



AN ABSTRACT OF THE THESIS OF

Rocío Petersen for the degree of Master of Science in Nutrition presented on May 28, 2013

Title: A Qualitative Study of the Dietary Acculturation among Long-term Hispanic Immigrants

Abstract approved:

---

Mary M. Cluskey

The evolving United States demographics, evident from the most recent census, show a steady population growth for Hispanics. Research suggests that after immigrating to the United States, first-generation Hispanic populations seem vulnerable to weight gain and development of chronic disease. Many health professionals recognize the increased need for Spanish language support as well as sensitivity toward ethnic foods and cultural differences. Targeting these adults would help nutritionists/dietitians to better disseminate information that has the potential to benefit the immigrants and the future health of their second-generation Hispanic American children.

The dietary acculturation literature is not well-developed regarding the measurement of acculturation or dietary acculturation specifically. Acculturation occurs when two or more cultures interact and results in changes in individuals' behaviors, values, and senses of identity. This limitation challenges our understanding of the lifestyle-dietary pattern adaptations which may impact the health status of Hispanic immigrants. Exploring dietary acculturation is useful for providing insight to improve and develop messages that facilitate adaptations of healthy dietary patterns. The purpose of this study was to explore how Hispanic

immigrant families' dietary behaviors are impacted by influences of a new cultural and food environment. Additionally, an objective was to facilitate programming and other efforts that assist Hispanic populations in the adaptation of healthy lifestyles after immigrating to the U.S.

The study included conducting qualitative interviews with Hispanic mothers (n=10) of pre-adolescent children ages 10-13. The participants had been living in the United States for an average of 16.9 years, with a range from 10 to 29 years. All the parents were foreign-born, first-generation immigrants. Eight participants were originally from Mexico, one from El Salvador, and one from Columbia. Language use at home was "only Spanish" for 60% (n=6), "Spanish better than English" for 30% (n=3), and "both equally" for 10% (n=1). Results from the short language-based acculturation scale revealed subjects had similar scores, with an average of 1.8 out of 5, despite a wide range of years in the U.S.

Three major themes emerged from the qualitative analysis of the interviews. The themes reflect that lifestyle changes experienced with immigration influence dietary pattern adaptations, foreign-born immigrants desire to maintain their cultural traditions, and acculturation of their dietary patterns to the dominant culture occurs over time. The Hispanic mothers were the main food-preparers in the home and they believed they should expose their children to the foods and lifestyle of their native countries. The findings from the research suggest that future research should search for ways to support Hispanic mothers in maintaining healthier food traditions and resisting their children's preferences for less healthy choices. Educational materials aimed at immigrant Hispanic audiences should be provided in both English and Spanish. Finally, Hispanic immigrants should be counseled about lifestyle changes that impact time management, while being encouraged to pursue more opportunities for physical activity. Efforts to help maintain their cultural food practices and identify nutritious choices and acceptable alternatives may assist in adapting their diets positively.

©Copyright by Rocío Petersen  
May 28, 2013  
All Rights Reserved

A Qualitative Study of the Dietary Acculturation  
among Long-term Hispanic Immigrants

by

Rocío Petersen

A THESIS

submitted to

Oregon State University

in partial fulfillment of  
the requirements for the  
degree of

Master of Science

Presented May 28, 2013  
Commencement June 2013

Master of Science thesis of Rocío Petersen presented on May 28, 2013.

APPROVED:

---

Major Professor, representing Nutrition

---

Co-Director of the School of Biological and Population Health Sciences

---

Dean of the Graduate School

I understand that my thesis will become part of the permanent collection of Oregon State University libraries. My signature below authorizes release of my thesis to any reader upon request.

---

Rocío Petersen, Author

## ACKNOWLEDGEMENTS

The author expresses her sincere appreciation for the guidance and encouragement she received from her major advisor, Dr. Mary Cluskey. Rocío would also like to thank her committee members, Dr. Kristen Yax, Dr. Urszula Iwaniec, and Dr. Norma Cardenas, for the time and effort they put into reading her research and advising her about improvements. The other professors and peers in the nutrition and dietetics program have also helped shaped the author's understanding and interest in the combination of food, history, science, and shared human culture. Finally, the author would like to recognize the love and support she has always received and continues to receive from her parents, her *hermanita* Constanza, and her fiancé Steven. Without their love and laughter, graduate school would not have been possible.

## TABLE OF CONTENTS

	<u>Page</u>
Introduction.....	1
Problem Statement.....	3
Research Objective.....	3
Literature Review.....	4
The Growing U.S. Hispanic Population.....	4
Brief Overview of Acculturation.....	5
Willingness to Try Novel Foods.....	9
Dietary Acculturation.....	10
Methods.....	13
Research Objective.....	13
Methodology.....	14
Results.....	17
Interview Participants.....	17
Acculturation Measure.....	20
Transcripts Analysis.....	21
Interview Themes.....	22
Discussion.....	31
Opportunities for Exposure to Novel and Unfamiliar American Foods.....	32
Exploring the Meaning behind Food.....	35
Changes in Health and Lifestyle for Immigrants.....	36
Measuring Acculturation through Language Use.....	39
Limitations.....	41
Conclusion.....	42
Bibliography.....	46
Appendix.....	54

## LIST OF TABLES

<u>Table</u>	<u>Page</u>
1. Questions about Diet and Food Preferences.....	15
2. Short Acculturation Scale .....	17
3. Overview of Interview Participants .....	19
4. Overview of Themes and Subthemes Identified.....	22

## LIST OF APPENDICES

<u>Appendix</u>	<u>Page</u>
A. Screening Form for Research Study Eligibility (English) .....	55
B. Screening Form for Research Study Eligibility (Spanish) .....	56
C. Questionnaire for Interviews (English) .....	57
D. Questionnaire for Interviews (Spanish) .....	59
E. Results of Demographics Forms .....	61
F. Additional Illustrative Quotes in Spanish .....	62
G. Additional Illustrative Quotes Translated into English.....	64

## **Introduction**

Based on the 2010 United States census data, Hispanics account for more than half of the population growth in the past ten years.<sup>1</sup> Approximately one out of every six adults and one out of every four children below the age of 18 identifies as Hispanic or Latino. Because of the numerous countries-of-origin, Hispanics are not a “homogenous” group but rather a very culturally diverse group, with about 40% born outside of the U.S. and about 78% of Hispanics speaking Spanish in their homes.<sup>2</sup> The most Hispanic immigrants to the U.S. come from Mexico (64.9%), followed by Puerto Rico (9.2%) and other countries including Cuba, El Salvador, Dominican Republic, Guatemala, Colombia, Honduras, Ecuador, and Peru.<sup>3</sup>

Getting adequate exercise and a good diet play a major role in leading a healthy, disease-free life. Compared to non-Hispanic whites, Hispanics are more likely to be overweight or obese, to be less physically active, and to develop diabetes and end-stage renal disease.<sup>4-7</sup> Overweight and obesity are risk factors for cardiovascular disease, type 2 diabetes mellitus, some forms of cancer, and other negative health outcomes.<sup>8,9</sup> The literature suggests that when Hispanics immigrate to the U.S. they are at increased risk for the development of chronic disease, perhaps as a consequence of lifestyle changes. Therefore, understanding more about the process of acculturation for this population is valuable.

Acculturation occurs when two or more cultures interact and may result in changes in individuals’ behaviors, values, and senses of identity.<sup>10,11</sup> The issue of acculturation continues to emerge as a prominent factor influencing choice of foods and beverages among Hispanics, especially considering that food may be the last thing to change during an immigrant’s acculturation process.<sup>12-14</sup> Because the process of acculturation is so complex and multivariable, an immigrant’s degree of acculturation depends on multiple factors, including social environment and exposure to the mainstream culture.

Being flexible and open to change allows a person to adjust to a new culture, especially in regards to a new food environment. For Hispanic immigrants to the United States, several studies exist that point to a detrimental effect upon diet as individuals become more acculturated to U.S. foods and dietary patterns.<sup>15,16</sup> By exploring how first-generation, foreign-born Hispanic parents perceive the foods they cook for their families, health professionals may be better able to develop effective messages that resonate with their target audience.

For immigrants, living in a new country not only means a new culture but also exposure to novel foods. These novel foods can be both thrilling and interesting but also worrisome and somewhat threatening. “Food neophobia” refers to the personality trait of being reluctant to eat novel or unfamiliar foods. Because parents and caregivers are responsible for buying and providing food for their children, they are the gatekeepers of the foods and beverages that enter the home and are available to their preadolescents.<sup>17</sup> The subsequent dependence of children on their parents for adequate nutrition means that targeting these adults would help nutritionists/dietitians and other healthcare professionals to better disseminate information that may potentially benefit the future health of these Americans.

**Problem Statement**

After immigrating to the United States, Hispanic populations seem to be vulnerable to weight gain and development of chronic disease. Exploring Hispanics' understanding of dietary acculturation is useful for providing insight to nutritionists/dietitians to better communicate and develop messages that facilitate adaptations of healthy dietary patterns. The dietary acculturation literature is not clear regarding how to define or measure acculturation in general or dietary acculturation specifically. This limitation challenges our ability to understand the lifestyle-dietary pattern adaptations which may impact the health status of Hispanic immigrants. Acquiring a greater understanding of how the dominant culture influences dietary adaptation may help health professionals better serve the needs of this population.

**Research Objective**

The purpose of this study is to explore how Hispanic immigrant families' dietary behaviors are impacted by influences of a new cultural and food environment. The results of the research may suggest nutrition education approaches and messages aimed at Hispanic populations.

***Research Questions***

1. What are the opportunities for experiencing new American foods among Hispanic immigrant families?
2. Explore the meaning diet has in the lives of Hispanic immigrant families, particularly as they acculturate.
3. What changes in lifestyle, relative to health, occur with immigration to the United States?
4. How does one acculturation scale (by Marín and Marín (1991)) relate to number of years lived in the United States?

## Literature Review

### The Growing U.S. Hispanic Population

According to a report from the Pew Hispanic Center, an individual is Hispanic if they self-identify as being Hispanic. The definition of “Hispanic,” used by Congress since 1976, refers to anyone from a Spanish-speaking background from Mexico, Central America, South America, or other Spanish-speaking countries.<sup>18</sup> From this definition, and data from 2010, 16.3% of the U.S. population self-identify as Hispanic or Latino.<sup>1</sup> The category of “Latino” describes someone from Spanish- or Portuguese-speaking countries in Latin America and the Caribbean. In this study, the terms Hispanic and Latino will be used interchangeably.

Analyses of U.S. Census data suggests that about 47% of the adult Hispanic population is first generation, 35% is second generation, and 6% is third generation or greater.<sup>19</sup> First generation individuals were born in a foreign country and immigrated to the United States. Second generation individuals were born in the U.S. and either one or both parents were born in a country other than the U.S., while third generation individuals were born in the U.S. and both their parents were born in the U.S., with grandparents born in a country other than the U.S.

