthy Food among Hispanics

Food patterns

Eating patterns and cultural preferences of Hispanics are different from those of the general non-Hispanic U.S. population (Briefel and Johnson 2004). Although Hispanics are a diverse group because they can be from different countries, they all have something in common—the Spanish language.

Mercado (2014) presented “The Latino Way Food Guide” that highlights the different eating patterns among Latinos. This food guide reflects the nutritional needs, food preferences, traditions, and includes the different eating patterns of the multiple Latino groups in the U.S. The main purpose of this guide is to reduce the “cultural gap” and improve nutrition education among the Latino population in the U.S. This guide also raises awareness of the diverse eating patterns for Latinos incorporating their culinary traditions, food preferences, eating patterns, and nutritional needs.

Nutritional education materials are available for the Hispanic population living in the U.S, but at the same time is considered limited because it is not adapted to their cultural preferences and dietary patterns (U.S. Department of Agriculture, 2013). Studies show that the DG has limited convenience for different ethnic groups with particular food preferences, thus, the DG needs to include the specific food patterns related to their cultural preferences (Briefel and Johnson 2004).

According to the 2010 DG, healthy eating decreases the risk of chronic diseases and

prevents foodborne illness. It is important to remember that healthy eating is not a rigid prescription, and it should be viewed as a collection of options easy to accommodate according to cultural and personal preferences, food cost and availability. A healthy eating pattern focuses on nutrient-dense food groups that can provide the full range of essential nutrients and fiber without excessive calories (USDA, 2010).

The DG provides three motives that support fruit and vegetable consumption. Fruit and vegetable contain nutrients that are necessary and at the same time tend to be under consumed in the United States (folate, magnesium, potassium, dietary fiber, and vitamins A, C, and K). There is a direct correlation between consumption of vegetables and fruits and reduction in risk of many chronic diseases. Vegetables and fruits tend to be low in calories and eating them instead of caloric dense foods can help achieve and maintain a healthy weight (USDA, 2010).

Kilanowski (2015) examined the influences on healthy eating decision making in Latino adolescent children of migrant agricultural workers. The sample consisted of 24 participants between 12 to 14 years old recruited from a Midwest summer migrant education program. Focus groups were used to identify the meaning of healthy decision making and three main themes were identified: 1) healthy decision making included fruits, vegetables, and physical activity; 2) mothers had influence over health and healthy eating; and 3) friends encouraged unhealthy food choices. Results indicated that 67 percent of the participants made poor quality decisions when choosing healthy foods in social circumstances. Food security status is directly linked to healthy eating within Hispanic populations. Participants in this study were unable to consume recommended fruits and vegetables because they had increasingly inadequate food budgets. Kilanowski (2015) found that the environment fused with other barriers to prevent healthy eating. These included financial restraints to buying fresh produce and fruits along with little time to cook healthy food due to long work hours and holding multiple jobs. Cultural differences influenced eating patterns and the consumption of unhealthy foods in the Hispanic community.

Flores et al. (2011) used focus groups to examine parent perspectives on healthy eating, physical activity, and weight-management strategies for overweight Hispanic children. Parents were asked to sample four healthy recipes based on traditional Hispanic foods. Themes were identified, including encouragement, not making them feel bad about their weight, the entire family eating healthy, and setting the parents as being role models.

The varied food and eating patterns among Hispanics are consistent, although different cultures have different food preferences, cultural definitions of foods, and dietary patterns (USDA, 2013). It is part of the Hispanic culture to eat a light meal for breakfast. Lunch is referred to “el almuerzo,” which is the main meal of the day for Hispanics. Lunch is an important time of the day

because this is when family members get together. “La siesta,” which is a short nap after el almuerzo, is another cultural practice among Hispanics, but is starting to disappear in the urban cities due to busy schedules. Around 10 p.m., “la cena,” a small supper, concludes the day’s meals. For Hispanics the largest meal and most important meal of the day is around 2pm, and it often includes steamed rice and vegetables, pinto beans and stove-cooked chicken. Many traditional Hispanic meals are cooked with lard for a “better taste” and it is an essential ingredient in some recipes such as “empanadas” and “tamales” (Melgar-Quinonez, 2008).

Nutrition considerations

Dietary intake patterns among non-Hispanic white and Hispanic adults have yielded a variety of interesting and sometimes conflicting findings. For example, data from NHANES III generally indicated that the total energy intake of non-Hispanic whites was similar to that of a Hispanic of Mexican origin, although total fat intake was found to be higher among white men than among men of Mexican origin. Additionally, it has been found that men of Mexican origin consumed more saturated fat than white men. It is difficult to express valid generalizations regarding diet given the variety of complex food preferences (Horowitz, Colson, Hebert & Lancaster, 2004).

Other studies have shown that acculturation has been a key factor that affects the dietary intake of Hispanics. Using data from the NHANES III, Dixon, Sundquist & Winkleby (2000), found that Mexican immigrants generally met the recommended DG more often than Hispanics of Mexican origin born in the United States. Mazur et al. (2003) found that less acculturated Hispanics had lower intakes of protein, sodium and percentage of energy from fat. Ayala et al. (2005) showed that the more acculturated Hispanic women eat lunch and dinner outside of the home more often. The participant’s place of birth also had a large influence on the consumption of fruits and vegetables, as non- U.S-born Hispanics were shown to eat more fruits and vegetables than their U.S-born counterparts (Perez-Escamilla, 2011).

With immigration, Hispanics have been introduced to new foods, different times for taking meals and have limited access to familiar foods as part of their acculturation to their new living arrangements, whether they live in rural or urban areas. A study of Hispanics in a rural setting within the State of Washington found that less acculturated Hispanics ate more fruits and vegetables as well as less fat than vastly acculturated Hispanics and non-Hispanic Whites (Neuhouser, Thompson, Coronado & Solomon, 2004).

To accentuate the importance of acculturation, research has found a positive correlation between length of time residing in the United States and BMI. Also, obesity was found to be less prevalent among women who have lived in the U.S for less than a year, and higher among women

who have lived in the U.S for more than ten years (Himmelgreen et al., 2004). These results are similar to the study of Kaplan et al. (2004), who established that Hispanic immigrants who had lived in the U.S for more than 15 years had almost four times the risk of obesity than those who had lived in the U.S for fewer than 5 years (Himmelgreen et al., 2004) also found that Hispanic immigrants who had lived in the U.S for more than 15 years had a lower rate of obesity than did U.S born Hispanics.

There have been various studies conducted with adolescents (Unger et al., 2004), adults (Dixon et al., 2000), and the elderly (Bermudez et al., 2000) that indicate a positive relationship between acculturation and dietary fat consumption, while other research studies found an association contradicting that hypothesis (Satia-Abouta et al., 2002). Additionally, it has been proposed that the association between acculturation and dietary fat intake may vary across Hispanic subgroups. Bermudez et al. (2000) reported that higher-acculturated elderly Latinos more frequently consumed rich food in simple sugars. Although the evidence consistently points in the same direction, more studies are needed that include a broader representation of Latino subgroups as well as multidimensional and multidirectional measures of acculturation.

Nutrition interventions

A study conducted by Taylor, Serrano, & Anderson (2001) used Hispanic grandmothers as educators because traditionally, Hispanics place decision-making authority in their elders. The study, situated in southern Colorado, assessed the effectiveness of the program with grandmothers as educators. The program was based on 12 focus group sessions with three separate target participants for the focus groups: (1) Hispanic mothers, (2) professionals, and (3) paraprofessionals who work with Hispanics in nutrition and health. Educators attended a two-day training. Thirty-six educators were used to teach 337 classes to the participants. The results were positive, concluding that Hispanic grandmothers were effective as educators in the Hispanic community regarding nutrition (Taylor et al., 2001). Focus groups have been extensively used in Hispanic nutritional programs to gain information about their health and nutrition beliefs, perceptions, and knowledge. Results from focus groups have been used to develop correct and suitable nutrition education, as well as programs to implement the curriculum. For example, Almond & Stadler (2000) used focus groups to determine blue-collar workers' perceptions regarding dietary practices and cancer prevention to discover the types of educational strategies that this group found the most useful. In addition, Silva-Barbeau (1997) conducted focus group sessions in Virginia to reveal the preferences of the Latino population regarding types of nutrition education delivery. The data demonstrated that Hispanic participants preferred written and audio/visual media, especially pamphlets with many visuals containing nutrition information directly targeted for them.

Other studies have found that Hispanics want access to information on how to help their children to eat healthier foods and snacks. Learning ways to involve children in food preparation with information on food preparation techniques that are quick, easy, nutritious and inexpensive was also a need (Palmeri et al., 1998; Cason et al., 2006).

Lack of access to healthy food

Low-income Hispanic families spend about one-third of their income on calorie-dense meals that are low in fiber and high in fat and sodium. Lack of access to healthy foods in Hispanic neighborhoods is an issue. Hispanics are usually settled in low-income neighborhoods that encourage unhealthy food selections and inhibit physical activity. For example, convenience stores that offer a variety of sweet and fats and offer limited fresh products. Studies have shown that there is a lack of access to supermarkets that offer fresh and nutritious foods in low-income neighborhoods, and less healthy items are heavily marketed in the convenience stores in these neighborhoods (Briefel & Johnson, 2004). According to a recent study, one in four Latino households are considered food insecure, compared with eleven percent of White households. In addition, almost 23 percent of Hispanic families are living in poverty. In the United States over the past three decades, whites have earned \$2 for every \$1 that a Hispanic household earned. It has been shown that Hispanics suffer financial constraints limiting the consumption of full and nutritious meals, which leads to an increased risk of obesity (Cortes, et al, 2013).

Physical Activity Patterns in Hispanics

The U.S. Department of Health and Human Services (DHHS) issued the Physical Activity Guidelines for Americans. The physical activity guidelines complement the DG for Americans, a joint effort of DHHS and the USDA. They provide guidance on the significance of being physically active and eating a healthy diet to promote good health and reduce the risk of chronic disease.

One of the principal causes for increasing rates in obesity and diabetes in the Hispanic population are lower levels of physical activity (PA) combined with unhealthy diets (Gordon-Larsen, Adair & Popkin, 2003). Subsequently, the 2005 DGs included recommendations for physical activity. When cultural barriers were considered in the evaluation, it was conjectured that Hispanics did not have adequate access to facilities or extra time for physical activity.

Crespo et al. (2000) examined data from the Third National Health and Nutrition Examination Survey to consider the relationship between acculturation and self-reported leisure time physical inactivity among Mexican American adults. The study measured acculturation through language preference, the amount of time living in the United States, and place of birth. The results demonstrated a higher adjusted occurrence of leisure-time physical activity attributed to Mexican American women compared to men. Interestingly, inactivity was determined to be lower

among those who only spoke English than among those who spoke Spanish, or both English and Spanish (Crespo, et al., 2000).

In other studies, Evenson et al. (2004) analyzed the correlation between PA and acculturation among 1st generation Latinas in North Carolina. For the study, he examined subjects whose median age was of 30 years, and around 60 percent were born in Mexico. The study defined non-occupational PA as meeting the recommendations for moderate activity, or as not meeting the recommendations. Among participants, 42 percent reported insufficient PA while 21 percent reported no moderate or vigorous activity. Thus, 37 percent met either the moderate or vigorous PA recommendation, with only 7.4 percent meeting both recommendations (Evenson, Sarmiento & Ayala 2004).

A study that examined Hispanic women's attitudes toward PA found that a connection existed between physical activity and their jobs/work. Participants viewed physical activity as a way to make a living. They also revealed that they did enough physical activity in their jobs; so, they considered their work activities as physical activity (Im, et al., 2010). Fitzgerald et al. (2006) examined the association between socioeconomic factors, acculturation and lifestyle including PA. The sample consisted of 200 low-income Puerto Rican women living in Hartford CT. In this study, acculturation was measured by English language preference and proficiency. The results from this study showed a positive association between PA and acculturation (Fitzgerald, Himmelgreen, Damio, Segura-Perez, Peng & Perez- Escamilla, 2011). A more recent study examined the factors that influenced recreational park use and physical activity in predominantly Hispanic and low-income neighborhoods, and found that park features' association with physical activity among predominantly Hispanic communities is not extensively researched (Dolash, Meizi, Zenong & Sosa, 2015). Parks are often used for physical activity among vulnerable populations, such as low socio-economic and minority groups. Hence, is important to offer safe parks that could accommodate large families for common Hispanic activities like playing soccer, or picnicking and socializing.