For Hispanics in Oregon, the U.S. Census Bureau estimates that more than 452,000 individuals (or 11.7% of the state’s population) self-identify as Hispanic or Latino. Specifically, in Lane County—where the present research took place—the U.S. Census Bureau estimates that 7.8% of the county’s population considers themselves Hispanic or Latino.<sup>20</sup> The majority (85%) of Oregon’s Hispanics are from Mexico, with the rest coming from Central America, South America, the Caribbean, and other places.<sup>21</sup> This is in contrast to the U.S. population, where about 66% are of Mexican origin, suggesting a somewhat greater degree of homogeneity in Oregon.<sup>22</sup>

## **Brief Overview of Acculturation**

Almost half of adult Hispanics who have made the United States their home were born in a foreign country.<sup>19</sup> As with most immigrants and travelers, contact with a new and different culture often results in changes and adjustments in relation to language use, cognitive style, personality, identity, attitudes, and stress.<sup>23</sup> “Culture” can be described as the learned values, beliefs, attitudes, and practices of a group or community.<sup>14</sup> In response to the predominant, mainstream culture, individuals raised in another culture (their “heritage culture”) tend to respond by adopting behaviors, values, and sense of identity similar to those of the mainstream culture.<sup>11</sup>

The term “acculturation” has been adopted as an attempt to describe the changes within an individual as a response to their interaction with two or more cultures.<sup>10,11</sup> In the past, American researchers viewed acculturation as assimilation to the mainstream culture, which would turn an immigrant away from their “primitive” culture to a more modern and supposedly “better” culture.<sup>24</sup> This view reflected the societal stereotypes of the time, that “certain ethnic groups are particularly driven by traditionalism and folk beliefs.”<sup>24(p975)</sup> However, with greater cultural and ethnic diversity along with multidisciplinary research, researchers now recognize the incredible complexity of acculturation.<sup>15,24,25</sup> In regards to food, as cultural sensitivity and understanding grows, an immigrant’s previous native diet is no longer viewed as inherently “bad,” but rather as a possible way to have good health by “maintaining healthy aspects of a traditional diet.”<sup>16(p885)</sup>

While there has yet to be a precise definition of acculturation—because the process is somewhat ambiguous, ongoing, and constantly changing—researchers have still attempted to measure and understand it.<sup>24,25</sup> Initial theories attempted to place individuals on a linear scale from being less acculturated to a complete replacement of one’s heritage culture by the mainstream culture.<sup>10,11,24</sup> These unidirectional models were then replaced by bidimensional models whereby both

heritage and mainstream cultures are distinct from each other, so that individuals retain some values and adopt others.<sup>24</sup>

Rather than relying on one proxy, or indirect measure, researchers stress the importance of understanding that the process of acculturation is multi-dimensional. For example, language use and generational status are correlated with acculturation, but they do not *measure* acculturation necessarily even though a scale might generate a “score.”<sup>25</sup> Other proxies commonly used include: place of birth, residency patterns, self-identity, music and movie preferences, participation in heritage culture traditions, ethnic origin of friends, and food preferences both at home and at restaurants.<sup>10,24</sup>

An example of a bidimensional scale is one developed in 1980 by Cueller and colleagues. This scale was developed in the United States for use with Hispanics and uses a 5-point Likert scale with Mexican Americans to distinguish between “levels of acculturation” including Very Mexican, Mexican-Oriented Bicultural, True Bicultural, Anglo-Oriented Bicultural, and Very Anglicized.<sup>26</sup> A similar bidimensional scale, developed by Marín and Gamba in 1991 for use with Mexican Americans and Central Americans, involves 24 items measuring language-related areas. As a bidimensional scale, the two cultural dimensions of the scale are Hispanic and non-Hispanic.<sup>27</sup>

Limitations with these and similar scales include that the scales may only indirectly measure the cultural process because they rely so heavily on language and possibly fail to capture other domains such as attitudes, values, traditions and customs, etc.<sup>28</sup> Other issues include the choice of words for a translated scale, the relatively narrow range of options for Likert-type scales, and the potential lack of being able to generalize findings across Hispanic groups not from Mexico.<sup>28</sup> Taking the limitations into account, current research acknowledges that linear scales are the simplest and fastest tools to use in public health settings, but because of their very simplicity they can only provide tentative generalizations.<sup>15</sup>

### **Effect of Acculturation on Hispanics' Health**

From one literature review from 2005, the authors conclude that the “effect of acculturation, or more accurately, assimilation to mainstream U.S. culture, on Latino behavior and health outcomes is very complex and not well understood.”<sup>15(p374)</sup> Some researchers refer to a possible “healthy immigrant effect,” explaining how recent immigrants tend to be healthier than the general population until they have lived in their new country (the United States in this case) long enough and then their health seems to worsen.<sup>15,29,30</sup> The negative health outcomes documented with evidence include increased substance abuse, an unhealthy diet, and poor birth outcomes.<sup>15</sup> The tentative conclusion is that acculturation to the American diet will most likely have a negative impact on the health of Hispanics, especially for those coming from rural regions of their home countries.<sup>2,15</sup>

With more years of living in a new country and culture, the more an immigrant's health status tends to become more similar to that of native-born individual's.<sup>31,32</sup> After adjusting for age, marital status, urban residence, education level, and family income, immigrants to the U.S. tend to have lower smoking rates, are less likely to be overweight, have hypertension, and have lower all-cause mortality. However, as the number of years an immigrant lives in the U.S. increases, their health behaviors and health outcomes tend to resemble that of their U.S.-born counterparts.<sup>31,33</sup>

In other words, if an immigrant comes from a country where they have a low risk for a certain negative health outcome, and they move to the U.S. where that outcome may become worse than it was in their native country, they are more likely to develop worse health outcomes and mirror their U.S.-born counterparts' in terms of health.<sup>34</sup> As some researchers note, “dietary patterns of Americans differ widely, but most Americans eat a diet that could best be described as in need of improvement.”<sup>35</sup>

Some factors considered to adversely impact immigrant health in the U.S. include access to safe and nutritious food, food insecurity, socioeconomic status,

ethnic discrimination, social segregation, poverty, lack of health insurance, policies restricting immigrants' access to social services and benefits, and hazardous conditions in country of origin.<sup>31,36</sup> Also, recent immigrants may under utilize health services because of lack of access, lack of information about services available, language barriers, and other issues.<sup>29,30,37</sup> In all these cases, "immigrant" refers to foreign-born individuals, although immigrants may be naturalized immigrants, permanent residents, non-immigrants (such as temporary workers, students, or visitors), or undocumented immigrants.<sup>31</sup>

In a 2004 Canadian study using data from about 140,000 individuals responding to National Population Health Surveys, recent immigrants tended to have fewer chronic conditions than similar native-born Canadians.<sup>30</sup> Interestingly, this health gap narrows and almost disappears after about 20 years of living in Canada. In the United States, data collected during the 1989-1996 National Health Interview Surveys, found recent Hispanic immigrants are also more likely to report being healthier than their native-born counterparts.<sup>29</sup>

As seen in various studies, the difference in health measures outcomes diminishes with time so that after more than 15 years of living in the U.S., Hispanic immigrants more closely resemble Hispanics born in the United States.<sup>15,29,38</sup> A factor suggested for influencing this change includes the immigrants adapting to their new culture, lifestyle, and environment. Some researchers also suggest that the stress (such as social or economic) from the environment may be causing the decreases in mental, physical, and/or emotional health.<sup>38</sup>

With acculturation toward the dominant culture accounting for possible differences in health—and diet—then it becomes important to understand how to incorporate these issues into public health education campaigns directed at Hispanics. If the first generation of immigrants can be taught the importance of a healthy diet, the second generation might have a greater chance of living to older age with fewer health problems. Through culturally competent research that

incorporates the knowledge of social, cultural, and linguistic differences of U.S. Hispanics, it may be possible to make a greater impression on their future health.

### **Willingness to Try Novel Foods**

First generation Hispanics were born and raised in their home countries and as adults moved to the U.S. to find work, to join other family members, to provide their children with a different future, or for numerous other reasons. Living in a new country not only means a new culture but also greater exposure to unique or novel foods. These novel foods can be both thrilling and interesting, but also worrisome and somewhat threatening. Food neophobia refers to the personality trait of being reluctant to eat novel or unfamiliar foods, which is distinct from a “finickiness” to dislike the taste of certain foods.<sup>39,40</sup>

It is thought that the reluctance to try new foods is a species-protective phenomenon. Food neophobia has been displayed by humans for thousands of years as a protective mechanism towards eating something that might not be safe.<sup>40,41</sup> Although all humans evolved as omnivores, the environments where humans lived and the unique cultures that developed continue to shape how people eat around the world. The phrase “omnivore’s dilemma” refers to the difficulty in choosing what to eat when there are many options available.<sup>42</sup>

Food neophobia could be considered an adaptation to dealing with the wide variety of modern foods available, which now range from mangoes to packaged, pre-sliced apples to freeze-dried meals in a bag. The continuum of being reluctant (neophobia) to try novel foods to being more willing (neophilia) to try unfamiliar foods seems to decrease with age so that younger individuals are more neophobic than older individuals.<sup>39,40,43</sup> Neophobia is not well understood, but variables include genetics, frequency of exposure to novel foods as a young child, and being male.<sup>41</sup> In a review about food preferences, one researcher noted that “food preferences and food selection patterns are the phenotypic behaviors that result

from gene/environment interactions."<sup>41(p44)</sup> This interaction means neophobia may be reduced with repeated exposure to novel foods.<sup>41</sup>

Factors affecting foods choice can be broken down into sensory characteristics including visual, auditory, taste, smell, and texture. Non-sensory characteristics include health claims, price, ethical concerns, convenience, mood, and food-related expectations and attributes.<sup>44</sup> Of these, research suggests that Americans tend to make food choices based on the following top five reasons, from most important to least important: taste, cost, nutrition, convenience, and weight control.<sup>35,45</sup>

Studies about food neophobia suggest that providing information about food, such as a name, description, or list of ingredients, may make an individual more likely to try that food as compared to an unlabelled food.<sup>39</sup> Similarly, a familiar food or ingredient is more likely to be seen in a positive light compared to an unfamiliar food or ingredient.<sup>40,43</sup> Researchers suggest that individuals who live in urban areas and/or have been exposed to diverse cultures may be more likely to try new cuisines and be less neophobic than their rural counterparts.<sup>40,43,46</sup>

In the United States, with Hispanic immigrants from around the world all having diverse cultures and cuisines, it becomes increasingly important for nutrition and health professionals to understand what influences food choice and avoidance. One could say that a "neophobic individual is one who avoids novel foods out of the (mistaken) belief that they will be unpalatable and who, because of the avoidance, never has this belief corrected."<sup>40(p117)</sup> By understanding how acculturation and food neophobia are related, health professionals may be better equipped to provide culturally sensitive advice and services.