CHAPTER THREE

Methodology

The purpose of this study was to examine the knowledge, perceptions, benefits and barriers of Hispanics to the recommendations of in the DG for Americans, Choose MyPlate, and the Department of Health and Human Services physical activity guidelines.

Objectives

1. To describe Hispanics' perceptions of healthy eating
2. To determine Hispanics' knowledge, perceptions, benefits and barriers to the recommendations in the Dietary Guidelines for Americans
3. To explain Hispanics' knowledge, perceptions, benefits and barriers to My Plate recommendations for healthy eating related to:
 - i. Filling half their plate with fruit and vegetables
 - ii. Filling one-quarter of their plate with lean protein
 - iii. Consuming oils instead of solid fats
 - v. Consuming low-fat milk products
 - vi. Consuming seafood
4. To explain Hispanics knowledge, perceptions, benefits and barriers related to the Physical Activity Guidelines for Americans

Research Design

A descriptive, qualitative research design was used for this study. A qualitative approach was chosen because it provides information about the characteristics of a particular group, in this case Hispanics, and their knowledge, perceptions, benefits and barriers they experience related to the DG for Americans. Focus groups were conducted to document and provide insight into the knowledge, perceptions, benefits and barriers of Hispanics regarding the DG. The use of focus groups have been proven to be beneficial in explaining cross-cultural issues related to health behaviors, including dietary practices. In addition, they provide a non-directive means by which participants share information without feeling compelled or driven to answer specific questions (Krueger & Casey, 2009).

Subjects

Ten individuals were invited for each focus group, with attrition expected. According to Krueger, the ideal size for a focus group is between six and nine participants (Krueger & Casey, 2009). Using an established guidebook, a total of 24 participants were divided into 4 separate groups. Group 1= 5 participants; group 2= 6 participants; group 3 = 6 participants; and focus group 4 = 7 participants. Discussions were held at a Hispanic neighborhood community center and a local

church. The groups were conducted in Spanish by a bilingual, bi-cultural moderator. The overall knowledge, perceptions, benefits and barriers regarding the DG for Americans were analyzed using manual coding. Analysis of each of the twelve qualitative questions will be described in the following sections. Focus group participants were carefully screened to meet the following criteria:

- Must be Hispanic women and men between 18 and 65 years of age who have been living in Lexington, KY for at least the past 5 years
- Spanish origin (Mexican, Puerto Ricans, Cuban, South or Central American)
- Spanish speakers

Description of Procedures

Participants were recruited from Hispanic neighborhoods (Alexandria, Russell Cave Rd, Versailles Rd and Southland Drive) and two different churches in the Lexington area (Consolidated Baptist Church and Hope Springs Hispanic Methodist Church). For recruitment, 125 flyers with the investigator's contact information were placed in Hispanic supermarkets, churches and restaurants. Also, the investigator went to a Sunday service at the Consolidated Baptist Church to talk about the study and invite individuals to the study. Focus group were held in two different locations in the community: Consolidated Baptist Church and Hope Springs Hispanic Methodist Church. The researcher was trained to serve as a moderator for the focus groups and another graduate student (Spanish speaking) helped assist the moderator, took field notes, and recorded non-verbal interactions. Before each focus group session, the moderator explained the purpose of the study and written consent form were signed by participants.

Each session took 60 to 80 minutes and a light snack was provided. At the end of each focus group, the moderator verified the data collected by summarizing main points from the discussion and asking participants if any key ideas were missed.

Data Analysis

All audiotapes were transcribed verbatim, and field notes taken at focus group sessions were incorporated into the text by the researcher, who was responsible for taking notes and reviewing all transcripts for accuracy. After the audiotapes were transcribed, the sessions were translated into English by the investigator for subsequent analysis. The verbatim transcripts were coded independently by two separate qualitative researchers by identifying textual units according to topic, then subgrouping these topics according to common emergent themes. In order to provide verification, researchers independently read the English transcript and highlighted words, sentences/phrases and concepts. After that, the codes were categorized by question, based on the focus group guidebook using thematic analysis to identify different key concepts.

CHAPTER FOUR

Results

The purpose of this study was to examine Hispanics' perceptions, knowledge, perceptions, benefits and barriers to the recommendations of in the DG for Americans, Choose MyPlate, and the Department of Health and Human Services physical activity guidelines.

1. To describe Hispanics' perceptions of healthy eating
2. To determine Hispanics' knowledge, perceptions, benefits and barriers to the recommendations in the Dietary Guidelines for Americans
3. To explain Hispanics' knowledge, perceptions, benefits and barriers to My Plate recommendations for healthy eating related to:
 - i. Filling their half their plate with fruit and vegetables
 - ii. Filling one-quarter of their plate with lean protein
 - iii. Consuming oils instead of solid fats
 - iv. Consuming low-fat milk products
 - v. Consuming seafood
4. To explain Hispanics knowledge, perceptions, benefits and barriers related to the Physical Activity Guidelines for Americans

Demographics

A total of 24 individuals participated in this study (17 women and 7 men). All participants reported Hispanic ethnicity (21 of Mexican origin and 3 of Salvadorian origin). The majority of participants (11 participants) were between the ages of 31 to 35 years old, were married (22 participants), and worked in the food service industry (23 participants). The mean length of residence in the United States was between 15 and 20 years (11 participants) See Table 1 below on participant demographics.

Table 1. Demographic Characteristics of Study Participants

Characteristics	Levels	No. of Participants	Percentages
Age	18- 25	2	8.3
	26-30	6	25.0
	31-35	11	45.8
	36-40	4	16.7
	41 - 45	1	4.2
Ethnicity	Hispanic	24	100.0
Country of origin	Mexico	21	87.5
	El Salvador	3	12.5
Length of Residence in United States	0-5 years	0	0.0
	5-10 years	2	8.3
	10- 15 years	7	29.1
	15- 20 years	11	45.3
	20 or more years	4	16.6
Occupation	Food Industry Employee	23	95.8
	Housekeeper	1	4.2
Marital Status	Married	22	91.7
	Single	2	8.3

Objective 1: Description of Healthy Eating

Three themes emerged from the description of healthy eating. First, participants viewed healthy eating as consuming correct portions of food whether by measuring foods eaten or by using a smaller plate to control portion sizes.

“But I think that eating healthy is at least try, it doesn’t have to be 100 percent, and it is more like measuring portions.”

“I know that we should measure what we eat, but it is difficult sometimes, when I like my food and just want more and more.”

“Instead of eating a huge plate it is better to eat a smaller and healthy portion.”

Second, participants viewed healthy eating as taking care of their body so as to avoid being overweight and to prevent diseases, and equated healthy eating with these outcomes.

“Healthy eating means take care of your body in order to not be overweight. I believe that being overweight makes you sick.”

“Eating healthy is taking care of your body to avoid many diseases in the future.”

“Healthy eating is just another thing we need to think and manage daily. Is not only thinking what are we eating today, we also think it is good for our body or not.”

Third, some participants viewed healthy eating as avoiding certain nutrients, mainly fat.

For example:

“Healthy eating means eating food without fat, but at the same time I like to eat food with a lot of flavor. Sometimes I think, I eat healthy but I don’t know why I am overweight and I know that being overweight makes you sick.”

“Honestly I eat what is available for me, but I know that healthy eating is related to food without fat.”

A few individuals mentioned barriers that prevented them from eating healthy, some of these barriers included lack of time and money.

“I have always being obese, sometimes I try to eat healthy but I don’t have enough time to do so.”

“We need time to eat healthy, because in order to eat healthy you have to sit down at the table and eat slowly, I never have the time to do that.”

“Sometimes we don’t have the time and we eat what is available doesn’t matter if it’s healthy or not. But I agree that when you eat healthy you feel better.”

“Eating healthy is expensive, I don’t have enough money to do that.”

Interestingly enough only one person mentioned that eating healthy involved choosing fruits and vegetables.

“Well I would describe healthy eating as consuming a good amount of fruits, vegetables and a little bit of everything.”

Objective 2: Knowledge, Perceptions, Benefits and Barriers related to the DG

Knowledge of the DG

Just under half of the participants (11/24) mentioned that they had heard about the DG for Americans. Some stated that the DG for Americans was a guide or recommendation to help them eat better and take care of their health. Some also mentioned that the guidelines helped them economize on food and helped with portions.

“Well, I heard about the DG in school, but that was a while ago and when time goes by we kind of forget about all that.”

“What I heard is that they help us eat better and economize on food also.”

“They also provide recommendations on how much to eat, the portions; you know?”

Some of those that heard about the DG mentioned barriers such as they did not have information on how to follow them and that there was too much information in the guidelines that was useless for them. A few individuals mentioned that they obtained information about the guidelines from clinics, a teenage daughter, and from school.

“Yes I have heard [about the DG for Americans] but very brief, I never received information on how to follow the Guidelines or at least an orientation. I don’t know, is too much information but useless for us.”

“I heard that the DG exist but I am not sure what they are about.”

“Of course I have heard about the DG for Americans, especially because of my teenage daughter.”

“When my wife was pregnant they told us about the DG at the clinic and not only that, but also how to follow the Guidelines correctly.”

Perceptions regarding the DG

Two themes emerged from the descriptions of perceptions of the DG. First, many participants had a positive perception of the DG. They mentioned that the DG helped them eat and feel better, have more energy, and were a means to lower obesity rates. They also mentioned that having nutrition information in Spanish was helpful.

“The DG are result of many years of research so we should follow recommendations at the foot of the letter if we want to live many years.”

“If they follow the recommendations we would feel better; have more energy and less depression.”

“Is wonderful to have these recommendations, not only for us but also for our children.”

“My personal opinion is that I like the idea that information is available in Spanish, I can speak English but my parents don’t so for me is one less thing I have to translate for them.”

“In our case, they gave us information when my wife was pregnant, that helped us tremendously on how to make purchases, and already knowing what is the best to eat, is easy to follow the recommendations of the DG. At first, I thought that it would be expensive to start eating healthy but is worth it.”

“I think that since is something new, we are still adapting to follow recommendations, younger people know more about this, like my daughter; she know everything about it.”

“This is a way to lower obesity rates that are so high, showing us how to eat better with what we have available.”

Second, some participants mentioned barriers regarding the DG for Americans. They described these guidelines as difficult to follow, mostly because they felt that the portions suggested in the guidelines were too small. They were afraid that if these recommendations were followed it would result in them feeling weak or lacking energy that would affect their jobs. In addition, some of participants mentioned that they did not have enough information regarding the DG. One person mentioned that they did not have individuals who could take the time to explain the guidelines to them.

“I have only heard of the DG from the television but that is it. I don’t have other source of information to follow the guidelines correctly and to be honest is very difficult to follow because I’m usually at work all day and is hard to work without energy. I probably need triple of the portion that is recommended; that’s the problem. I know that I eat more than I should, but is because when I eat fruits, vegetables and all that I feel week and without energy.”

“We need more than what is suggested in order to have energy to function.”

“I even told the doctor, well if you don’t have time to tell me more about it I’m just going to look it up on the internet, I’m blessed to have internet. I can find everything on there, but then they say the information on there is not reliable so then where? It is difficult for us, but no one tell us more.”

“Let’s put it this way; we have the information but half ways.”

Benefits regarding the DG

Participants stated several benefits regarding the DG. Two themes emerged. First, the DG were viewed as a guide to healthy eating, and second, the DG were seen as improving quality of life by preventing obesity, chronic diseases, and as a way to help them look better and live longer. Some participants also mentioned the benefit of the DG as a helpful tool that showed how to spend their money on healthy meals instead of fast food.

“They are people out there who want to help us live healthy and I’m interested in learning because I’d like to live longer without being sick. I see my relatives who have chronic diseases or are obese, I see them struggle to do their daily activities.”

“I practice the Holistic religion, you know, healthy mind in a healthy body, is necessary to feel good to have a healthy mind and a full life. This is accomplished by following the recommendations from the DG.”

“A benefit is that after being aware of the DG we can spend our money on something healthy instead of fast food.”

“If we eat healthy we can live longer to be with our loved ones.”

They also mentioned as a benefit that DG was taught in school to their children at an early age, meaning that even if they didn't have the information, it was still being passed on to their children.

"I've heard that the information is now being taught in schools and is available at a very early age for our children."

"Our children are going to grow up seeing this (DG) and will learn, this means that future generations are going to start with having good eating habits and less obesity."

Barriers regarding the DG

Four main themes emerged related to barriers participants experienced regarding the DG. The first theme focused on barriers related to accessibility and affordability. For example, participants mentioned that the DG were difficult to follow when shopping because healthy items were expensive, unavailable, or difficult to find in their neighborhood stores. Additionally, they mentioned that they chose not to purchase fruits and vegetables because they had a short- shelf life.

"I went to the Extension Office and they gave good recipes but I couldn't find many of the ingredients, like hemp seeds."

"For me the hardest part is when we shop for 10 or 15 days, you know that fruits and vegetables don't last that long so we don't buy them. Recommendations should include less fruits and vegetables, it would be easier to follow."

The second theme related to the barriers was that the foods recommended by the DG did not have high satiety values; as a result, they were not filling and could not sustain them throughout the day. Participants spoke of performing physically demanding jobs and mentioned that if they ate according to the recommendations of the DG they would feel weak and would lack energy to work.

"If we eat what is recommended we would finish working very tired and without energy, I have two jobs so in order to have energy I have to eat enough."

The third theme related to the barriers was that participants believed that cultural preferences were not reflected in the DG. For example, participants talked about the need for a Mexican healthy cookbook and to learn how to substitute ingredients to make traditional Hispanic dishes healthier.

"Changes should be made thinking of us [Hispanics] and what we like to eat."

"Including Mexican recipes and examples of how we can substitute ingredients to make a healthy dish."

Finally, some participants stated that the DG were helpful and that there was nothing they would change. Some mentioned that they were the ones who needed to align their choices with the recommendations.

“I think everything’s fine regarding the DG, and they are helpful for us.”

Objective 3: Knowledge, Perceptions, Benefits and Barriers related to MyPlate

Knowledge of MyPlate

The Choose MyPlate, or the Spanish version (MiPlato) has been used to prompt consumers to build a healthy eating pattern and to guide them to resources and tools to put the DG into action. The next six questions were related to MyPlate and the DG recommendations, including MyPlate knowledge, consumption of fruit and vegetables, lean protein, oils, low-fat milk and seafood. The MyPlate icon was introduced to the participants, and then questions were asked regarding MyPlate icon. Three main themes emerged when participants were asked what they had heard about MyPlate. First, they mentioned the benefits of MyPlate. For example, they stated that MyPlate helped them to improve their health and makes them feel better.

“I have heard that it help us eat better, good thing that we have it available in Spanish.”

“By following My Plato we can improve our health and also feel better.”

Second, participants mentioned that they had seen the image or graphics and that MyPlate showed them what to eat in terms of the types of food and the relevant portions.

“It is very graphic, easy to understand and it shows what to eat and what portions they recommend of each group of food.”

Third, some participants mentioned that even though they had heard about MiPlato or had seen the graphic, they did not receive detailed information.

“At the Doctor’s office they had several brochures, it caught my attention last time I went because it was the only brochure they had in Spanish so I start reading it while I waited my turn to go see the doctor. Then I asked the doctor about the brochure and it seemed like he didn’t know how to respond. Now my question is, why do they make this information available if no one wants to say more about it?”

Additionally, participants mentioned the media through which they heard about MyPlate. For example, some mentioned that they had heard or seen the MyPlate icon in schools, radio advertisements, brochures, etc. According to the Audio Today report there are 40 million weekly Hispanic radio listeners in the U.S. who constitute radio’s most engaged listeners; they spent more than 11 hours each week listening to radio (Nielsen RADAR, 2014).

Fruit and vegetable consumption

a) Filling half their plate with fruits and vegetables

Participants were asked the reason they thought MyPlate recommended filling half their plates with fruits and vegetables. Four themes emerged. The most prominent theme was because

it helped with portion control and prevented overeating. Other themes were that it made you healthier, was grounded research and helped increase fruit and vegetable consumption.

“MyPlate recommends the portion that are right for us, to prevent overeating.”

“To measure our portions when we fill our plates, when we are hungry sometimes we eat more than we are supposed to.”

“To encourage people to consume fruits and vegetables, we forget that we must consume them.”

“I can imagine that people who is in charge of designing the information know well according to the research that has been done.”

b) *How easy is it for them to fill half their plate with fruits and vegetables?*

Many participants responded that it was easy to fill half their plates with fruit and vegetables, but interestingly enough, many attached a barrier to accomplishing this task. For example, they stated that it was easy but it depended on the season, or it was easy but it depended on the price, or it was easy but it depended on their children.

“If we have a garden it would be easier to consume fruits and vegetables as MyPlate suggest.”

“It is easy but it depends on the season, they are times when is cheap so that’s the time when we are able to consume fruits and vegetables but sometimes we try but is too expensive for us.”

“I would say that is easy for me because I enjoy eating fruits and vegetables but it depends on the price.”

A few individuals also mentioned that it was not easy for them to fill half their plate with fruits and vegetables because they disliked the flavor.

“I don’t eat fruits and vegetables, I don’t like how it taste so I just decide not to consume them.”

“We don’t like fruits and vegetables, is the flavor that I dislike.”

Difficulties of filling half their plate with fruits and vegetables

Three themes were derived from this analysis. The first theme was related to cost. Participants mentioned that the price of fruits and vegetables was too high with their limited income. Participants also mentioned that fruits and vegetables were not filling compared to other foods that can be purchased for the same amount of money. Finally, they mentioned that fruits and vegetables had a short shelf life.

“Most of the times we don’t make enough money so we go find what is cheap and you all know that fruits and vegetables are not cheap so sometimes we can’t afford to buy them.”

“We go shopping every two weeks and fruits and vegetables won’t last that long, so I consume fruits and vegetables for the first couple of days after going grocery shopping, but after that I don’t.”

“It is difficult fruits and vegetables don’t make you feel full, so if I have to spend \$1 to buy an apple I rather spend that \$1 in a hamburger, is the same price but the hamburger makes you feel full.”

c) *Motivators to fill half their plate with fruits and vegetables*

Two main themes emerged. The first was the need to be a role model for their children and the other was that consumption of fruit and vegetables could have positive long-term benefits in terms of preventing chronic diseases and improving general strength and well-being. Second, several motivators were identified, for example, long-term consequences, their desire to feel better and have more strength and wanting to be a role model for their children.

“I think about the long term consequences, it would be easier to breathe, run and have a longer life.”

“I heard that eating right we can prevent many diseases in the future.”

“If as mothers, we fill half the plate with fruits and vegetables our children will learn from us and will do the same. We have to give a role model for them.”

Lean protein consumption

a) *Filling one-quarter of the plate with lean protein*

Participants were asked why it was recommended to fill one-quarter of their plates with lean protein. Many stated that it was what their bodies required to function, to add variety their diet, and to prevent overeating and diseases in the future.

“MyPlate recommends to fill one – quarter of our plate with lean protein because is what our body requires to function and is the best way to prevent diseases and stay healthy.”

b) *How easy is it to fill one- quarter of their plate with lean protein?*

Many participants communicated that it would be easy for them to fill one-quarter of their plates with lean protein but stated they lacked knowledge about this recommendation.

“It’s easy after being informed, before knowing I used to fill my whole plate with chicken.”

“I think is easier that increasing my consumption of fruits and vegetables, I eat skinless chicken or if is not chicken I consume beans; I fill around one – quarter of my plate with it.”

c) Difficulties of filling one- quarter of their plate with lean protein

The main theme that emerged when participants were asked how difficult it was to fill one-quarter of their plate with lean protein was that it was not easy. They stated that was not easy for them to measure protein while filling their plate because they ate legumes on a separate plate, and most times their protein portion was more than the recommended one-quarter of the plate.

“Is not easy, it’s difficult to measure the portion of protein. We eat beans and lentils in a separate plate, most Hispanics do the same.”

“We just eat what is available sometimes is more than one- quarter of my plate with lean protein, sometimes is less than that.”

Some participants mentioned that it was not easy because the protein portion recommended by MyPlate was not enough. They were concerned that if they filled one- quarter of their plate with lean protein they would still be hungry.

“I would say is difficult, I think is not enough and if I eat according to that recommendation I’d stay hungry.”

“We usually eat more than recommended portion for lean protein, one – quarter is not enough to function according to our activities.”

d) Motivators of filling one- quarter of their plate with lean protein

When participants were asked what would encourage them to fill one-quarter of their plate with lean protein most of them mentioned health outcomes, such as, to prevent chronic diseases in the future and for weight management. One participant said that she wanted to start taking care of her health and even lose weight by following these recommendations. Other participants mentioned that they wanted to improve their children’s health.

“I want to start taking care of my health, I don’t want to suffer diabetes. I have relatives that have that disease. That motivates me.”

“My children are my motivation, already knowing the recommendations I feel motivated to start filling my plate that way.”

Consumption of oils instead of solid fats

a) Replacing solid fats with oils when possible

Participants were asked why it was recommended to replace solid fats with oils. Two themes emerged. First, many participants mentioned that they thought oils were recommended to replace solid fats because of health reasons. One individual in this group also mention that solid

fats can block a person's arteries. A couple participants also mentioned that oils were recommended because solid fats tend to cause diseases in the future.

"I heard is because butter blocks your arteries, so is better to cook with oils; it makes your food healthier."

"Oils less harmful than solid fats and the cooking method is very important."

Second, even though participants were aware that oils should be used instead of solid fats they mentioned that solid fats had a better flavor and that the food didn't have the same taste if it was cooked with oils.

"Lard has a better flavor but I have heard that olive oil is better for my health."

"I know oils are better for us, but they are definitely not tastier than lard."

Interestingly enough, few individuals questioned the findings of this recommendation. They mentioned that their grandparents cooked with Manteca and they weren't obese.

"What amazes me is that our grandmothers cooked with Manteca [lard] and they were not suffering from obesity."

b) *How easy is it to replace solid fats with oils when possible?*

Two different themes were emerged when participants were asked how easy it was for them to use oils instead of solid fats. On the one hand, most of the participants mentioned that it was not easy for them to replace solid fats with oils because of several reasons. For example, one participant indicated that they didn't like the flavor of oils and that they were used to cooking their meals with lard instead of oils. Others mentioned that they didn't know oils were better than solid fats.

"We cook with manteca [lard] , it has more flavor and we [Hispanics] don't use oils at all."

"I would lie if I tell you is easy because I have never tried cooking with oils, I didn't know lard was bad for your health but I'm going to try it, I have nothing to lose."

On the other hand, few participants stated that it was easy for them because they were already used to the flavor of oils and chose to consume them because they were better for their health.

"At home we use oils instead of solid fats because is better for our health, we are used to the flavor and is not too bad."

One participant revealed that she started cooking with oils to care for her health and prevent diseases.

"I started cooking with oils since my mother was diagnosed with diabetes, I don't want to go through the same situation, so for me is easy because I'm already used to it."

c) *Difficulties of replacing solid fats with oils when possible*

When participants were asked what makes it difficult to use oils instead of solid fats, several barriers were identified. For instance, many participants revealed that they disliked the flavor of oils. They also mentioned that it was difficult to make the change because of a cultural fact.. Several participants even said that was too late to make this change. Others indicated that it was possible to make the change when they ate at home, but when they ate out it was more difficult to control. It is important to add that a few mentioned that consuming oils is not difficult because the flavor is “not too bad.”

“It’s hard because of my culture, I’ve always been told that cooking with lard is good because it adds flavor to our food, and then; they try to tell me that is not good and that I have to switch to oils. It is difficult to make this change happen.”

“Is cultural, I can’t imagine cooking with oils instead of butter or lard. For example, if I cook charro beans with oils I’d have to use the whole bottle, if not; you know that it wouldn’t have any flavor.”