### **Dietary Acculturation**

Research suggests that the diets of Mexican, foreign-born adolescents are better than their U.S.-born counterparts. Examining data from the National Longitudinal Study of Adolescent Health, researchers found that a better diet

included more rice, beans, low fat versions of foods, servings of both fruits and vegetables, and less fast food.<sup>47</sup> For some Hispanic immigrant families, a barrier may be a lack of familiarity and difficulty finding specific items they are more use to, such as plantains.<sup>48</sup> Before converging towards the dominant culture's food choices, cross-cultural differences in food choices are based on familiarity, weight control, health, ethical concern, mood, convenience, sensory appeal, natural content, and price.<sup>44,49</sup> As individuals become more acculturated to the American diet though, their diets become more similar to those of non-Hispanic whites, with fewer complex carbohydrates, more simple sugars, more breads, and less rice.<sup>50</sup>

Hispanic mothers continue to be the main “gatekeepers” or preparers of the family's meals.<sup>51</sup> In Oregon, grandmothers, mothers, and sisters have been cited as being the main educators of traditional food preparation.<sup>52</sup> In one study, researchers found that mothers could be clustered into four groups based on their role as food decision influencers. The clusters “transcend[ed] demographic variables that often segment audiences (e.g., race, mother's age, socioeconomic status).”<sup>53(p506)</sup> The study's results suggest that mothers in the U.S. can be categorized into groups influencing their family's food choices, regardless of their ethnicity or other factors. In this case, acculturation and language choice may not necessarily be such a relevant factor; rather the related issues of negotiating money, time, convenience, and other factors could transcend the degree of acculturation in regards to how Hispanic mothers make decisions about providing food to their children.

Researchers suggest that Hispanic families bring with them a strong tradition of shared family meals. One study looking at the relationship between acculturation and health-promoting behaviors among adolescent Latinos, found that the collectivism and familism associated with Hispanic cultures positively influence how adolescents act outside the home.<sup>54,55</sup> This highlights the important influence of shared family time during meals, since family meals provide an opportunity for children to learn dietary habits from their parents and caregivers.<sup>56</sup>

In a study involving 633 parent-child pairs, researchers found that the calcium intake of parent-child dyads was positively associated, so that if parents consumed more calcium, their children were likely to also consume more calcium.<sup>22</sup> This is particularly important since lower calcium intakes may be a marker for consuming a poor diet.<sup>57,58</sup> Preliminary research from 2008 by a multi-state team indicates that few parents set expectations about the consumption of calcium-rich foods (CRF), but knowledge about CRF and their importance in the diet may increase consumption through parental motivation.<sup>59</sup> Research on acculturation and willingness to try new foods may increase the likelihood that Hispanic parents provide calcium-rich foods to their children, for example.

In a review article from 1998, published in the journal *Pediatrics*, Birch and Fisher suggest that what children and adolescents eat is also a result of availability, accessibility, and exposure.<sup>60</sup> Children exposed to certain foods at home, such as seeing parents and other role models consuming those foods during a family meal, may be more likely to prefer and accept those foods.<sup>60,61</sup> Returning to the subject of calcium specifically, in a research project involving food frequency questionnaires for 633 parent-child pairs, the main psychosocial factors found to predict preadolescents' calcium intake were (a) availability calcium rich foods in the home, (b) parental rules and expectations for their child's intake of beverages, and (c) parental role modeling.<sup>22,62</sup>

By targeting Hispanic mothers and other primary caregivers responsible for providing food in the home, through an understanding of both acculturation and food neophobia, health professionals may be able to more effectively address specific health concerns. As noted in the preceding literature review, acculturation to the U.S. diet and lifestyle may affect which foods Hispanic parents and caregivers provide for their children and families.

## **Methods**

### **Research Objective**

The purpose of this study is to explore how Hispanic immigrant families' dietary behaviors are impacted by influences of a new cultural and food environment. The results of the research may suggest how nutrition education approaches and messages aimed at Hispanic populations may need to include the impact of acculturation and lifestyle changes. The evolving U.S. demographics, evident from the most recent census, shows an increase in the population growth of Hispanics.<sup>63</sup> Many recognize the increased need for language support as well as sensitivity toward ethnic foods and cultural differences. In regards to the nutrition and diet of young Hispanics, studies have shown that the majority of U.S. preadolescents may not be getting adequate levels of some nutrients in their diet, which may not bode well for their future health.<sup>62,64</sup>

This research was part of a larger, multi-state (Arizona, California, Colorado, Hawaii, Michigan, Minnesota, Oregon, Utah and Washington) Agricultural Experiment Station project aiming to develop messages for parents of adolescents to attempt to increase consumption of calcium rich foods among preadolescents. Oregon State University was assigned to conduct two focus groups and some of these participants in the multi-state project were invited to participate in this current study that involved interviews about dietary adaptation in families with pre-adolescent children.

### ***Research Questions***

1. What are the opportunities for experiencing new American foods among Hispanic immigrant families?
2. Explore the meaning diet has in the lives of Hispanic immigrant families, particularly as they acculturate.
3. What changes in lifestyle, relative to health, occur with immigration to the United States?

4. How does one acculturation scale (by Marín and Marín (1991)) relate to number of years lived in the United States?

## **Methodology**

### ***Recruitment and Compensation of Participants***

The criteria for acceptance into the study included being a parent of a 10-13 year old, being the primary food preparer in the home, having lived in the U.S. for at least one year, and self-identifying as Hispanic or Latino. The aim of the recruitment was to find ten participants. The small sample size is reflective of purposive sampling, which is a common method of recruiting participants based on specific criteria, like that outlined above. The sample size was reflective of the researcher's available resources of funding and time, as well as the objective of the study to conduct interviews which would be reviewed and analyzed.<sup>65</sup>

Following a focus group study, the participants were offered the chance to participate in a one-on-one interview with the present researcher to help her further explore questions about diet, nutrition, and adaptations of food choices with acculturation. The design of the study was meant to qualitatively assess how Hispanic parents talk about food through semi-structured interviews.

Following recruitment protocols, the sample population for the current research consisted of Hispanic parents of preadolescent children ages 10-13. Recruitment for the convenience sample occurred through short presentations to parents, announcements in newsletters, and word-of-mouth. Flyers were posted on bulletin boards in public libraries, Hispanic restaurants and markets, community centers, and churches. Specifically, locations for recruitment included Centro Latino Americano in Eugene and Springfield, Springfield Downtown Public Library, Eugene Downtown Public Library, St. Mary's Catholic Church, Plaza Latina, St. Thomas More Newman Center, Eugene YMCA, and other Eugene community locations.

The recruitment screening questions appear in English and Spanish in Appendix A and B, respectively. Questions included whether the participant: was a

parent of a child aged 10-13 years, was the primary food preparer in the household, had lived in the U.S. for at least a year, and what they considered to be their self-identified race/ethnicity. Each participant received a compensation of a \$35 gift card to a local grocery store for participating in a post-focus group interview. The funds for the compensation came from the Agricultural Experiment Station (AES) of Oregon State University, a land grant university. Funds from U.S. Department of Agriculture's Cooperative State Research, Education, and Extension Service (CSREES) also partially supported the project. Oregon State University's Institutional Review Board approved the protocol and methods of this research. The principal investigator was Dr. Mary Cluskey, PhD, RD, in the Nutrition Department of the School of Biological and Population Health Science.

### ***Interviews***

The interviews were arranged at a location that the interviewee preferred and felt most comfortable. The purpose of the interviews was to qualitatively examine how Hispanic immigrant families' dietary behaviors are impacted by influences of a new cultural and food environment. The aim of the interviewer was to encourage honest, comfortable, and open communication. The interview topics included questions about diet and food preferences. These questions appear in Table 1 along with prompts.

**Table 1:** Questions about Diet and Food Preferences

---

- How would you describe the food preferences for your family?
  - For example: mostly Hispanic, some American, some Hispanic, mostly American
- In the time you've lived in the U.S., do you feel your diet has changed?
  - How has it changed?
  - Why or what influenced the change?
- Describe your family's favorite food choices
- Does your husband or wife cook?
- Do your adolescent children have favorite food choices?
- How your children influence the foods that the family eats?
- Do you teach your recipes or how to cook?

- Do you talk to them about food?
- What occasions provide the most opportunities for trying foods that are new to your family?
  - For example: work, school, socializing outside of the home
- How willing would you say your family is to trying new foods
  - Are there any foods you see in the grocery store that you never buy?

The translated discussion guide/script was not a literal translation but the researcher's "culturally equivalent" translation.<sup>23</sup> All translated materials were reviewed and edited by Dr. Marcela Mendoza, PhD, a co-author of the book "Mexicanos in Oregon: Their Stories, Their Lives" and current director of Centro Latino Americano in Eugene, Oregon. The full discussion guide appears in English and in Spanish in Appendix C and D, respectively.

During the interview, the participants also answered questions for a short language-based acculturation scale. Marín and Marín's 1991 short acculturation scale results in an acculturation "score" on a bidimensional scale that correlates somewhat with being more or less acculturated to the mainstream culture.<sup>66</sup> The main assumption is that there will be a difference based on language, with individuals who use more Spanish being less acculturated.<sup>67</sup> The scale consists of four questions based on language use and are listed in Table 2.<sup>23(p.38-39)</sup> Along with questions about country of birth, generational status, and length of residence in the U.S., the results of the short acculturation scale are meant to provide a general idea of how acculturated an individual might be to the mainstream, majority culture.

Table 2 presents a summary of the short acculturation scale questions. The possible answers include response choices of "only Spanish," "Spanish better than English," "both equally," "English better than Spanish," and "only English." To calculate the acculturation score, an answer of "only Spanish" to a question would count as 1 point, while an answer of "only English" would count as 5 points. An average of all the points for the four questions results in the acculturation score, with a value closer to 5 representing higher acculturation and a value closer to 1 representing lower acculturation.

**Table 2: Short Acculturation Scale**

---

- In general, what language do you read and speak?
- What language do you usually speak at home?
- In which language do you usually think?
- What language do you usually speak with your friends?

Two sets of demographics information were gathered. A few demographics questions were asked at the beginning of the interviews. In addition to this set of demographics questions, during the pre-interview focus groups (part of a separate study), participants completed an anonymous questionnaire with questions about age, gender, marital status, level of formal education, employment status, birthplace of self and parents, language spoken at home, and years lived in the U.S. Because the interview participants came from these focus groups, it may be relevant to view the answers from these groups. Appendix E contains the results from these focus group demographics forms.

## **Results**

### **Interview Participants**

A total of ten parents participated in an interview, lasting an average of 70 minutes each. Interviews were conducted at interviewee's homes, at community settings, and at coffee shops. All the parents were foreign-born, first-generation Hispanic female immigrants to the United States. Eight participants were originally from Mexico, one from El Salvador, and one from Columbia.