“Is difficult to control the consumption of solid fats if we go out to eat or if someone invite us to eat at their house, there’s nothing we can do about it.”

d) *Motivators of replacing solid fats with oils when possible*

When participants were asked what would encourage them to replace solid fat for oils, most of them seemed motivated to make the change, mostly for health reasons. They indicated that making the change could improve their health, prevent diseases and even bring about some weight loss. They also mentioned that it would take time for them to get used to it, but they were willing to make the change if someone gave them the information on how to do it.

“I want to lose more weight, I have lost 12 kg in 3 years. I started to eat better but I still use lard to cook my meals, I need to change this. I’d like to be able to live many years and enjoy my kids and watch them grow up, my mother was diagnosed with diabetes 7 years ago and since that we started eating healthier and we are having good results thanks to God.”

“Is about changing the way we cook our food, it has less flavor [oils] than lard or butter but we can get used to it little by little.”

Low-fat milk consumption

a) *Recommendation of including low-fat milk in their diet*

When participants were asked why it was recommended to include low-fat milk as part of their diet two main themes emerged. First, to reduce the consumption of fat and calories, and second for health and nourishment. One participant also said that he knew that milk was a good

source of vitamins but they [Hispanics] drank too much milk, noting their preference for whole milk.

“I think that low – fat milk is better for our body, we can nourish our body without many calories from fat.”

“I imagine that a reason why is recommended is to not consume many calories from fat when drinking milk, as we abuse food now is recommended to count calories for everything.”

b) *How easy is it to include low- fat milk in their diet?*

The majority of participants indicated that it was easy to include low-fat milk in their diet, especially if they had the knowledge of what milk is best for them. One participant also mentioned their knowledge of low-fat milk being derived from the Special Supplemental Nutrition Program for Women, Infants and Children (WIC) and their recommendation of using this type of milk. Others mentioned that it was easy, but attached a condition such as its availability in the refrigerator and whether it cost the same as regular [whole] milk. A couple of participants stated that it was not easy for them to include low-fat milk because they preferred whole milk and thought low-fat milk had a “weird taste” and was more expensive, so they went by what is tastier and cheaper.

“Is easy for me, I’m willing to buy and consume what is better for my health and WIC recommends low-fat milk.”

“I would say is easy for me to drink low-fat instead of whole milk, I’m not very picky about the milk and I just drink what I have in my refrigerator.”

“It’s hard, usually we buy what is cheaper and whole milk is less expensive than the low-fat. So why should I consume what is more expensive and has less flavor?”

c) *Difficulties of including low-fat milk in their diet*

Participants were asked what made it difficult for them to consume low-fat milk. The main theme that emerged was a dislike for the taste, flavor or consistency. They stated they usually bought what was tastier, they disliked the flavor of low-fat milk and they preferred and were used to whole milk. A few remarked that it was difficult because low-fat milk was more expensive than whole milk. One participant pointed out that he was used to drinking whole milk and he remembered that when he was a kid he used to drink milk straight from the cow. A few participants mentioned that they lacked knowledge of the benefits of low-fat milk and that the price was a determinant.

“One time we bought low- fat milk by mistake and we had to throw it away the taste and texture was very similar to water.”

“Is difficult because no one has told me which milk is better, we just go by the one is tastier.”

“I’ve heard that low-fat milk is around 40 cents more than whole milk, is more expensive but it’s worth it because is better for my health.”

d) Motivators of including low-fat milk in their diet

When participants were asked what encourage them to include low-fat milk as part of their diet two themes emerged. Health and weight issues were the main reasons. For example, a few mentioned that they were willing to drink low-fat milk to be healthier, have more energy and not be overweight and even lose weight. Interestingly, a couple said that what encouraged them was to have their children learn to drink the milk that is recommended. Because they consumed what their parents made available for them, if they [as parents] bought low-fat milk, that’s the milk that their children would be drinking.

“If I start including low – fat milk to my diet I can be healthier and with more energy.”

“I think that the most important thing here is to make our children learn to drink the milk that is recommended [low-fat milk]. They basically consume whatever we make available for them so I think that I we start buying low – fat milk they can get used to it.”

“I feel encouraged to drink low – fat milk, I want to be healthier and my real motivation is to lose weight, I’d like to lose a few pounds and I think that if I drink low – fat milk I can make that happen.”

Seafood consumption

a) Recommendation of seafood consumption

Two themes emerged when participants were asked why MyPlate recommended eating seafood twice a week: for health reasons and because of the nutrients present. Participants generally mentioned that seafood was good for their health. Second, they stated that seafood was low in fat and that it contained omega 3 and 6, protein and vitamins.

“I think seafood is recommended because is low in fat, is not greasy and is healthy food; good for our body.”

“Is recommended because seafood is healthy and low in fat. Also, because of the high content of protein and Omega 3 and 6.”

b) How easy is for them to include seafood in their diet?

Many participants stated that it was easy to include seafood in their diet with some saying that they used it at least once a week. In addition to stating that it was easy to use seafood, these participants also identified barriers, such as availability and access issues. Some stated that they bought seafood only when it was on sale. Participants also stated that it was not easy to include

seafood because it was expensive or not available, and as a result they used it only for special occasions.

“At home we love seafood, but we consume it on special occasions or if we go out to eat to the Mexican restaurant I usually order tilapia but is expensive, the plate costs \$12.”

“There are times when tilapia fish is on sale so we buy enough and freeze it.”

“I like eating seafood but it depends on the place we live, when I lived in Acapulco we used to eat seafood every day. Every morning we used to go fishing what we were going to eat that day, it was fresh and free seafood. Here in Kentucky, we eat seafood once a week.”

c) *Difficulties of including seafood in their diet*

Most participants mentioned that seafood was difficult to include in their diet because of the price. They stated that seafood was expensive, especially for large families. Others mentioned that they considered seafood a luxury item only to be used once a month or for a special occasion. A few individuals shared that it was not difficult to include seafood and that they ate it regularly.

“I have a big family, could you imagine how much seafood I would have to buy? Is very expensive, when we eat seafood, we have to eat it with around 10 tortillas.”

“Seafood is not on my list when I go grocery shopping, we don't eat seafood because is expensive; I would even say is a luxury.”

“Eating seafood is difficult for us, I would say we can afford to eat seafood once a month.”

“We eat seafood often, is not difficult for us.”

d) *Motivators of including seafood in their diet*

Health reasons and a desire to follow the recommendation or guidelines were the main themes that emerged when participants were asked what would encourage them to include seafood in their diets. One person mentioned they would be motivated to include seafood in his or her diet so as to be a role model for their children.

“To prevent diseases in the future, that's the reason why I feel motivated to eat more seafood at least occasionally. I believe is worth the effort because I would like to age without suffering any disease.”

“What motivates me is to follow the guidelines, eat what is recommended by MyPlate.”

“To teach our children, our children need to learn to consume seafood regularly. Seafood should always be part of our diet.”

Objective 4: Hispanics knowledge, perceptions, benefits and barriers related to the Physical Activity Guidelines for Americans.

The last question was regarding the physical activity guidelines that recommended 30 minutes of moderate physical activity at least five days a week. Six questions were discussed regarding physical activity.

Description of moderate physical activity

When participants were asked how they would describe moderate physical activity the main theme that emerged was playing at the park with kids. Some even mentioned playing at the park instead of watching television. A few others described moderate physical activity as being active, and walking, using the treadmill, dancing, biking, parking further away, engaging in sports such as soccer, and being involved in work related activities.

“For me physical activity is going to the park with my children, we like to play at the park instead of sitting 2 hours to watch a movie.”

“I would describe physical activity as having our body in motion, for example going out to dance or get on the treadmill at least occasionally.”

“I work at a horse farm, I’m always active when I’m at work.”

Do you practice any type of moderate physical activity? Give examples

When participants were asked if they practiced any type of moderate physical activity, three themes emerged. First, the majority of participants viewed their daily work activities such as unloading a truck, construction, cleaning, and restaurant work as practicing moderate physical activity. Second, participants mentioned that taking their children or grandchildren to the park was a form of moderate physical activity they practiced. Third, participants identified dancing and dance related physical activity, such as zumba, as a moderate physical activity they practiced. A few individuals mentioned that they did not have the time to take part in physical activity because they worked long hours or a second job and did not have the time after work, or that the exercise they did at work was enough.

“I just do some at work, I work in the restaurant, so I’m always carrying heavy trays and moving from one side to another, usually work 14 hours a day non- stop so when I get home I just want to watch football.”

“I usually practice physical activity, I go out to the park with my grandchildren.”

“What I do at work is load- unload the truck, every day. When I get home I’m usually tired and I can hardly do anything. I think that the exercise I do at work is enough.”

“I always go dancing when a musical group comes to town, I also joined to the zumba classes.”

Benefits related to physical activity

Three themes emerged when asked the benefits of practicing moderate physical activity. First, most participants mentioned benefits of physical activity as related to mental health, that is, emotional, psychological, and social well-being. Second, participants mentioned the benefits of physical activity as related to the prevention of chronic diseases, and third, for weight management.

“I would say that physical activity extends your life and it makes you feel happy, around 10 years ago I had the worse depression, and the first thing the doctor recommended me is to go out to exercise, walk and get some fresh air. I started doing what the doctor recommended and then I felt better, it gives you motivation.”

“You can prevent chronic diseases and maintain a proper weight.”

“I think that physical activity is important, helps you not only physically but also mentally healthy body equals a healthy mind.”

Perceptions of physical activity

How easy is it to practice 30 minutes of moderate physical activity, at least 5 days per week?

Many participants felt that it was easy to practice 30 minutes of moderate physical activity if they made time or the commitment. This emerged as the main theme. The second theme observed was that participants felt that it was easy to practice 30 minutes of physical activity because it made them feel better or improved their emotional health.

“Easy when I commit to do it, I work out at home when I have time, I feel good when I exercise.”

“I enjoy when I go out for a walk, I get energized I feel like more awake, if not; I am on the couch I feel horrible.”

“It was easy for me as well, that was the time when I used to get together with my friends, but unfortunately I don’t have time now, between one job and another one.”

Barriers related to physical activity

When participants were asked how difficult it was for them to practice moderate physical activity, two themes were observed. The main theme was related to lack of time. Some worked more than one job and did not think it was possible to exercise because they were usually tired and lacked energy at the end of their busy work schedules. The second theme observed was related to the weather in Kentucky. Participants stated that during the winter, it was very difficult for them to go out to the park with their children. They didn’t feel motivated during the winter because of the cold weather. Others mentioned that the streets got very dangerous during winter

and they preferred to stay at home. The issue of safety was mentioned by one participant regarding using neighborhood parks.

“For me is difficult since I have 2 jobs, I always get home exhausted then I have to cook and do work at home. I don’t have time to exercise.”

“It’s difficult during the winter, plus I don’t usually drive during that time, it’s too dangerous.”

“I enjoy going to the park with my children but the park that is close to the house is unsafe, I cannot go there and expose my children.”

Motivators of practicing 30 minutes of moderate physical activity, at least 5 days per week

Participants mentioned that they felt motivated to practice physical activity to improve their quality of life, which included looking and feeling better, preventing chronic diseases and losing weight.

“Look better and prevent diseases and lose weight, that’s what motivates me.”

“First thing it comes to my mind is that I don't want to be like my aunts they are young and already sick, they both have diabetes. Exercise makes you healthy, you can prevent all these conditions.”

CHAPTER FIVE

The purpose of this study was to examine Hispanics' knowledge, perceptions, benefits and barriers of the DG for Americans. The objectives were:

1. To describe Hispanics' perceptions of healthy eating
2. To determine Hispanics' knowledge, perceptions, benefits and barriers of the Dietary Guidelines for Americans
3. To explain Hispanics' knowledge, perceptions, benefits and barriers of the My Plate recommendations for healthy eating related to:
 - i. Filling half their plate with fruit and vegetables
 - ii. Filling one-quarter of their plate with lean protein
 - iii. Consuming oils instead of solid fats
 - iv. Consuming low-fat milk products
 - v. Consuming seafood
4. To explain Hispanics' knowledge, perceptions, benefits and barriers related to the physical activity guidelines for Americans

Objective 1: Hispanics' Perceptions of Healthy Eating

There are many determinants of healthy eating in the literature, mainly including specific categories of foods, nutritional qualities such as low fat, low sodium, high protein or vitamin content, and food qualities. However it seems that focus group participants focused on only a few of these determinants and they lacked a holistic view of healthy eating. There is a need to examine this issue and provide information that can be used as tools to educate and raise awareness of the full concept of healthy eating and making healthy choices for Hispanics who are presently experiencing disparity in obesity and chronic diseases. A clear description of what participants in this study think healthful food is, as well as knowing actual barriers of healthful food consumption, may help focus healthful eating interventions among Hispanics, leading to more successful efforts.