All participants were female and the women had a mean of 2.7 children, with a range from 1 to 4. Ages ranged from 30 to 55 years. They had been living in the United States for an average of 16.9 years, with a range from 10 to 29 years. All parents and grandparents of the participants were born outside the U.S.

Based on Marín and Marín's short acculturation scale, the average acculturation score for the 10 participants was 1.78, with a range from 1.5 to 2.5. In response to the question about in which language the individuals generally reads

and speaks, 70% (n=7) answered “Spanish better than English.” Language use at home was “only Spanish” for 60% (n=6), “Spanish better than English” for 30% (n=3), and “both equally” for 10% (n=1). For language spoken with friends, there was a wider variety of responses with 30% answering “only Spanish,” 40% answering “Spanish better than English,” and 30% answering “both equally.”

Based on the Marín and Marín (1991) short language-based acculturation scale, a score closer to 1 suggests low acculturation and a score closer to 5 suggests higher acculturation. This study’s results of the acculturation scale suggest that years lived in the U.S. did not correlate clearly with the acculturation scores. For individuals who have lived in the U.S. for 10 to 15 years, the average acculturation score was 1.75. For individuals having lived in the U.S. 17 to 29 years, the average score was 1.8 out of 5. There was also no association between age or country of birth and the individual’s acculturation score.

Table 3, on page 19, provides demographics information including age, number of children, country of birth, and years having lived in the U.S. All names have been changed to protect the identity of the participants.

**Table 3:** Overview of Interview Participants

<u>Name*</u>	<u>Approximate Age</u>	<u># Children</u>	<u>Country of Birth</u>	<u>Education Level</u>	<u>Work</u>	<u>Years in U.S.</u>	<u>Acculturation Score</u>
Claudia	> 35	3	Bogota, Colombia	High school	Receptionist	10	1.5
Victoria	> 35	4	Guadalajara, Mexico	High school	Restaurant cook	13	1.75
Ana	39	1 and pregnant	Mexico City, Mexico	Master's degree	Home cleaning	14	1.5
Maria	> 35	3	Mexicali, Mexico	High school	Social worker	14	2.25
Carmen	32	1	Sinaloa, Mexico	High school	Catering	15	1.75
Marissa	30-35	3	Oaxaca, Mexico	Middle school	Homemaker	17	1.75
Miriam	41	3	Colima, Mexico	High school	Caretaker	17	2.5
Manuela	34	3 and pregnant	Zacatecas, Mexico	High school	Homemaker	19	1.75
Andrea	46	2	Guanajuato, Mexico	Associate's degree	Homemaker	21	1.5
Luz	50-55	4	El Salvador	Associate's degree	School lunch cook	29	1.5
<i>Average:</i>		2.7 children			<i>Average:</i>	16.9 years	1.8

\* All names have been changed.

### **Acculturation Measure**

The Hispanic parents interviewed recognized that they have made numerous sacrifices to live in Oregon and that it would have been a challenge to raise children anywhere, but particularly in a foreign country and culture. Researchers have suggested that the concept of biculturalism and multiculturalism arises from different levels of adoption of the mainstream culture.<sup>68,69</sup> Through their years of adapting and compromising to American culture, the parents in this study seem to have landed upon a “mix and match” style of parenting. One mother explained that,

here [in the U.S.] it's difficult because one comes from a different culture or custom and you try to do the same, but the system here sometimes stops you from going along with my same [customs] and at the same time you learn that maybe the way my parents carried out their control of nutrition and all that wasn't correct, because even if I finished my food, it didn't mean I was eating well.<sup>a</sup>

The results of the short acculturation scale used during the interviews with Hispanic parents suggest that the scores of being more or less acculturated did not correlate clearly with years lived in the United States. For individuals who had lived in the U.S. from 10 to 15 years, the acculturation score was 1.75, while individuals with 17 to 29 years of living in the U.S. had an average score of 1.8.

The lack of large variability in the scores for the short acculturation scale could be an indicator of how relatively similar the participants might be in reference to generational status or that the particular scale used is not a sensitive measure for Hispanic audiences. In Oregon, 38% of Hispanics were born in a foreign country.<sup>21</sup> The convenience sample in the present study was not representative of national origin in that 100% were foreign-born. On average, the parents (all female) interviewed had lived in the United States for 17 years. Even with a residency range

---

<sup>a</sup> “Aquí es difícil porque viene uno de una cultura o costumbres diferentes y trata uno de hacerlo lo mismo, pero el sistema de aquí a veces mis papas llevaban el control te impide que sigas con eso mismo y al mismo tiempo aprendes que tal vez la forme que de la nutrición o eso no era la correcta. Porque la que terminara la comida no significaba que estaba comiendo bien.” Dahlia, 2011.

from 10 years to 29 years, the language preferences of Spanish over English remained consistent. The mothers mentioned that because their children had grown up and gone to school in the United States, there was a wide spectrum of their children's Spanish fluency, with a tendency towards being better at speaking, reading, and writing English rather than Spanish.

The majority of mothers stressed that "at home, we only speak Spanish," which ended up meaning that the children talked to their parents in Spanish and then spoke in English with their siblings. The parents discussed their language struggles of balancing Spanish and English in addition to raising children who could communicate better in English than Spanish. Sometimes, the children would also respond in English even though their parents had spoken to them in Spanish. One mother mentioned her confusion that her children couldn't pronounce words in Spanish, although she and her husband spoke to them solely in Spanish since the children were infants. Another mother mentioned her shock when she came home after a busy day at work and asked her older son to read the Bible passages for the family's nightly prayer, and he said he couldn't because he didn't know how to read Spanish.

### **Transcripts Analysis**

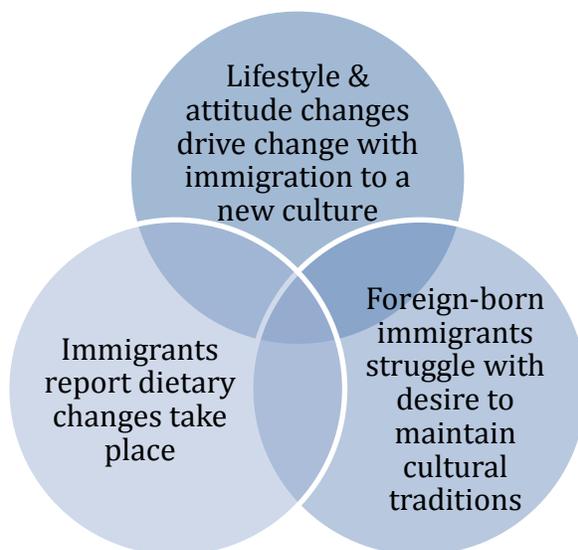
In addition to indicators of acculturation, the interviews aimed to explore questions about changes in health and lifestyle upon immigrating to the U.S., novel and unfamiliar American foods, and the meanings behind diet choices. The research objective was to better understand how Hispanic immigrant families' dietary behaviors are impacted by influences of a new cultural and food environment

The interviews were digitally recorded and transcribed into Spanish, then translated into English for review by the interviewer's advisor. The rich data collected was then hand-coded and analyzed based on common themes that emerged.<sup>70</sup> After analysis by two investigators, three common themes emerged from the ten interviews.

## Interview Themes

From the interviews, the three major themes that emerged were all related to the complex process of relocating to a new cultural environment. The following sections present an overview of the themes from the interviews, along with supporting quotes. Appendix F provides additional illustrative quotes. A further discussion with references to the literature follows.

The three major themes appear in Figure. Each theme has its own sub-themes and reflects the lifestyle changes experienced with immigration to a new cultural environment, foreign-born immigrants' desire to maintain cultural traditions, and adapting to the U.S. foods and the resulting dietary acculturation that takes place.



**Figure A:** Theme Map

These major themes appear as overlapping circles to emphasize how the themes are interrelated and many of the subthemes may be shared. **Error! Not a valid bookmark self-reference.** on page 23 provides an overview of the themes and their corresponding subthemes.

**Table 4:** Overview of Themes and Subthemes Identified

<u>Theme</u>	<u>Subthemes</u>
Lifestyle and attitude changes drive change with immigration to a new culture	<ul style="list-style-type: none"> <li>• Less walking and less physical activity in the U.S.</li> <li>• Everyone in the family has more exposure to new foods at work, church, school, and eating out</li> <li>• Learning about health and nutrition from television, WIC program, and school</li> <li>• Immigrants have more money to spend than in the past</li> <li>• Not worried about health and being heavy; being heavy is status quo in many Hispanic countries</li> </ul>
Immigrants report dietary changes take place	<ul style="list-style-type: none"> <li>• Kids want what other Americans kids are eating</li> <li>• Kids request processed and microwavable foods but then don't like them</li> <li>• Food tastes different here</li> <li>• Less food variety in Mexico</li> <li>• More abundant and poor choices here</li> <li>• Eat more vegetables here; fruit about the same</li> </ul>
Foreign-born immigrants struggle with desire to maintain cultural traditions	<ul style="list-style-type: none"> <li>• Cook from traditional cuisines</li> <li>• Favorite foods are traditional ones: frustrated by inability to re-create flavors and dishes closely</li> <li>• Use fusion (merged) foods</li> <li>• Kids need their families</li> <li>• Try to eat meals together as a family</li> <li>• Get kids to try foods early when they are young to get them to eat them later on</li> </ul>

### ***Lifestyle & Attitude Changes Drive Change with Immigration***

The first theme encompasses some of the changes the interviewees talked about in regards to emigrating from their home country to the new cultural environment of the United States. These changes occur as more of a slow adaptation and evolution, rather than a fast process. Outside the home, mothers felt they were busier and often mentioned how they walked less in the U.S. than when they lived in their home countries. They explained that their physical activity levels changed

because of the different American lifestyle. They mentioned how in the U.S., they seem to have fewer day to day activities involving physical activity, such driving and loading the food into the car, instead of walking to the grocery store and carrying the bags home. Manuela explained that,

in Mexico one can eat anything because you have to walk everywhere. There you don't have a car to go to the market, to go to the grocery store. There you have to walk to get anywhere.<sup>b</sup>

Compared to their lives in their home countries, the faster-paced American life seemed to leave the mothers feeling more rushed and stressed about preparing food for the family. The mothers expressed regret that they could no longer cook how they used to, or at least they felt that they had less time to devote to preparing traditional meals on regular weekdays. Not only did these mothers have to learn to adapt to a different lifestyle of traveling predominantly by car and juggling hectic schedules, but they also had to adapt to foreign American foods.

When they were at grocery stores, restaurants, and social gatherings, the parents had to negotiate food cultures when choosing what to eat. A common site mentioned where exposure to new foods and new ways of cooking was at church socials. One mother noted that even though everyone at a potluck might be Hispanic and speaking Spanish to each other, because they are from different countries (or even from the same country but a different area), they prepare foods differently. A cold rice dish in one country might mean rice, tomatoes, and prickly pear, while someone from another country might bring a mix of rice, tuna, mayonnaise, and canned peas.

Other opportunities for the families to try new foods included going out to eat at restaurants and fast food locations. The styles of foods that were mentioned as being different from those prepared normally at home were pizzas, hamburgers, Chinese food, sushi, and Middle Eastern foods. A small proportion of the women

---

<sup>b</sup> "En México podíamos comer todo eso pero ahí para todo caminas. Allá no tienes carro para ir al mercado, para ir a la tienda. Allá para todo tiene que caminar uno." Manuela, 2011.

mentioned truly enjoying trying the foods of different cultures, while others were more hesitant and tried the foods because their children and spouses were excited about the foods and encouraged them to taste the foods.

The mothers' willingness to be exposed to novel foods tended to revolve around their perception of a mother's role in the family. Marissa explained that "I remember reading once that [the mom] is the one who's responsible for everyone, the one who cooks. I'm the one who is at home and in the kitchen. I'm the one who's responsible for what my children and husband eat."<sup>c</sup> The cooking and nutrition-related knowledge they had learned since coming to the U.S. came from television programs on Spanish-language channels, classes offered through the federal program for Women, Infants, and Children<sup>71</sup> (WIC), and seminars provided at their children's schools.

From their experiences in classes about child and family health, many of the Hispanic mothers interviewed recognized they were sensitive to the difference between their health belief model and that of their children's American pediatricians. Numerous mothers brought up the issue that now—after having lived in the U.S. for a number of years—they understood that being fat does not mean one is healthy, as they had learned when they were younger in their home countries.

One woman described her understanding of how the concept began when

the rich began to say... 'We eat what we like because we have money.' So we Hispanics... started to distinguish ourselves in social classes by saying: 'Well, whoever has money is fat, he's rich. Whoever is poor is thin.'<sup>d</sup>

One woman who had grown up in poverty in Mexico explained that as an immigrant, "When one comes to this country and sees everything there is and that you can buy

---

<sup>c</sup> "Me acuerdo que leí una vez que [la mamá] es la responsable, la que cocina. Yo que estoy en la casa y la cocina. Es casi como que yo soy la responsable por todos los que mis niños y mi esposo están comiendo." Marissa, 2011.

<sup>d</sup> "El rico empezó a decir:... 'Comemos lo que queramos porque tenemos dinero.' Entonces los hispanos... empezamos a distinguirnos en clases sociales en decir: 'Bueno, el que tiene dinero, esta gordo, esta rico. El pobre es el flaco.'" Ana, 2011.

it too...at the beginning I wanted to give [my kids] everything.”<sup>e</sup> A particularly eloquent mother illustrated her point with a story about how she felt some of her friends had failed to adapt to their new food environment:

And moms my age, we bring the school of thought of mothers in general, so we get to the U.S. and of course one arrives from provincial towns where you’ve had tortillas and beans your whole life. And you get here and you have \$10 extra to spend, so what do you want to buy? Pizza. And you try it and think: ‘Hey, this tastes good!’ So you go and buy another one. And you buy some every day. Well, it changes your way of living and you start to see that with the pizza you start gaining weight, and you think: ‘I must be rich! Because I have money, that’s why I buy pizza.’ And that’s what happens. It’s the cultural shock of change, and everything related to it.<sup>f</sup>

Furthermore, several mothers mentioned how family members or friends had expressed concern about their own weight or that of their children. One mother remembers being young and walking down the street in her Mexican hometown and her mother being ashamed of her and complaining that she made the family look poor because she was thin, but her older brother made the family proud because he was fat.

Carmen from Colombia explained that in her country being “gordita y cachetona” (or chubby and chubby-cheeked) meant one was healthy and had a good marriage life. She described her parents’ shock on seeing her at the airport on a visit to the U.S. During that time in her life, she had begun losing weight by eating a more

---

<sup>e</sup> “Entonces, cuando vienes a este país y vez todo lo que hay, y que puedes comprarlo también...al principio todo quería darles.” Liliana, 2011.

<sup>f</sup> “Y las mamás de mi edad, traemos la escuela de las mamás, entonces nosotros llegamos a los Estados Unidos y claro que llegas de una provincia que no has tenido tortilla y frijoles toda la vida. Y llegas aquí y ya tienes \$10 más, esto es lo que te sobra: ¿qué te quieres comprar? Pizza. Y la pruebas y dices: ‘¡hay que rica me sabe!’ Y vas y te compras otra. Y te compras todos los días. Pues cambia toda tu forma de seguir. Y empiezas a saber que con la pizza te engordas, y dices: ‘¡hay pues estoy rica! Porque tengo dinero, por eso me compro la pizza.’ Y eso es lo que también pasa. Es el choque cultural del cambio, todo lo que te viene.” Ana, 2011.

balanced diet, but her parents' initial reaction was to ask her if she was having problems at home with her husband. She recognized that they thought her life was "miserable" because they saw her as being too thin.

### ***Immigrants Report Dietary Changes Take Place***

The second theme from the interviews touched on the acculturation process through a combination of recognizing both the current cultural environment and the past one. The mother's described the many ways they had to adjust to the current food environment, particularly their varying willingness or reluctance to try novel American foods. Of all the family members, the children seemed the most likely to want to try new foods, especially American foods that they had either eaten at school or seen at a friend's house. American foods the children were likely to ask for included peanut butter and jelly sandwiches and pasta salads. A few mothers mentioned buying Tang orange drink mix, frozen fruit for smoothies, microwave-ready foods, or frozen corn dogs because their children requested them. However, all the mothers noted that after several weeks they would end up having to throw away the uneaten foods because the children did not eat the foods more than once after it had been purchased and none of the parents wanted to eat the food themselves.

Although the mothers interviewed often prepare the same foods that they had prepared in their homelands, many felt that in the United States the food tasted different. Several mothers commented on how, for example, a tomato from the grocery store did not have as much flavor as the ones they remembered from their childhood. While they recognized that their memory could be nostalgic, one mother explains, "I was used to eating fresh produce. And when I got here, everything was different: even the vegetables tasted differently...They didn't have flavor. The flavor was completely different."<sup>g</sup>

---

<sup>g</sup> "Yo estaba acostumbrada a comer productos frescos. Y cuando llegue aquí, todo era diferente: incluso los vegetales tenían diferente sabor...No sabe. Tiene sabor completamente diferente." Cora, 2011.

The issue of flavor of produce is reminiscent of the conversation in the popular press concerning eating local and buying fruits and vegetables from local outdoor markets not only because of economic or environmental reasons but because of taste. In his popular book “The Omnivore’s Dilemma,” the writer Michael Pollan tells his readers not to eat anything their grandmother would not recognize as food. One mother in this study particularly in-tune with current food trends said she thought organic chicken tasted better and that the hormone-free beef she bought was better because her kids could be stronger and more active. Considering how all the mothers interviewed are first-generation immigrants, their comment about noticing the lack of flavor in their produce is particularly relevant because within their lifetime many have gone from consuming locally grown (if not homegrown) produce bought at city markets to shopping for produce sometimes shipped from across oceans.

The focus on taste went hand-in-hand with a preference for fresh ingredients. The preference for fresh ingredients could be coming from using mostly or only fresh ingredients. Half the women interviewed professed a dislike for using canned or frozen fruits and vegetables. If necessary, they would use the ingredients to save time or money if the products were on sale, but in general they said that they consciously tried to not buy either canned vegetables or frozen ones.

The evolving adaptation to a new dietary environment of the U.S. also included trying to understand the concept of “healthy” American foods. Aside from the negative perceptions of American foods, especially fast food and convenience foods, one positive perception of American foods mentioned was learning about the importance of salads within a meal. One woman who works in a retirement community mentioned her surprise the first few weeks working there when the residents would ask her to make a salad from the salad bar, which included not only lettuce and greens but multiple toppings and kinds of dressings. With similar personal experiences, other women have widened their idea of a salad made with

lettuce, cucumbers, tomatoes, and onions to an American-style salad with olives, sliced chicken, beets, carrots, shredded cheese, sunflower seeds, etc.

### ***Struggling with the Desire to Maintain Cultural Traditions***

The third theme from the interviews focused on the desire to maintain traditional habits. Because of (or despite) the U.S. food environment being different from that of their home countries, the Hispanic mothers emphasized that their favorite foods were those that were traditional to their culture. The mothers felt that they had to negotiate between their native food and American food.

When asked about the family's favorite meals, the most common responses were about traditional homeland foods such as tacos dorados, stuffed peppers, tamales, tostados, mole, and pozole. Because some of the dishes take a long time to prepare, they were also regarded as special. On a daily basis, the most common foods mentioned included beans, rice, cheese, and tortillas. One woman went so far as to explain that in her country of Mexico, for something to be considered a "meal" it *must* include tortillas and beans.

Another mother confessed that even after living in the U.S. for more than 13 years, "the truth is that I can't get used to the food here...Why am I going to change the food I'm eating if I feel that it's already very good and it's not frozen? It's fresh, nourishing. You follow the standard you're used to."<sup>h</sup> Of the mothers who grew up in small cities and towns, many mentioned picking avocados fresh off the trees in their backyard or buying milk produced by their neighbor's cow. One woman who grew up with her grandparents remembered making tortillas from scratch using the corn grown on their small plot of land.

The mothers felt that, while some American foods were considered tasty, they also seemed to be healthier than homemade Hispanic foods. For example, pizza was mentioned as a convenience food purchased about once a week for a night

---

<sup>h</sup> "La verdad es que yo no me acostumbro a la comida de aquí...Porque voy a cambiar mi comida si siento yo que es muy buena y no está congelada. Es fresca, nutritiva. Uno sigue el patrón de uno de que está acostumbrado." Victoria, 2011.

when the mothers have a work meeting that runs too late to prepare dinner from scratch.

Compromising between Hispanic and American culture foods also seemed to support the mother's ability to cope with acculturation barriers, such as the lack of knowledge of how to use different or unfamiliar food products and ingredients. In talking about her own style of fettuccini alfredo, one mother mentioned, "I make it completely different but to my family's tastes...because I was afraid that I would end up picking the pasta with that [Alfredo] sauce, since I don't know what kind of sauce it is. When you see so many alfredos, you think: 'oh no! I'd better make it Claudia-style.'"<sup>i</sup> In their first months and years in the U.S., some of the mothers would only shop at Hispanic markets because only there did they recognize the fruits, vegetables, and other food products.