Participants in this study viewed healthy eating as consuming the correct portions of food either by measuring foods eaten or by using a smaller plate to control portion sizes. Focus groups conducted by the Office of Disease Prevention and Health Promotion (ODPHP) of the U.S. Department of Health and Human Services (DHHS) as part of the audience research to develop and

test consumer materials to communicate the revised 2010 DG for Americans showed that participants understood healthy eating as the consumption of foods low in fat, and sodium. In addition, they equated healthy eating with the intake of fruits and vegetables, eating a balanced diet in moderation, eating smaller portions, and weight control. Participants in these focus groups were mainly non-Hispanics Whites but few Hispanics were included in the study population. Although eating smaller portions was mentioned by the ODPHP group of participants, in this study portion control was central to how participants viewed healthy eating.

Hispanics are disproportionately affected by obesity and chronic health conditions (CDC, 2012). It could be that because of the prevalence of obesity among Hispanics, participants may have been able to see the connection between weight management and portion control. Additionally, portion sizes have increased drastically over the years and Americans are able to find large portions at low prices (CDC, 2014). It could also be that participants could have made the connection between healthy eating and the need to reduce large portions.

Contrary to what is present in the literature, only one participant from this study mentioned fruits and vegetables when describing their perception of healthy eating. Kilanowski (2015) conducted focus groups that examined the influences on healthy eating and decision making among Hispanics. Fruits and vegetables were among the three main themes were identified as healthy eating. In addition, fruits and vegetables were consistently the most frequently offered definition of healthful eating in focus groups regardless of income or race (Eikenberry & Smith, 2004). Results from the 2014 Healthy America's Survey showed fruit and vegetable intake to be low among Hispanics. For example, only seven percent of Hispanics and eight percent of non-Hispanic blacks reported eating five or more servings of fruits and vegetables daily, compared to 18 percent of non-Hispanic whites who reported five or more servings per day. A study that examined fruit and vegetable intake among low-income overweight and obese Hispanic adults found that Hispanics do not meet the fruit and vegetable recommendations (Duarte-Gardea & Burgos, 2014). It could be that this population did not mention fruit and vegetables as their idea of healthy eating because of the barriers they experience in using fruit and vegetables.

The benefits of a diet rich in fruit and vegetables permeates the literature, and several studies show that there is a direct correlation between consumption of vegetables and fruits and reduction of risk of many chronic diseases. In addition, fruits and vegetables tend to be low in calories, and replacing calorie dense foods with fruit and vegetables can help achieve and maintain a healthy weight (USDA, 2010). The fact that most participants in this study did not include fruit and vegetables in their definition of healthy eating may indicate a need for nutrition education in this area.

A few participants from this study viewed healthy eating as taking care of their body so as to avoid being overweight and to prevent diseases, and equated healthy eating with these outcomes. Similar to the findings in this study, participants from focus groups conducted by ODPHP and DHHS reported weight loss played a role in the choices they made about what to eat; participants often referred to eating salads, limiting their fat intake, limiting their calories, and replacing unhealthy foods with healthy alternatives. Participant also mentioned they were using smaller plates, eating food slowly and chewing thoroughly, and eating only until they were no longer hungry. They also mentioned as a reason or motivator to healthy eating to decrease their risk of disease such as diabetes, high blood pressure, high cholesterol, and heart attacks. Others stated that healthy eating was related to managing diseases such as diabetes, high blood pressure, high cholesterol, and heart attacks.

In this study participants also mentioned barriers such as lack of time and money when asked about their perceptions of healthy eating. Grimm and Blanck (2009), in a survey comparing the proportion of Hispanic and non-Hispanic whites who met objectives for fruit and vegetable consumption by survey language preference (Spanish vs English), found that the low-income environment fused with other barriers to healthy eating, for example, financial constraints to buying fresh produce and fruits along with having little time to cook healthy meals due to long working hours outside of the home. In a study among low-income subjects who were asked to indicate barriers specifically for healthful eating. Results showed that the most relevant barriers to healthful eating were time and financial considerations, similar to what was identified by this study's participants in the focus groups (Eikenberry & Smith, 2004).

Objective 2: Knowledge, Perceptions, Benefits, and Barriers of the DG

Hispanics from this study had a positive perception of the DG, however, a lot of effort must be devoted to working with this group to provide culturally appropriate nutrition education so that they can follow the recommendations. There is a need to ensure that community-based nutrition education programs are culturally and linguistically appropriate and use sustained and comprehensive interventions to maximize effectiveness. It should also consider the variety of factors that impact an individual's environment (Briefel & Johnson, 2004). The Hispanic population needs health advocates who would be able to understand their needs and promote nutrition education that is culturally and linguistically appropriate for them.

In order to determine the knowledge, perceptions, benefits and barriers of Hispanics regarding the DG, participants were asked to describe what they have heard, what were their thoughts and feelings, and the benefits and barriers regarding the DG.

Three themes were identified. First, most participants mentioned they had heard about the

DG and that it was a guide to raise awareness on healthy eating, preventing diseases, and if followed was a way to increase quality of life. Second, they stated the need for culturally appropriate information about the recommendations in the DG. Third, they mentioned barriers related to access and affordability.

Awareness

A systematic review of studies reviewing consumer awareness, understanding and use of food based DG showed that consumers were generally aware of the DG and that many other factors are involved and determine whether this awareness translates into improvement in dietary habits. It has been indicated that awareness by itself is not a panacea and that even though universally, people are aware of health problems related to being overweight, obesity remains an epidemic (Guthrie, Derby, & Levy, 1999). There have been multiple studies that have shown that acculturation has been a key factor which affects the dietary intake of Hispanics. Using data from the NHANES III, researchers found that Mexican immigrants generally met the recommended DG more often than Hispanics of Mexican origin born in the United States (Dixon, Sundquist & Winkleby, 2000). Another study found that less-accultured Hispanics had lower intakes of protein, sodium and percentage of energy from fat (Mazur et al. (2003). Ayala et al. (2005) showed the more acculturated Hispanic women eat lunch and dinner outside of the home more often.

Several barriers were identified when participants described their knowledge, perceptions, benefits and barriers of the DG. Many stated that even though they had some idea of the DG, more information was needed. Some participants stated specifically that they needed someone to explain the DG to them, why they are recommended and how to apply the information.

Nutrition education materials are available for the Hispanic population living in the U.S, but their use might be limited because many of these materials are not adapted to Hispanics cultural preferences and dietary patterns (U.S. Department of Agriculture, 2013). Health and nutrition education programs that are made available in Spanish may not be sensitive to cultural differences. Moreover, many health education workers have not been trained to work with the Hispanic population.

Participants in the present study stated the need for culturally appropriate information about the recommendations in the DG. Eating patterns and cultural preferences of Hispanics living in the U.S. are different from those of the general non-Hispanic U.S. population (Briefel and Johnson 2004). Mercado (2014) presented “The Latino Way Food Guide” that highlights the different eating patterns among Latinos in the U.S. This food guide reflects the nutritional needs, food preferences, traditions, and include the different eating patterns of the multiple Latino groups in the U.S. The main purpose of this guide is to reduce the “cultural gap” and improve nutrition education among

the Latino population in the U.S. The guide also raises awareness of the diverse eating patterns existing among Latinos.

For example, it is part of the Hispanic culture to eat a light meal for breakfast but a heavier meal for lunch. This lunchtime meal, referred to “el almuerzo,” “el almuerzo,” is the main meal of the day for Hispanics. El almuerzo is an important time of the day as this is when family members get together for conversation and quality family time. “La siesta,” which is a short nap after el almuerzo, is another cultural practice among Hispanics, but is starting to disappear in the urban cities due to busy schedules. Around 10 p.m., la cena, a small supper, concludes the day’s meals. If these cultural patterns and preferences are not known it is easy to make recommendations that are not tailored to the needs of Hispanics. Additionally, usually when food or a special invitation are offered to Hispanics, they tend to accept only after it is offered a second or third time (Melgar-Quinonez, 2008). The Hispanic population need nutrition education that is culturally and linguistically appropriate for them.

Access

Access was another theme derived participants discussions. Participants felt that many foods recommended in the DG were not easily accessible. For example, some of the participants from this study mentioned that the DG was difficult to follow when shopping because healthy items are expensive, unavailable, or difficult to find in their neighborhood stores. Studies have shown that there is a lack of access to supermarkets that offer fresh and nutritious foods in low-income neighborhoods and less healthy items are heavily marketed in the convenience stores in Hispanic neighborhoods (Briefel & Johnson 2004).

Lack of access to healthy food items in Hispanic neighborhoods is a persistent problem. Low-income Hispanic families spend about one-third of their income on food items, which usually include calorie-dense meals that are low in fiber and high in fat and sodium. A study that examined food purchasing selection among Latinos mentioned a correlation between poverty and obesity. Individuals who suffer financial constraints tend to buy low-cost food that is more calorie dense and filling. An influential explanation for the relationship between poverty and obesity is economic; low-income individuals tend to buy low-cost food that is more calorie-dense and filling because low-cost foods are more palatable, easier to prepare and more filling (Cortés et al., 2013).

Few participants from this study mentioned the DG was not aligned to their lifestyles in terms of energy needs. They described these guidelines as difficult to follow mostly because of their job, or because they felt that the portions suggested in the guidelines were too small and they were afraid that if these recommendations were followed it would result in them feeling weak or lacking energy.

Objective 3: Knowledge, Perceptions, Benefits, and Barriers of the Choose MyPlate recommendations for healthy eating

Participants identified and experienced several barriers related to following the recommendations of the DG, MyPlate, and certain foods. The knowledge barriers were a theme that permeated several areas. Barriers from the built environment were lack of availability of healthy, fresh, inexpensive grocery options in the local community and limited healthful choices in Hispanic neighborhoods. According to my findings, participants saw the MyPlate recommendations as related to health, disease prevention and weight management. Even though they stated that MyPlate is a helpful tool for healthy eating, they also talked about how the portions were too small and felt that the portions would not provide sufficient energy for the activities they performed during the day

The Choose MyPlate, or the Spanish version (MiPlato) has been used to prompt consumers to build a healthy eating pattern and guide them to resources and tools to put the DG into action. The effort to communicate to all ethnic groups was accomplished by translating MyPlate into many languages in order to reach various audiences including diverse age groups and cultural consumption patterns (CDC, 2012).

In this study, participants were asked questions regarding MyPlate recommendations: Why they think it is recommended, how easy or difficult it is for them to fill their plate that way and what would encourage them to fill their plate that way. Participants' main rationale for including foods or food groups recommended in MyPlate was due to of health reasons, to prevent overeating, and to prevent diseases. They also mentioned that they would be encouraged to make changes based on the DG and MyPlate recommendations for health reasons, to prevent diseases and to manage their weight.

Barriers were the main theme that permeated most responses. For example, barriers included lack of knowledge about the recommendation, price, cost, and taste. Participants mentioned the cost barrier especially in the area of fruits and vegetables, low-fat milk and seafood. Taste was identified as a barrier in terms of replacing oils with solid fats such as Manteca and butter, and with substituting low-fat milk for whole milk.

According to a study that examined barriers to fruits and vegetables consumption, cost was mentioned more than a hundred times among all focus groups and was the most frequently described barrier to purchasing fruits and vegetables. Participants cited the price four times as often as any other barrier. They mentioned being disappointment with not being able to consume many fruits and vegetables as they would like (Haynes-Maslow, Parsons, Wheeler & Leone, 2011).