In another compromise between American foods and Mexican ones, one mother described her Mexican-style macaroni and cheese with fresh tomatoes, onions, garlic, sliced ham, Mexican crema blanca (similar to sour cream), and queso fresco (a type of soft farmer's cheese). Rather than being composed of solely traditional foods, meals seem to be a type of "mix and match" or fusion food. One mother explains, "I got used to making it in any way, and that was my style. It's like something I invented, [my family] got used to that. Well, it's not made correctly, or the perfect dish."<sup>j</sup>

The mothers also shared their daily struggles with balancing their role as mothers and making sure there was harmony within the family. Several mentioned the importance of "starting early" in raising and teaching their children good manners and exposing them to different foods while they are still babies and toddlers, so that they would like the taste of vegetables, for example, when they got

---

<sup>i</sup> "Lo hago totalmente diferente pero es a nuestro gusto...Porque yo tenía miedo que me tocaría esa pasta con esa salsa, como no conozco la que era. Cuando una ve tantos alfredos, yo pienso: 'hay no! Mejor hago yo al estilo Claudia.'" Claudia, 2011.

<sup>j</sup> "Me acostumbre hacerlo en la manera que saliera, y esa era el sabor mío. Es como algo si yo lo invente, [mi familia] se acostumbraron a eso. Bueno, no está hecho en la manera correcta, o el platillo perfecto." Dahlia, 2011.

older. One mother's method of getting her children to try a new food, such as salmon soup, was to prepare it on a day when she knew the children would be hungry, so that there would be less complaining and hopefully more acceptance.

The mothers valued this consistency that they were providing their children: the act of always having dinner together as a family. As one mother explained, "I feel like I have to have dinner ready at home because it's the only time we can sit and eat together [as a family]." <sup>k</sup> Because the parents interviewed were all mothers, the point of views of the interviewees was from the position of a female and child-bearer. These Hispanic mothers were the main food-preparers in the home and they felt that it was up to them to expose their children to the same foods and lifestyle that they themselves had grown up with. Not only were the women the main cooks in their family, but they saw themselves as a role model for their children. To preserve traditions and maintain family cohesion, families took the time and effort to share meals, especially dinner.

## Discussion

Throughout the millennia of their existence, humans have made dietary choices "governed by the social, cultural, aesthetic, and even moral meaning of food, coupled with the realities of availability and cost."<sup>72(p7)</sup> Many world travelers have had to adjust and adapt to a new culture when they begin a new life in a foreign country. Part of this acculturation process involves the challenges of a different language in addition to dealing with a possibly novel food landscape.

The research objective of this study was to explore how Hispanic immigrant families' dietary behaviors are impacted by influences of a new cultural and food environment. The research questions were:

1. What are the opportunities for experiencing new American foods among Hispanic immigrant families?

---

<sup>k</sup> "Siento de que necesito tener una cena en la casa porque es el único tiempo que tenemos para sentarnos y comer todos [como familia]." Dahlia, 2011.

2. Explore the meaning diet has in the lives of Hispanic immigrant families, particularly as they acculturate.
3. What changes in lifestyle, relative to health, occur with immigration to the United States?
4. How does one acculturation scale (by Marín and Marín (1991)) relate to number of years lived in the United States?

The following four sections attempt to answer the research questions using the themes from and the topics discussed during the interviews in addition to insight from the literature.

### **Opportunities for Exposure to Novel and Unfamiliar American Foods**

Hispanic families are exposed to new foods at work, church potlucks, social functions, and restaurants. Hispanic children raised in the U.S. tended to be more comfortable with American foods and requested them from their mothers. Because eating can be “both intensely satisfying and extremely threatening,... [humans have] an interest in new foods and a simultaneous fear of eating them.”<sup>73(p12)</sup> Negotiating the dominant American culture centered on compromising and adapting to novel foods. The Hispanic mothers interviewed for this project expressed some initial cultural shock followed by gradual acceptance of their new food environment.

Many mothers mentioned making fusion foods whereby they made unfamiliar dishes, such as macaroni and cheese, into more familiar dishes with ingredients of which they were comfortable with. In a recent study with Hispanic parents, most born in Mexico, the researchers also found an interest in preparing American foods combined with reluctance, because of unknown ingredients and a worry that the family might not like the final product.<sup>74</sup>

The hesitation to try novel American foods may not only be the result of a possible fear of the unknown, but also the disappointment about how American food products taste. Taste has been described as a “flavor, a combination of taste and smell, as well as mouthfeel and other textual clues.”<sup>41(p49)</sup> When asked why they

thought produce might taste differently, the mothers' responses included the perception that chemicals and artificial manure is used in growing American fruits and vegetables. Other researchers have also described Hispanic immigrants' comments about the noticeable different taste of American foods compared to the same food from their home countries.<sup>48,75</sup>

The perception of fruits and vegetables, such as tomatoes, tasting different in the U.S. compared to in Mexico could be based on real differences. The type of animal feeds influence meat and dairy product flavors. Different growing conditions, soil, fertilizer, climate, and other factors might actually produce a different-tasting tomato or other produce. Because the tomato is an ingredient mentioned in many Mexican dishes, a sweeter or stronger taste could certainly change the flavor profile of a dish.

Many of the mothers interviewed in the present study also explained that they prefer using fresh fruits and vegetables, since those are what they grew up with and learned how to cook. In the present study, canned and frozen vegetables seem to present challenges in regards to taste acceptability, a finding which has also been found in other research.<sup>48,49</sup> Similarly, comments about familiar fruits and vegetables being less fresh, tasty, and "natural" appear in the literature.<sup>36</sup> Ethnographic research conducted with Hispanic mothers in Texas found that the women also preferred to use fresh fruits and vegetables, but they used canned and packaged foods for convenience.<sup>75</sup>

Low fruit and vegetable intake has been correlated with low socioeconomic status, low accessibility, and lack of self-efficacy, with a barrier for immigrants being lack of familiarity with the most common fruits and vegetables in the U.S..<sup>48</sup> Researchers have noted that availability of fruits and vegetables in first-generation immigrants' home countries, in addition to higher income upon moving to the U.S., often changes willingness to try a new produce item from the grocery store.<sup>36,49</sup>

Findings from other research also suggests the propensity for first-generation immigrants from Mexico, especially those classified as "less

acculturated” by various scales, as preferring more fruit, rice, and beans than their native-born counterparts.<sup>36</sup> Notably, based on frequency of consumption data, Hispanic men and women reported significantly higher fruit and vegetable intakes compared to non-Hispanic whites and blacks—but still lower than recommended amounts.<sup>76,77</sup> For subgroups comparisons, an epidemiological study did not find significant differences between Hispanic subgroups from Mexico, Central America, South America, and the Caribbean, which supports research that countries with more common cultural values tend to have comparable reasons for food choice.<sup>44</sup>

Because of a potential lack of availability of familiar fruits and vegetables at their local grocery stores, Hispanic mothers may be limiting their family’s food choices.<sup>48,78</sup> Studies about food neophobia suggest that a familiar food or ingredient is more likely to be seen in a positive light compared to an unfamiliar food or ingredient.<sup>40,43</sup> If Hispanic immigrant mothers have more food neophobia because of not wanting to try new foods, they might be limiting the exposure of their children. Their children will have fewer opportunities to try new foods, since hesitation to try novel foods may be reduced with repeated exposure to novel foods.<sup>41,79,80</sup>

Nutrition and food researchers have thus made the recommendation to “reinforce and encourage the good practices parents bring from their native countries while also introducing new strategies to navigate a less-familiar food culture and promote healthy eating among children.”<sup>74(p1037)</sup> A potential way to improve food choices of Hispanics, while maintaining the healthy aspects of a traditional diet, would be to provide tips on substitutions within already-consumed traditional foods.<sup>15,16,36</sup> For first generation immigrants who grew up with a wide variety of farm-fresh produce, health professionals could encourage the continuation of buying fresh produce and offer opportunities to taste potentially unfamiliar products, such as frozen or canned fruits and vegetables.

### **Exploring the Meaning behind Food**

The importance of maintaining traditional foods became apparent as the Hispanic immigrant mothers began their lives in a new country. The women interviewed made the difficult decision to leave behind their extended family and move to a country where they had to learn a new language and adapt to a new culture. Through the words and actions of these Hispanic mothers, one could conclude that they made the move to the U.S. not only for themselves, but for the future of their children. One mother explained: "I really like to learn a lot especially about nutrition because...it's good to know for me, for my husband, [and] for the whole family."<sup>1</sup> While the mothers want to make their children happy, they struggle to maintain tradition while letting their children adopt the dominant culture and eat like their American peers.

Other researchers have found that Hispanic mothers deeply value educating their children and they talk about teaching their children about food at an early age.<sup>48,75,81,82</sup> As the primary food preparer in the home, many mothers seemed to understand how important it is both to understand food and nutrition and to cook not only for themselves but for the health of the whole family. One Mexican mother explained that when her husband was diagnosed as having high blood pressure, the whole family changed their food habits to incorporate more salads during dinner, for example. For this family, rather than adapting to the American diet and incorporating more American foods gradually, the recommendation of physicians seemed to spur a change.

Fresh salads with green leafy vegetables, like those encouraged by the previous family's doctor, do not appear often in literature descriptions of traditional Mexican food.<sup>73,83</sup> The ingredients most often associated with Mexican foods, also mentioned most by the mothers in this study, included beans, corn, rice, and chili peppers, although regional diet differences also exist. As one mother explained,

---

<sup>1</sup> "A mí me gusta mucho aprender mucho especialmente lo que es nutrición porque como digo, me sirve a mí, a mi esposo, a toda la familia." Marissa, 2011.

“sometimes I ask my friends how they cook because even though we’re all Mexican, sometimes we cook differently.”<sup>m</sup>

In a survey of nutrition and health experts, fruits and vegetables culturally specific to the Mexican American cuisine and sometimes difficult to find in the average grocery store include avocado, cactus, cassava, chayote squash, cherimoya, coconut, garbanzo beans, guava, jicama, mangoes, papaya, passion fruit, pineapple, plantains, and tomatillos.<sup>78</sup> By preparing traditional meals, especially during celebratory events, immigrants use the food to set themselves apart and proudly identify with their heritage. Efforts to help maintain their cultural food practices and identify nutritious choices and acceptable alternatives may provide strategies to help them adapt their diets positively.

### **Changes in Health and Lifestyle for Immigrants**

As first-generation Hispanic immigrants arrive to the United States, they may be bombarded with the “obesigenic” American environment of “sedentary lifestyles, large portion sizes, heavy advertising of high fat and energy-dense foods, and mass media.”<sup>47(p2030)</sup> Research suggests that the diets of Mexican, foreign-born adolescents are better than their U.S.-born counterparts.<sup>47</sup> Second generation, U.S.-born adolescents tend to be more overweight and participate in more negative health behaviors, such as smoking, compared to the foreign-born adolescents.<sup>47</sup>

Some researchers have suggested that by reinforcing the healthy behaviors of less acculturated Hispanics, the subsequent generations might have better health outcomes.<sup>15</sup> In both peer-reviewed journals and the popular press, there have been numerous articles about the rise in obesity and changing U.S. environment with less physical activity and more sedentary behavior. One interviewee explained that

---

<sup>m</sup> “A veces les platico a amigas a ver como cocinan porque aunque seamos Mexicanos, a veces cocinamos diferente.” Manuela, 2011.

“many mothers have the idea that this is the same as in Mexico...but in Mexico we walk more.”<sup>n</sup>

The abrupt transition for immigrating women creates a sudden lifestyle shift. In other words, they did not grow up or experience a gradual change in lifestyle but rather they began living a more car-centered, sedentary lifestyle after moving to the United States. A factor contributing to recent immigrants having better health is that their initial physical health tends to be better when they first make the move to the U.S.<sup>29,30</sup> Immigrants willing to pack up their belongings, leave their families, and begin life in a new country and culture may be physically healthier and psychologically or mentally better prepared for the challenges ahead. Researcher suggests that the better initial physical health could be a result of a better diet and more physical activity, compared to the average U.S. lifestyle. However, with more years of living in a new country and culture, the more an immigrant’s health status tends to become more similar to that of native-born individual’s.<sup>31,32</sup>

In addition to possibly experiencing a different structural environment, immigrants from cultures with a different health belief model may have to adapt to the U.S. model. Through biological reductionism, all illness may be understood through the basic biology of the human body.<sup>84,85</sup> On the other hand, through a meaning-centered approach, illness not only involves biology but also how the culture understands this biology and interprets being in good health.<sup>86</sup> Thus, health and illness may be defined cross-culturally, not only through humans’ shared biology, but through their culture’s beliefs and practices.

With a biological reductionism framework, Americans tend to view obesity as the result of “overeating and/or under-exercising...the biomedical gloss for moral failings of gluttony and sloth...Obesity is a visual representation of non-control.”<sup>86(p352)</sup> Historically—which may be changing—the biological characteristics of being very overweight or obese appears in other cultures, but only in the culture

---

<sup>n</sup> “Muchas están con la idea de que igual a México, comen lo mismo todo...[pero] en México uno camina más.” Carmen, 2011.

of the United States is it considered negatively as a disease.<sup>86</sup> In the U.S., obese individuals are more likely to experience stigmas, prejudice, discrimination, and stereotyping.<sup>87</sup> Cross-culturally, the biology of obesity is relatively constant, but a culture's interpretations may vary.

Many of these Hispanic women may have grown up with a different understanding of body shape. From research conducted in the late 1980s, Puerto Rican women were expected to gain weight to the point of being overweight or mildly obese after marriage, an external sign their husband could provide for them.<sup>88</sup> Other surveys conducted in ten countries around the world suggest that education level predicts fat stigma scores, not gender or country of origin, implying that educated individuals receive more exposure to the "fat-as-unhealthy" messages.<sup>89</sup>

Mothers in this study saw the media in the U.S. as having a pervasive and overall negative impact on their food choices, although other studies have cited television as beneficial to Hispanic mothers who use it as a tool to teach their children English.<sup>75</sup> In focus group-based research from North Carolina and Connecticut, one Hispanic parent explained that "if you go home and turn on the TV, they're selling McDonalds, Wendy's, and Pizza Hut...you don't see fruits or vegetables in commercials."<sup>48(p45)</sup> Based on figures from an Economic Research Service (ERS) Report, about 81 cents of every dollar spent on food went towards the various marketing costs in 2006.<sup>90</sup> The Hispanic mothers in the present study and in previous studies have clearly noted that the United States is a "country where food is plentiful."<sup>o</sup>

When designing nutrition-based messages for Hispanics, it should be important to understand that their health belief model might be different from the American model since some Hispanic cultures might view "chubby" children as healthier than thinner ones. The mothers interviewed for this study struggle with the realization that overweight, a sign of wealth in some of their countries, is not

---

<sup>o</sup> "Un país donde abunda la comida." Claudia, 2011.

perceived well in the U.S. culture. They are particularly sensitive to hearing this from health care workers who heavily promote the message. Other research with Mexican-American parents has found that while mothers might understand the concept of obesity and its potentially detrimental health effects, they did not think this necessarily applied to their own children.<sup>91,92</sup> One of the goals of messaging might be to acknowledge their current beliefs and suggest health-based, culturally-appropriate reasons why an overweight or obese child might have more negative health issues. As one mother learned through a community-taught class, “[my] child is healthy, I don’t need a fat child for him to be healthy.”<sup>p</sup>

### **Measuring Acculturation through Language Use**

Studies suggest that being open to change allows immigrants to adapt to their new cultural environments.<sup>69</sup> For all the mothers interviewed in this study, being a first-generation immigrant meant they had to maneuver a new cultural environment where the dominant language is usually English. Knowing only one language, Spanish in this case, could be a large communication barrier.<sup>93</sup> In a clinical setting, if Spanish is an individual’s dominant language but they must communicate in English, the patient may be “paying more attention to pronouncing words and phrases correctly rather than focusing on meaningful content.”<sup>93(p389)</sup>

The phenomenon some of the interviewed mothers describe with their children has been called “language mixing” or “Spanglish” whereby Spanish speakers living in English-speaking environments have more freedom of expression because they “strategically switch languages within a single phrase, idea unit, or proposition.”<sup>93(p391)</sup> Bilingual (and multi-lingual) individuals have the words of their native language at their disposal in addition to the English language. The wider diction not only allows for greater freedom of expression but can also be a way for immigrants to maintain cultural and ethnic heritage as a “source of identity and

---

<sup>p</sup> “Es un niño saludable, no necesito un niño gordo para que sea sano.” Claudia, 2011.

pride.”<sup>93(p389)</sup> Being bilingual has also been associated with “better cognitive performance in comparison with monolinguals in any language.”<sup>94(p890)</sup>

The relatively rapid replacement of Spanish with English to become “linguistically monolithic” has been suggested as being unique to immigrants to the United States.<sup>94</sup> Some researchers have suggested that language-based acculturation scales might be reflecting linguistic acculturation rather than being an adequate proxy for cultural acculturation.<sup>25</sup> It has been suggested that indicators of acculturation may be reflecting social and economic status.<sup>32</sup>

Noting the influence of Hispanic mothers’ food and health beliefs on their children, some researchers conducted focus groups to ask women directly what they thought about various topics related to food, health, and mothering.<sup>95</sup> The researchers conducted some focus groups in Spanish and some in English. From their data, the researchers found subgroup differences between Spanish-preference and English-preference Hispanic participants. They concluded that “Latinos comprise a heterogeneous group incorporating many different national origins, a variety of cultural, social and religious practices, and variable levels of acculturation/bicultural statuses.”<sup>95(p360)</sup> Interestingly, their findings also showed that only the Spanish-language groups talked positively about how their eating habits would influence their children’s eating preferences, while only English-language groups talked about the negative influence of their eating habits. In other words, the English-speaking mothers tended to see many foods as “bad” while the Spanish-speaking mothers saw most foods as “good,” which they may then pass on to their children’s perceptions of foods.<sup>41</sup> These findings suggest that, even though the participants have the same ethnicity, the language in which they conceptualize their thoughts and feelings reflects the important influence of language choice.

From a study with 130 Latino college students living on the West Coast, researchers found that Latino-identified students were more comfortable using Spanish, highly bicultural students were less comfortable, and low-level bicultural

and American-identified students were the least comfortable using Spanish versus English.<sup>96</sup> The majority of these participants were children of first-generation immigrants, so their parents most likely spoke Spanish in the home. Notably, all the participants retained some level of Spanish use and knowledge. The study's authors emphasized how acculturation and "cultural identity" is a dynamic and ongoing process.

While the first generation of Hispanic immigrants might predominantly speak Spanish, their children who have grown up speaking and been formally educated in English tend to use more English, a finding which was reflected in the present research. It's suggested that by the third generation of Hispanic American immigrants, most individuals speak, read, and write in English predominantly, especially if they have had no formal education teaching them Spanish reading and writing skills.<sup>97</sup> For the current study, the acculturation scores were low for almost all subjects, with a range from 1.5 to 2.5, using a scale that measured acculturation based on language choice. Although the results of the short acculturation scale for the present study did not reveal clear separations of participants based on different scores or years lived in the U.S., the subjects all reported very similar acculturation experiences.

### **Limitations**

The key limitation of the present study was the small (n=10) number of participants, all from one Pacific Northwest city. Because the participants were recruited through snowball sampling, it's possible that the participants were friends and knew each other, resulting in similar outlooks on life, food, nutrition, etc. This convenience sample, chosen though specific selection criteria, may not reflect the cultural group as a whole.

Also, the interviewer was a female, Hispanic woman, which might have influenced how the informants answered the questions because they may have made assumptions about her based on shared cultural background. A confounding

factor for the results is that some of the participants might have learned more about nutrition through WIC and similar programs, so their knowledge of socially acceptable answers to nutrition-related questions might have been influenced.

## **Conclusion**

This study aimed to explore how Hispanic immigrant families' dietary behaviors are impacted by influences of a new cultural and food environment. The results of this research suggest understanding the acculturation process and how diets are modified can lead to future directions for nutrition education approaches and messages aimed at Hispanic populations. To provide effective and successful intervention that resonates with the diverse segments of the U.S. Hispanic population, public health professionals will need to use a variety of methods and channels.<sup>98,99</sup> Like marketing and advertising experts whose goal is to sell a product, health professionals' goals are to increase "good" behaviors and decrease "bad" behaviors that might negatively impact an individual's health. The aim is to design effective, meaningful, and culturally-appropriate nutrition-related messages.<sup>22</sup>

Some strategies suggested by researchers for parents are to set limits and "consequence healthy eating with tangible (ex. stickers) or intangible (ex. praise) reinforcers."<sup>100(p862)</sup> Tailored, rather than generic, nutrition education messages and bi-lingual written materials to take home and hands-on demonstrations have been found to be effective with Hispanics.<sup>101,102</sup> Some communities have been successful in using *promotoras de salud*, who are female health workers teaching within their own Hispanic communities.<sup>103,104</sup> Additionally, considering how about 70% of Hispanics identify as Catholic, faith-based interventions could provide meaningful and effective health or nutrition-related improvements.<sup>105-108</sup>

In the present study, the average acculturation score from the language-based scale was 1.8, with a range from 1.5 to 2.5. A value closer to 1 represents lower acculturation, while a value closer to 5 represents higher acculturation. Acculturation scales are meant to help researchers to measure acculturation so as to

develop better operational definitions and to better understand the complex process of adopting and rejecting aspects of a different culture. For this project, because the data collection consisted of qualitative interviews, it seemed that the results of the scale were not as helpful and listening to the a participant and how they talked about adapting to living in the United States.