Taste was a barrier for participants from this study. Many shared that they did not like the

taste of low-fat milk. The consumption of low-fat milk instead of whole-milk is used as an approach for reducing saturated fat consumption, but intake of whole milk remains high among Latinos. According to New American Dimensions, Hispanic consumers prefer the taste of whole milk to the taste of low-fat milk. Whole milk represents one third of the total white milk volume purchased by Hispanics nationwide. Almost 50 percent of the milk purchased by Hispanics nationwide is whole and/or 2 percent milk; compared to only 40 percent for non-Hispanics (New American Dimensions, 2007). In this study, participants perceived low-fat milk as being more expensive than whole milk across Hispanic “mercados” [markets], which is not the case in other neighborhoods and that could be related to Hispanics’ drinking more whole milk. Taste was also a factor for many of the participants in the area of replacing solid fats with oil. Many traditional Hispanic meals are cooked with lard for a “better taste.” Participants mentioned that they grew up with this cooking style and it was difficult for them to consume oils because they dislike the flavor.

Remarkably, many participants shared that they would be encouraged to make changes in their diets because of their children. They mentioned that they would make changes because they wanted to be a role model for children, to improve their children’s health and so that their children could follow the recommendations of the DG. According to a recent study that examined dietary adaptation among Latino immigrants, mothers were role-models to teach their children the importance of family, healthy eating and culture. (Cluskey, Petersen & Sun, 2011). Another study that used focus groups to examine Latino family childcare providers’ beliefs, attitudes, and practices related to promotion of healthy behaviors indicated that Latino childcare providers believed they were persuasive in promoting healthy eating and physical activity behaviors for the children in their care. Participants reported using strategies such as role modeling to influence healthy food choices (Lindsay, Salkeld, Greaney & Sands, 2015).

Objective 4: Knowledge, Perceptions, Benefits, and Barriers related to the Physical Activity Guidelines for Americans.

Participants were asked six questions regarding moderate physical activity: How would you briefly describe moderate physical activity, do you practice any type of moderate physical activity, mention at least two benefits of moderate physical activity, how easy is it for you practice 30 minutes of moderate physical activity, how difficult is it for you practice 30 minutes of moderate physical activity and what would encourage you to practice 30 minutes of moderate physical activity, at least 5 days per week. Participants were able to describe moderate physical activity and provided appropriate culturally specific examples, such as being at the park, sports, and dancing. For Hispanics the built environment becomes a very important aspect of physical activity.

Description of moderate physical activity

Playing at the park was central to how participants from this study viewed moderate physical activity. They described taking their kids or grandkids to the park and engaging in sports such as soccer as being physically active. Some even mentioned playing at the park instead of watching television. Participants were able to describe moderate physical activity as walking, using the treadmill or biking but failed to mention these activities when asked the type of moderate physical activity they practiced. It seems that they have the prerequisite knowledge of physical activity but this knowledge does not translate into the actual behavior of engaging in physical activity.

The results of a recent study that examined the factors that influence park use and physical activity in predominantly Hispanic and low-income neighborhoods mentioned that park features associated with physical activity among predominantly Hispanic communities is not extensively researched (Dolash, Meizi, Zenong & Sosa, 2015). Parks are often used for physical activity among vulnerable populations, such as low socio-economic and minority groups. Hence, is important to offer safe parks that could accommodate large families for common Hispanic activities like playing soccer, or picnicking and socializing.

Studies show that many times, Hispanics do not live in areas where the built environment is conducive to physical activity. Some Hispanics live in low-income neighborhoods that tend to be more dangerous and thus, activities like jogging and walking alone would clearly be impacted by this issue. Most of the activities that Hispanics considered as moderate physical activity need outdoor spaces. Improving the design of existing low-income neighborhoods is still a challenge, however success stories exist. In Boyle Heights, a Latino neighborhood in Southern California, the residents transformed a sidewalk with successful results; the path is now being used for jogging and walking while socializing. Crespo et al. (2000) examined data from the Third National Health and Nutrition Examination Survey to consider the relationship between acculturation and self-reported leisure time physical inactivity among Mexican American adults. The study measured acculturation through language preference, the amount of time living in the United States and place of birth. The results demonstrated a higher adjusted occurrence of leisure-time physical activity attributed to Mexican American women compared to men. Interestingly, inactivity was determined to be lower among those who only spoke English than among those who spoke Spanish or both English and Spanish. (Crespo, Smit, Andersen, Carter-Pokras & Ainsworth, 2000).

In other studies, Evenson et al. (2004) analyzed the correlation between physical activity (PA) and acculturation among 1st generation Latinas in North Carolina. For the study, he examined subjects whose median age was of 30 years and around 60 percent were born in Mexico. The study

defined non-occupational PA as meeting the recommendations for moderate activity, or as not meeting the recommendations. Among participants, 42 percent reported insufficient PA while 21 percent reported no moderate or vigorous activity. Thus, 37 percent met either the moderate or vigorous PA recommendation, with only 7.4 percent meeting both recommendations. (Evenson, Sarmiento & Ayala 2004).

Fitzgerald et al. (2006) examined the association between socioeconomic factors, acculturation and lifestyle including PA. The sample consisted of 200 low-income Puerto Rican women living in Hartford CT. In this study, acculturation was measured by English language preference and proficiency. The results from this study showed a positive association between PA and acculturation. (Fitzgerald, Himmelgreen, Damio, Segura-Perez, Peng & Perez- Escamilla, 2011).

Participants viewed work related activities like construction and cleaning jobs as moderate physical activity. They felt that their daily work routine required hard work and as a result it counted as physical activity. A study that examined Hispanic women's attitudes toward PA found a connection existed between physical activity and their jobs. Participants viewed physical activity related to work activities; they also revealed that they did enough physical activity in their jobs, so they considered their work activities as physical activity (Im, Lee, Hwang, Yoo, Chee, Stuijbergen & Chee, 2010).

Mental health

Participants described the benefits of physical activity as related to improved mental health and quality of life such as looking and feeling better. Prevention of chronic disease and weight management were also described as benefits of engaging in moderate physical activity. Similar to my findings, Im et al. (2010) showed that participants described physical activity as a "good medicine for mental health." Participants showed desire to participate in physical activity because they believed that it could reduce stress from their daily lives and could make their mind calm and refreshed. While engaged in physical activity, they could forget their problems and all the burdens from family and work.

Barriers

Several areas were mentioned by participants as barriers to moderate physical activity. The most prominent barrier among participants was the lack of time and being tired because of having multiple jobs and working long shifts. The wintertime in Kentucky was perceived as a barrier to engaging in physical activities. Many participants reported the use of the park and other outdoor activities as physical activity. As a result, physical activity was difficult in the winter as they were not motivated or were afraid to drive in snow.

According to the literature, Hispanics do not meet the physical activity recommendations, but a recent survey showed that they have an interest and appreciate the benefits that outdoor activities provide. Lack of time is generally the main constraint to participation (Evenson, 2002). Another barrier observed by the participants was unsafe neighborhoods; they revealed that they don't feel safe going to the park. The literature shows that Hispanics are less likely than their counterparts to enjoy access to parks and playgrounds. Twenty-nine percent of Latino adolescents have no access to safe parks or open spaces, compared with 22 percent of White adolescents. Latinas mentioned inadequate facilities, cost, and neighborhood safety as barriers to physical activity (Evenson, 2002).

CHAPTER SIX

Conclusion

The Hispanic population is considered the largest minority group in the United States, and includes Cubans, Puerto Ricans, Mexicans, and South and Central Americans. For Hispanics in the United States, health disparities can mean decreased quality of life, loss of work opportunities and perceptions of injustice. For American society, health disparities translate into less productivity, higher health care costs and social inequity.

The Dietary Guidelines Advisory Committee need to consider the nutrition status of U.S. Hispanics. Nutritional care should start with culturally relevant guidelines specific to the Hispanic population's health and nutrition needs. The Choose MyPlate recommendations and relevant menus should include more Hispanic foods and recipes. However, there are no studies in the literature examining Hispanics' knowledge, perception, and benefits of the Dietary Guidelines. This study attempts to fill the gap in this area.

Participants needed a clear description of healthful food, as well as knowing actual barriers of healthful food consumption. This information may help focus healthful eating interventions among Hispanics, leading to more successful efforts. They were interested in learning more about healthy eating and taking care of themselves, however, many participants identified cultural barriers to implementing these concepts. There is a need to examine this issue and provide information that can be used as tools to educate and raise awareness of the full concept of healthy eating and making healthy choices for Hispanics who are presently experiencing disparity in obesity and chronic diseases.

There are many determinants of healthy eating in the literature, mainly including specific categories of foods, nutritional qualities such as low fat/ low sodium or high protein/ vitamin content, and food qualities. However it seems that participants focused on only a few of these determinants and they lacked a holistic view of healthy eating. They also mentioned barriers such as lack of time and money when asked their perception of healthy eating. The low-income environment seems to fuse with other barriers to healthy eating; for example, financial constraints to buying fresh produce and fruits along with having little time to cook healthy meals due to long working hours outside of the home.

Among participants, it seemed that even though they had a positive perception of the Dietary Guidelines a lot of effort must be devoted to working with this group to provide culturally appropriate nutrition education so that they can accomplish the recommendation. Even though they stated that MyPlate is a helpful tool for healthy eating, they also talked about how the portions recommended are too small and did not provide the energy to work. Providing the Hispanic

population with health advocates who would be able to understand their needs and promote nutrition education that is culturally and linguistically appropriate for them might help facilitate the adoption of the recommendations in the DG. Many participants cited that they would be encouraged to make changes in their diets because of their children. They mentioned that they would make changes because they wanted to be a role model for children, to improve their children's health and so that their children could follow the recommendations of the dietary guidelines. Being a role model can potentially be used as theme for interventions geared towards Hispanic audiences in Lexington and possibly in other states.

It has been recognized that educational materials related to nutrition programs for Hispanics should be culturally adapted and not just translated from English into Spanish. It is important to consider the variety in food patterns among Hispanics in the U.S., depending on their country of origin; it is common to assume that all Hispanics have the same food preferences and patterns.

Lack of access to healthy food items in Hispanic neighborhoods is a persistent problem. Low-income Hispanic families spend about one-third of their income on food items, and usually includes calorie dense meals, low in fiber and high in fat and sodium. Hispanics need to be connected to resources, such as farmers markets, that would increase access to healthy foods (Im, 2010).

For Hispanics, the built environment is a very important aspect of physical activity. Most of the activities that Hispanics considered as moderate physical activity need outdoor spaces. Improving the design of existing low-income neighborhoods is still a challenge and culturally appropriate programs for physical activity are needed in this population in an effort to improve participation in physical activity among Hispanic populations. A study that examined Hispanic women's attitudes toward physical activity found that participants felt that they did enough physical activity at their jobs, so they considered their work activities as physical activity.

Thus they thought they would not need to do any more physical activity after work (Im, 2010).

Assumptions and Limitations

The following assumptions were made during this study. First, this study assumed that the focus group guidebook was valid and reliable. Second, it was assumed that participants would share freely their knowledge, beliefs, attitudes, and perceptions of the Dietary Guidelines for Americans and the MyPlate recommendations for healthy eating. Third, it is assumed that the subjects in this study represent the Hispanic population of Lexington, Kentucky.

Focus group methodology has its limitations. The focus group relies heavily on assisted

discussion to produce results; consequently, the facilitation of the discussion is critical. One of the main limitations of the study was the amount of participants examined, only 24 subjects were included in data collection, the majority being Mexicans. It could be that responses are more unique to this population.

Future Research and Practice

Future studies should examine Hispanics' knowledge, perception, and benefits of the Dietary Guidelines in different geographic regions of the United States with a more diverse Hispanic population. Community-level interventions are needed to make it easier for Hispanics to adopt healthier lifestyles through greater access to healthy foods and more physical activity. Also, studies are needed on the impact of health and paraprofessionals delivering culturally competent services, particularly related to healthy eating and physical activity. Hispanics were not asked about their perception of the recommendation to consume at least half of total grains as whole grains.

Appendix A

Guía para grupo de enfoque

1. ¿Cómo describirían ustedes comer saludable? ¿Qué significa comer saludable para ustedes?

Examinar: ¿Razones por las que se sienten de esta manera?

Las Guías Alimentarias recomiendan comer saludablemente, lo cual significa:

- Enfocarse en el consumo de frutas, verduras, granos enteros y productos lácteos con bajo contenido en grasa o sin grasa.
- Incluir productos de origen animal bajos en grasa, productos marinos, frijol, huevos y nueces.
- Consumir alimentos con bajo contenido de grasas saturadas, grasas trans, colesterol, sal y azúcares.

2. ¿Han escuchado acerca de las Guías Alimentarias para Estadounidenses? ¿Qué han escuchado?

Déjeme refrescar su conocimiento, las Guías Alimentarias son unas guías de salud hechas para promover el consumo de comida saludable, lo cual significa:

- Enfocarse en el consumo de frutas, verduras, granos enteros y productos lácteos con bajo contenido en grasa o sin grasa.
- Incluir productos de origen animal bajos en grasa, productos marinos, frijol, huevos y nueces.
- Consumir alimentos con bajo contenido de grasas saturadas, grasas trans, colesterol, sal y azúcares.

3. Con base en lo que ustedes saben, podrían describir lo que piensan y sienten acerca de las Guías Alimentarias para Estadounidenses.

Examinar: Razones por las que se sienten de esta manera

4. ¿Creen que las las Guías Alimentarias para Estadounidenses podrian ser de beneficio para ustedes? ¿Por qué? (Beneficios)

Examinar: Razones por las que son de beneficio para ustedes

5. ¿Podrían compartir conmigo algunas razones por las que piensan que las Guías Alimentarias para Estadounidenses no son de gran ayuda para ustedes? (Barreras)

Examinar: Razones por las que se sienten de esta manera?

6. MiPlato sugiere a consumidores llenar el plato de alimentos saludables a la hora de las comidas. (Enseñar imagen de MyPlato y explicar cómo llenar el plato con la mitad de vegetales y frutas, proteína baja en grasa y granos).

a) ¿Qué han escuchado de MiPlato? (Conocimiento)

7. MiPlato recomienda llenar la mitad de su plato con frutas y vegetales

a) ¿Por qué creen ustedes que se recomienda llenar el plato con esas cantidades de frutas y vegetales?

b) Describanme qué tan fácil es hacer esto para ustedes ¿Por qué?

c) Describanme qué tan difícil es hacer esto para ustedes ¿Por qué?

d) ¿Qué los motivaría a llenar su plato de esta manera?

8. La Guía de MiPlato recomienda llenar la cuarta parte de su plato con proteína baja en grasa (salmón, pavo, lentejas)

a) ¿Por qué creen ustedes que se recomienda llenar el plato con esas cantidades de grasa?

b) Describanme qué tan fácil es hacer esto para ustedes ¿Por qué?

c) Describanme qué tan difícil es hacer esto para ustedes ¿Por qué?

d) ¿Qué los motivaría a llenar su plato de esta manera?

9. La Guía de MiPlato recomienda que ustedes usen aceites (aceite de canola, aceite de olivo) para remplazar aceites solidos como la manteca, grasa de puerco y mantequilla cuando sea posible

- a) ¿Por qué creen ustedes que se recomienda usar ese tipo de aceites?
- b) Describanme qué tan fácil es para ustedes usar aceites en lugar de manteca, grasa de puerco o mantequilla? ¿Por qué?
- c) Describanme qué tan difícil es para ustedes usar aceites en lugar de manteca, grasa de puerco o mantequilla? ¿Por qué?
- d) ¿Qué los motivaría a usar aceites en lugar de manteca, grasa de puerco o mantequilla?

10. La Guía de MiPlato recomienda que ustedes usen leche baja en grasa como parte de su dieta

- a) ¿Por qué creen ustedes que se recomienda usar leche baja en grasa?
- b) Describanme qué tan fácil es para ustedes consumir leche baja en grasa? ¿Por qué?
- c) ¿Qué tan difícil es para ustedes consumir leche baja en grasa? ¿Por qué?
- d) ¿Qué los motivaría a consumir leche baja en grasa?

11. Las Guías Alimentarias para Estadounidenses recomienda a individuos consumir productos de origen marino.

- a) ¿Por qué creen ustedes que se recomienda comer productos de origen marino?
- b) Describanme qué tan fácil es para ustedes incluir productos de origen marino en su dieta? ¿Por qué?
- c) Describan qué tan difícil es para ustedes incluir productos de origen marino en su dieta? ¿Por qué?
- d) ¿Qué los motivaría a incluir productos de origen marino en su dieta?

12. Las guías de actividad física mencionan que usted debería realizar 30 minutos de actividad física moderada al menos 5 días a la semana.

- a) ¿Cómo describirían ustedes brevemente actividad física moderada? Por favor den ejemplos
- b) ¿Practican ustedes algún tipo de actividad física moderada? ¿cuál?
- c) Mencionen al menos 2 beneficios que usted adquiriría al practicar actividad física moderada
- d) ¿Qué tan fácil es para ustedes practicar 30 minutos de actividad física moderada al menos 5 días por semana?
- e) ¿Qué tan difícil es para ustedes practicar 30 minutos de actividad física moderada al menos 5 días por semana?
- f) ¿Qué los motivaría a practicar 30 minutos de actividad física moderada al menos 5 días por semana?

Appendix B

Focus Group Guidebook

1. How would you describe healthy eating? What does eating healthy mean to you?

Probes: Why do you feel this way?

The Dietary Guidelines encourages individuals to eat a healthy diet — one that

- Emphasizes fruits, vegetables, whole grains, and fat-free or low-fat milk and milk products;
- Includes lean meats, poultry, fish, beans, eggs, and nuts; and
- Is low in saturated fats, trans fats, cholesterol, salt (sodium), and added sugars.

2. What have you heard about the Dietary Guidelines for Americans?

Let me remind you, the Dietary Guidelines encourages individuals to eat a healthy diet — one that

- Emphasizes fruits, vegetables, whole grains, and fat-free or low-fat milk and milk products;
- Includes lean meats, poultry, fish, beans, eggs, and nuts; and
- Is low in saturated fats, trans fats, cholesterol, salt (sodium), and added sugars.

3. Describe what your thoughts and feelings about the Dietary Guidelines? (Perceptions)

Probe: Why do you feel this way?

4. Explain to me how the Dietary Guidelines could be helpful to you. (Benefits)

Probe: Why do you think is helpful?

5. Can you share with me some things in the Dietary Guidelines that you feel are not helpful to you? (Barriers)

Probe: Why do you feel this way?

6. MyPlate prompts consumers to build a healthy plate at meal times. (Show picture of MyPlate and explain how to fill your plate with half vegetables and fruit, lean protein and grains).
- a) What have you heard about MyPlate? (Knowledge)
7. Choose MyPlate encourages you to fill half of your plate with fruit and vegetables.
- a) Why do you think is recommended to fill your plate this way?
 - b) Describe how easy it would be for you to fill your plate this way? Why?
 - c) What makes it difficult for you to fill your plate this way?
 - d) What would encourage you to fill your plate this way?
8. The Choose MyPlate guidelines recommends to fill one – quarter of your plate with lean protein (salmon, turkey, lentils)
- a) Why do you think is recommended to fill your plate this way?
 - b) How easy would it be for you to fill your plate this way?
 - c) What makes it difficult for you to fill your plate this way?
 - d) What would encourage you to fill your plate this way?
9. The Choose MyPlate guidelines encourages you to use oils (canola oil, olive oil) to replace solid fats such as Manteca, pork fat and butter) when possible
- a) Why do you think is recommended to use oils to replace solid fats when possible?
 - b) How easy would it be for you to use oils instead of fats like Manteca, pork fats, and butter?
 - c) What makes it difficult for you to use oils instead of oils instead of fats like Manteca, pork fats, and butter?
 - d) What would encourage you to use oils to replace oils instead of fats like Manteca, pork fats, and butter?

10. The Choose MyPlate guidelines also state that you should include low- fat milk as part of your diet.

- a) Why do you think is recommended to include low- fat milk as part of your diet?
- b) How easy would it be for you to include low- fat milk in your diet?
- c) What makes it difficult for you to include low- fat milk in your diet?
- d) What would encourage you to include low- fat milk as part of your diet?

11. The Dietary Guidelines for Americans encourages individuals to consume more seafood

- a) Why do you think is recommended to consume more seafood?
- b) How easy would it be for you to include seafood in your diet?
- c) What makes it difficult for you to include seafood in your diet?
- d) What would encourage you to include seafood as part of your diet?

12. The physical activity guidelines states that you should get 30 minutes of moderate physical activity at least 5 days a week.

- a) How would you briefly describe moderate physical activity?
- b) Do you practice any kind of moderate physical activity? Which kind?
- c) Could you describe at least 2 benefits of practicing moderate physical activity?
- d) How easy would it be for you to practice 30 minutes of moderate physical activity at least 5 days a week?
- e) What makes it difficult for you to practice 30 minutes of moderate physical activity at least 5 days a week?
- f) What would encourage you to practice 30 minutes of moderate physical activity at least 5 days a week?

REFERENCES

- Abraido-Lanza, A.F., Chao, M.T., & Florez, K.R. (2005). Do healthy behaviors decline with greater acculturation? Implications for the Latino mortality paradox. *Social Science & Medicine*, 61(6), 1243-1248.
- Airhihenbuwa, C.O., & Kumanyika, S., Agurs, T.D., Lowe, A., Saunders, D., & Morssink, C.B. (1996). Cultural aspects of African American eating patterns. *Ethnicity and Health*, 1(3), 245-260.
- Almond, J., & Stadler, K. (2000). Using focus groups to determine blue collar workers' perceptions regarding dietary practices and cancer prevention. Unpublished master's thesis, Virginia Tech, Blacksburg, VA.
- Aranda, J, Calderon, R, & Aranda, J (2008). Clinical Characteristics and Outcomes in Hypertensive Patients of Hispanic Descent. *Preventative Cardiology*, 11(2), 116-120.
- Bacallao, M.L., & Smokowski, P.R. (2009). Entre Dos Mundos/ Between Two Worlds; Bicultural Development in Context. *Journal of Primary Prevention*, 30(3), 421-426.
- Ball, K, Crawford, D, & Mishra, G. (2006). Socioeconomic inequalities in women's fruit and vegetable intakes: a multilevel, social and environmental mediators. *Public Health Nutrition*, 9(5), 623-632.
- Bermudez, OI, Falcon, L.M., & Tucker, K.L. (2000). Intake and food sources of macronutrients among older Hispanic adults: association with ethnicity, acculturation, and length of residence in the United States. *Journal of the American Dietetic Association*, 100(6), 665-774.
- Beto, J. A., Sheth, G., Rewers, P. (1997). Assessing food purchase behavior among low-income black and Hispanic clients: Using a self-reported shelf inventory. *Journal of American Dietetic Association* 97(1): 69-71.
- Briefel, R. R; & Johnson, C. L. (2004). Secular intake in the United States. *Annual Rev. Nutrition*; 24, 401- 419.
- Cason K.L., Nieto-Montenegro S., Chavez-Martinez A. (2006). Food choices, food sufficiency practices and nutrition education needs of Hispanic migrant workers in Pennsylvania. *Topics in Clinical Nutrition*, 21(2), 145-158.
- Centers for Disease Control (2012). "Health Disparities Experienced by Hispanics- United States". Retrieved November 3, 2014, from <http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5340a1.htm>
- Centers for Disease Control.(2014). BMI. Accessed February 20, 2015 from: <http://www.cdc.gov/healthyweight/assessing/bmi/index.html>
- Cluskey, M., Petersen, R. & Sun, S. (2011). Dietary Adaptation among Latino Immigrants: Impressions from Mothers of Adolescents. *Department of 4-H Youth Development and Family & Consumer Sciences*. Retrieved October 25, 2015 from: <http://ncsu.edu/ffci/publications/2013/v18-n3-2013-winter/chuskey-peterson-wong.php>
- Cortés, D., Millán-Ferro, A., Schneider, K., Vega, R. & Caballero, E. (2013). Food Purchasing Selection Among Low-Income, Spanish-Speaking Latinos. *American Journal of*

Preventative Medicine, March 44(3S3), S267–S273.

- Crespo, C.J., Smit, E., Andersen, R.E., Carter-Pokras, O., & Ainsworth, B.E. (2000). Race/ethnicity, social class and their relation to physical inactivity during leisure time: results from the Third National Health and Nutrition Examination Survey, 1988- 1994. *American Journal of Preventative Medicine*, January 18(1), 46-53.
- Dixon, L.B., Sundquist, J., & Winkleby, M. (2000). Differences in energy, nutrient, and food intakes in a U.S sample of Mexican-American women and men: Findings from the third National Health and Nutrition Examination Survey. *American Journal of Epidemiology*, 152(6), 548-557.
- Dolash, K., Meizi, H., Zenong, Y., & Sosa, T. (2015). Factors That Influence Park Use and Physical Activity in Predominantly Hispanic and Low-Income Neighborhoods. *Journal of Physical Activity & Health*, 12(4), 462-469.
- Duarte-Gardea, M.O., & Burgos X. (2014). Fruit and Vegetable Intake among Low- Income Overweight and Obese Hispanic Adults. *Journal of the Academy of Nutrition and Dietetics*, 114(9), A81.
- Egede, L. E., & Dagogo, J.S. (2005). Epidemiology of type 2 diabetes: Focus on ethnic minorities. *Medical Clinics of North America*, 89(5), 949-972.
- Eikenberry, N; & Smith, C. (2004). Healthful Eating: perceptions, motivators, barriers, and promoters in low – income Minnesota communities. *Journal of the American Dietetic Association*, 104 (7): 1158- 61.
- Evenson, K.R., Sarmiento, O.L., & Ayala, G.X. (2004). Acculturation and physical activity among North Carolina Latina immigrants. *Social Science Medicine*, 59(12), 2509-22.
- Farrell, M.A., Hayashi, T., Loo, K., Rocha, D.A., Sanders, C., Hernandez, M., & Will, J.C. (2009). Clinic based nutrition and lifestyle counseling for Hispanic women delivered by community health workers: design of the California WISEWOMAN study. *Journal of Women's Health*, 18(5), 733-9.
- Fitzgerald, N., Himmelgreen, D., Damio, G., Segura-Perez, S., Peng, Y.K., & Perez-Escamilla, R. (2006) Acculturation, socioeconomic status, obesity and lifestyle factors among low-income Puerto Rican women in Connecticut, U.S, 1998- 1999. *Revista Panamericana de Salud Pública*, 19(5), 306-13.
- Flores, G., Maldonado, J. & Duran, P. (2011). Making Tortillas without Lard: Latino Parents' Perspectives on Healthy Eating, Physical Activity, and Weight-Management Strategies for Overweight Latino Children. *Journal of the Academy of Nutrition and Dietetics*, 112(1), 81-9.
- Fortmann, A.L., Gallo, L.C. & Philis-Tsimikas, A. (2011). Glycemic Control Among Latinos with Type 2 Diabetes: The Role of Social-Environmental Support Resources. *Health Psychology*, 30(3), 251-258.
- Gordon-Larsen, P., Adair, L.S., & Popkin, B.M. (2002). Ethnic differences in physical activity and inactivity patters and overweight status. *Obesity Research*, 10 (3), 141-149.
- Grimm, K.A., & Blanck, H.M. (2009). Survey language preference as a predictor of meeting fruit and vegetable objectives among Hispanic adults in the United States, Behavioral Risk Factor Surveillance System, 2009. *Preventing Chronic Disease*, 8(6), A133.

- Guthrie, J.F; Derby, B.M; & Levy, A.S. (1999). What people know and do not know about nutrition. *America's eating habits: Changes and consequences*. Washington, D.C: USDA/ERS. Pp. 243-280.
- Haynes-Maslow L, Parsons SE, Wheeler SB & Leone LA. (2011). A Qualitative Study of Perceived Barriers to Fruit and Vegetable Consumption Among Low-Income Populations, North Carolina, *Preventing Chronic Disease* 2013;10:120
- Himmelgreen, D.A., Perez-Escamilla, R., Martineza, D., Brentnall, A., Eells, B., Peng, Y., & Bermudez, A. The longer you stay, the bigger you get: Length of time and language use in the US are associated with obesity in Puerto Rico women. *American Journal of Physical Anthropology*, 2004; 125(1), 90- 96.
- Horowitz, C.R., Colson, K.A., Hebert, P.L., & Lancaster, K. (2004). Barriers to buying healthy foods for people with diabetes: Evidence of environmental disparities. *American Journal of Public Health*, 94(9), 1549-1554.
- Hubert, H.B., Snider, J., & Winkleby, M.A. (2005). Health status, health behaviors, and acculturation factors associates with overweight and obesity in Latinos from a community and agricultural labor camp survey. *Preventative Medicine*, 40(6), 642-51.
- Hunt, K.J., Resendez, R.G., Williams, K., Haffner, S.M., Stern, M.P., & Hazuda, H.P. (2003). All- cause and cardiovascular mortality among Mexican – American and Non- Hispanic White older participants in the San Antonio Heart Study: Evidence against the “Hispanic Paradox,” *American Journal of Epidemiology*, 158(11), 11048-57.
- Humpel, N., Owen, N., & Leslie, E. (2002). Environmental factors associated with adults’ participation in physical activity. *American Journal of Preventive Medicine*, 22(3), 188-99.
- Im, E.O., Lee, B., Hwang, H., Yoo, K. H., Chee, W., Stuijbergen, A., Walker, L., Brown, A., McPeck, C., Miro, M., & Chee, E. (2010). “A Waste of Time”: Hispanic Women’s Attitudes toward Physical Activity. *Women & Health*, 50(6), 563–579.
- International Food Information Council Foundation. The 2013 Food & Health Survey: Consumer Attitudes toward Food Safety, Nutrition and Health. . Retrieved November 18, 2014, from <http://old.foodinsight.org/LinkClick.aspx?fileticket=spavtJtVkzM%3d&tabid=1482>.
- Jeffery, R. W., French, S. A., Foster, J.L., & Spry, V.M. (2002). Socioeconomic status differences in health behaviors related to obesity: The healthy work project. *International Journal of Obesity*, 15(10), 689-96.
- Juarbe, T., Turok, X.P., Perez-Stable, E.J. (2002). Perceived benefits and barriers to physical activity among older Latina women. *Western Journal of Nursing Research*, 24(8), 868-86.
- Kaplan, M.S., Huguet, N., Newsom, J.T., & McFarland, B.H. (2004). The association between length of residence and obesity among Hispanic immigrants. *American Journal of Preventative Medicine*, 27(4), 323-6.
- Kilanowski, J. F. (2015). Influences on Healthy-Eating Decision Making in Latino Adolescent Children of Migrant and Seasonal Agricultural Workers. *Journal of Pediatric Health Care*, 13 August.
- Krueger, R.A; & Casey, M.A. (2009). Focus groups: A practical guide for applied research (4th Edition). Thousand Oaks, CA: Sage Publications

- Lindsay, A. C; Salkeld, J.A; Greaney, M.L; & Sands, F.D. (2015). Latino family childcare providers' beliefs, attitudes, and practices related to promotion of healthy behaviors among preschool children: A qualitative study. *J Obes* 10; 2015: 409742.
- Malnick, S.D., & Knolber, H. (2006). The medical complications of obesity, *QJM: An International Journal of Medicine*, 99(9), 565-79.
- Melgar-Quinonez, H. (2008). The growing Latino community: New challenges for nutrition and health professionals in the United States. *Clinical Nutrition Insight*, 34(7), 1–5.
- Mercado, I. (2014). The Latino Way Food Group and the Latino Plate. *Journal of the Academy of Nutrition and Dietetics*, 114(9), A18.
- National Hispanic Medical Association (2004). Trends and differences in cardiovascular health Among Mexican-American and Non-Hispanic White populations. Washington, D.C. Pfizer Inc.
- Neuhouser, M.L., Thompson, B., Coronado, G.D., & Solomon, C.C. (2004). Higher fat intake and lower fruit and vegetables intakes are associated with greater acculturation among Mexicans living in Washington State. *Journal of the American Dietetics Association*, 104(1), 51-57.
- Ogden, C. L, Carroll, M. D., Kit, B. K., & Flegal, K.M. (2014). Prevalence of childhood and adult obesity in the United States, 2011-2012. *Journal of the American Medical Association*, 311(8), 806-14.
- Office of the Surgeon General. (2010). The Surgeon General's Vision for a Healthy a Fit Natio. Rockville: Office of the Surgeon General (US). Background on Obesity.
- Palmeri, D., Auld, G.W., Taylor, T., Kendall, P., & Anderson, J. (1998). Multiple perspectives on nutrition education needs of low-income Hispanics. *Journal of Community Health*, 23(4), 301-316.
- Perez- Escamilla, R. (2011). Acculturation, nutrition, and health disparities in Latinos. *The American Journal of Clinical Nutrition*, 93(5), 1157-1162..
- Pew Hispanic Center. (2010). Hispanics Census 2010. Available at: <http://pewhispanic.org/census-2010/>. Accessed. February 19, 2015.
- Pronk, N. P., Martinson, B., Kessler, R.C., Beck, A.L., Simon, G.E. & Wang, P. (2004). The Association between Work Performance, and Physical Activity, Cardiorespiratory Fitness, and Obesity. *Journal of Occupational and Environmental Medicine* 46(1), 19-25.
- Satia-Abouta, J., Patterson, R.E., Neuhouser, M.L., & Elder, J. (2002). Dietary acculturation: applications to nutrition research and dietetics. *Journal of the American Dietetics Association*, 102(8), 1105-18.
- Schroeder, Eric. (2014). Klinger: Dietary Guidelines should consider Hispanic Needs. *Food Business News*, 20 May. Accessed Feb 20, 2015 at http://www.foodbusinessnews.net/articles/news_home/Regulatory_News/2014/05/Klinger_Dietary_Guidelines_sho.aspx?ID=%7B3B1F3345-6253-45BA-BF5E-81729CA20742%7D&cck=1.
- Silva-Barbeau, I. (1997). Cultural learning styles, are they significant to warrant an overhaul of the current WIC nutrition education programming? Richmond, VA: Virginia Department of Health.

- Taylor, T., Serrano, E, & Anderson, J. (2001). Management issues related to effectively implementing a nutrition education program using peer educators. *Journal of Nutrition Education*, 33(5), 284-92.
- Unger, J.B., Reynolds, K., Shakib, S., Spruijt-Metz, D., Sun, P. & Johnson, C.A. (2004). Acculturation, physical activity, and fast food consumption among Asian-American and Hispanic adolescents. *Journal of Community Health*, 29(6), 467-81.
- United States Census Bureau. (2013). "Facts for Features: Hispanic Heritage Month 2014: Sep. 15- Oct 15." Retrieved January 16, 2014, from <http://www.census.gov/newsroom/facts-for-features/2014/cb14-ff22.htm>.
- United States Census Bureau. (2004). U.S interim projections by age, sex, race, and Hispanic origin. Washington, D.C: U.S Department of Commerce, U.S Census Bureau; Retrieved November 1, 2014 from <http://www.census.gov/ipc/www/usinterimproj>.
- United States Department of Agriculture. (2010). Dietary Guidelines for Americans, 7th Edition. Washington, DC: U.S Government Printing Office.
- United States Department of Agriculture. (2011). "Let's eat for the health of it." [Brochure].
- United States Department of Health and Human Services, US Office of Minority Health. "Profile: Hispanic/Latino Americans." Retrieved November 3, 2014, from <http://minorityhealth.hhs.gov/omh/browse.aspx?lvl=3&lvlid=64>.

VITA

Luisyana De Amor Gamboa

Place of birth:

- Oakland, California

Education:

- Bachelor of Science in Human Nutrition, Universidad Anahuac Mayab, May 2010.
- Practicum Student Assistant, Save the Children Mexico, August- December 2008.

Activities and Awards:

- Teaching Assistant for DHN 342 and DHN 408G | Fall 2015.
- Alice P. Killpatrick Fellowship (\$2500): University of Kentucky School of Human and Environmental Sciences | Spring & Fall 2015
- Highest Productivity (2nd Trimester) Nutrition Services- (Dzitya, Yucatan, Mexico) | August 2011
- Seminar: Achieving quality standards for the consumption of food products (Yucatan, Mexico) | Sept. 2011
- Second place: Research poster titled: “Analysis of Organoleptic Acceptance of a snack consisting of corn and peanut for malnourished children in Merida Yucatan” | January 2010
- Participated in 25th National Conference AMMFEN | 2010.