By itself, the acculturation score suggested more of the first-generation Hispanic women interviewed preferred Spanish to English, a finding which also came out from the questions asked during the interview. The results of both the scale and the interview questions line up with how, of Oregon's 452,000 Hispanics, about 69% primarily speak a language other than English in the home.<sup>21</sup> In this case, the short acculturation scale was not as useful and a longer, more complex one would be recommended for future studies so as not to rely so heavily only on language but to be able to incorporate other aspects of life (such as years lived in the U.S., country of origin, educational level, music preferences, and others) related to acculturating to a different culture.

When specifically asked about language preference for nutrition materials and information, the interviewed mothers said they would prefer to receive nutrition-based messages and education in Spanish. Corroborating with the present study's findings, a survey of 52 Hispanic women in Linn and Benton Counties of Oregon found that 69% of the women "would like to learn about healthy food" in Spanish.<sup>52</sup> However, the consensus seemed to be that the information *should* be presented in both Spanish and English. When probed further, the responses for suggesting using both languages included the mothers' interest in learning a greater variety of English words and their recognition that their children were fully bilingual. The mothers mentioned that when they saw posters or brochures in both Spanish and English, they would end up comparing the English and the Spanish translations to better understand the subject matter and to learn or remind themselves of the translations of specific words or phrases. Considering this

information, future educational materials for this region of the country should be produced in Mexican Spanish to most effectively reach the Hispanic population.

On the other hand, some mothers complained that sometimes Spanish translations were more difficult to understand than leaving the information in the original English. The Spanish translations might have mistakes because the translator had a lower mastery of Spanish or there could be mistakes simply because of cultural differences. For example, among the numerous countries in Latin America, the word for “corn” could be translated into “maíz,” “elote,” or “choclo” depending on the translator’s country of origin.<sup>93</sup> As one mother explained, “I get confused because sometimes I don’t recognize the words they use. Yes, it’s written in Spanish, but it depends what kind of Spanish we’re talking about.”<sup>94</sup> When translated into Spanish, information should also then be tailored to the dominant country of origin, which in Oregon would be Mexico for 85% of its Hispanics.<sup>21</sup> Although their children will probably prefer to receive nutrition-based information in English in the future, the Hispanic mothers in this study tend to be more comfortable and confident in their ability to understand the topic when learning about it in Spanish.

Some of the highlights from the research include how immigrants are sensitive to language differences and translations. Also, the mothers interviewed were truly challenged and stressed by the whole process of acculturation. Although all the mothers had lived in the U.S. for at least ten years, they continuing to experience stress related to new foods, lack of and different kinds of physical activities, and many other novel lifestyle aspects. It seemed like acculturation resulted when they “gave up” trying to maintain some of their traditions and instead adopted some of the American lifestyle habits and foods. While they were ambivalent with these changes, they also sometimes recognized that they had

---

<sup>94</sup> “Me confundo porque a veces las palabras que utilizan yo no las conozco. Si es el español pero depende de que español estamos hablando.” Dahlia, 2011.

multiple roles to fill, including that of teacher, primary food provider, and other responsibilities related to motherhood.

In conclusion, based on the results of this study and evidence in the current literature, three suggestions can be made for nutrition-related messages based on how Hispanic immigrant families' dietary behaviors are impacted by influences of a new cultural and food environment. Future research should search for ways to support Hispanic mothers in maintaining healthier food traditions and resisting their children's preferences for less healthy choices. Educational materials aimed at immigrant Hispanic audiences should be provided in both English and Spanish. Finally, Hispanic immigrants should be counseled about lifestyle changes that impact time management, while being encouraged to pursue more opportunities for physical activity.

Future research should take into account how important it is for Hispanic mothers to understand health-related advice and information. Ideally, information should be presented in the individual's preferred language, which was Spanish for all the mothers in this study. In other words, for the current Hispanic population, communication in Spanish is important and could make a more powerful impact on health and wellbeing. Future research could also look at how influential children seem to be with the food choices of their families. Finally, to further positively impact an immigrant's health and eating patterns, as well as those of their families, a focus should be in maintaining the healthier aspects of an immigrant's original dietary habits. This should be paired with counseling about including good American habits, such as fresh green salads and actively searching for opportunities to increase physical activity.

## Bibliography

1. Humes RK, Jones NA, Ramirez RR. *Overview of Race and Hispanic Origin: 2010*. March 2011.
2. Pérez-Escamilla R. Dietary Quality among Latinos: Is Acculturation Making Us Sick? *J. Am. Diet. Assoc.* 2009;109(6):988-991.
3. Motel S, Patten E. *The 10 Largest Hispanic Origin Groups: Characteristics, Rankings, Top Counties*. Washington, D.C.2012.
4. Narayan K, Boyle JP, Thompson TJ, Sorensen SW, Williamson DF. Lifetime risk for diabetes mellitus in the united states. *JAMA.* 2003;290(14):1884-1890.
5. Ricardo AC, Lash JP, Fischer MJ, et al. Cardiovascular Disease Among Hispanics and Non-Hispanics in the Chronic Renal Insufficiency Cohort (CRIC) Study. *Clinical Journal of the American Society of Nephrology.* 2011;6(9):2121-2131.
6. Livingston GM, Minushkin S, Cohn DV. Hispanics and Health Care in the United States: Hispanics and Chronic Disease in the U.S. *PewResearch Hispanic Center* 2008; [www.pewhispanic.org/2008/08/13/ii-hispanics-and-chronic-disease-in-the-u-s/#fn-7402-10](http://www.pewhispanic.org/2008/08/13/ii-hispanics-and-chronic-disease-in-the-u-s/#fn-7402-10). Accessed April 21, 2013.
7. Lora CM, Daviglius ML, Kusek JW, et al. Chronic Kidney Disease in United States Hispanics: A Growing Public Health Problem. *Ethn. Dis.* 2009;19(4):466-472.
8. Guh D, Zhang W, Bansback N, Amarsi Z, Birmingham CL, Anis A. The incidence of co-morbidities related to obesity and overweight: A systematic review and meta-analysis. *BMC Public Health.* 2009;9(1):88.
9. Kimokoti RW, Millen BE. Diet, the Global Obesity Epidemic, and Prevention. *J. Am. Diet. Assoc.* 2011;111(8):1137-1140.
10. Suinn RM, Ahuna C, Khoo G. The Suinn-Lew Asian Self-Identity Acculturation Scale: Concurrent and factorial validation. *Educational and Psychological Measurement.* 1992;52(4):1041-1046.
11. Ryder AG, Alden LE, Paulhus DL. Is acculturation unidimensional or bidimensional? A head-to-head comparison in the prediction of personality, self-identity, and adjustment. *Journal of Personality and Social Psychology.* 2000;79(1):49-65.
12. Vanegas SM. *Dietary Acculturation Among Oregon Latinos: Factors Affecting Food Choice*. Corvallis: Nutrition and Food Management, Oregon State University; 2007.
13. Lv N, Brown JL. Place of Dairy Products in the Chinese-American Family Food System. *J. Am. Diet. Assoc.* 2010;110(8):1207-1215.
14. Kittler PG, Sucher KP. *Food and Culture*. 5th ed. Belmont: Thomson Wadsworth; 2008.

15. Lara M, Gamboa C, Kahramanian MI, Morales LS, Bautista DEH. Acculturation and Latino Health in the United States: A Review of the Literature and its Sociopolitical Context. *Annu. Rev. Public Health.* 2005;26(1):367-397.
16. Davis NJ, Schechter CB, Ortega F, Rosen R, Wylie-Rosett J, Walker EA. Dietary patterns in blacks and Hispanics with diagnosed diabetes in New York City's South Bronx. *The American Journal of Clinical Nutrition.* 2013;97(4):878-885.
17. Kaplan M, Kiernan N, James L. Intergenerational Family Conversations and Decision Making about Eating Healthfully. *Journal of Nutrition Education and Behavior.* 2006;38(5):298-306.
18. Passel J, Taylor P. *Who's hispanic?* Washington DC 2009.
19. Taylor P, Cohn DV, Gonzalez-Barrera A, et al. Second-Generation Americans: A Portrait of the Adult Children of Immigrants. *Social and Demographic Trends* 2013; [www.pewsocialtrends.org/2013/02/07/second-generation-americans/](http://www.pewsocialtrends.org/2013/02/07/second-generation-americans/). Accessed March 15, 2013.
20. Census Bureau US. State and County QuickFacts: Oregon. 2010; <http://quickfacts.census.gov/qfd/states/41000.html>. Accessed September 22, 2011.
21. Marlett JM, MI, Slavin J. Position of the American Dietetic Association: health implications of dietary fiber. *J. Am. Diet. Assoc.* 2008;102(7):993-1000.
22. Cluskey M, Edlefsen M, Olson B, et al. At-home and Away-from-home Eating Patterns Influencing Preadolescents' Intake of Calcium-rich Food as Perceived by Asian, Hispanic and Non-Hispanic White Parents. *Journal of Nutrition Education and Behavior.* 3// 2008;40(2):72-79.
23. Marín G, Marín BV. *Research with Hispanic Populations.* Vol 23. Newbery Park: Sage Publications; 1991.
24. Hunt LM, Schneider S, Comer B. Should "acculturation" be a variable in health research? A critical review of research on US Hispanics. *Soc. Sci. Med.* 2004;59(5):973-986.
25. Thomson MD, Hoffman-Goetz L. Defining and measuring acculturation: A systematic review of public health studies with Hispanic populations in the United States. *Soc. Sci. Med.* 2009;69(7):983-991.
26. Cuellar I, Harris LC, Jasso R. An acculturation scale for Mexican American normal and clinical populations. *Hispanic Journal of Behavioral Sciences.* 1980;2(3):199-217.
27. Marín G, Gamba RJ. A New Measurement of Acculturation for Hispanics: The Bidimensional Acculturation Scale for Hispanics (BAS). *Hispanic Journal of Behavioral Sciences.* 1996;18(3):297-316.
28. Cabassa LJ. Measuring Acculturation: Where We Are and Where We Need to Go. *Hispanic Journal of Behavioral Sciences.* 2003;25(2):127-146.
29. Douglas LC, Sanders ME. Probiotics and Prebiotics in Dietetics Practice. *J. Am. Diet. Assoc.* 2008;108(3):510-521.
30. Pillsbury. Chocolate Fudge Classic Brownie Mix. 2013; [www.pillsburybaking.com/products/details/1184](http://www.pillsburybaking.com/products/details/1184). Accessed May 20, 2013.

31. Singh GK, Siahpush M. Ethnic-immigrant differentials in health behaviors, morbidity, and cause-specific mortality in the United States: An analysis of two national data bases. *Hum Biol.* Feb 2002;74(1):83-109.
32. Arcia E, Skinner M, Bailey D, Correa V. Models of acculturation and health behaviors among Latino immigrants to the US. *Soc. Sci. Med.* 2001;53(1):41-53.
33. Academy of Nutrition and Dietetics. Fiber Evidence Analysis Project. *Evidence Analysis Library* 2013; <http://andevidencelibrary.com/topic.cfm?cat=1586>. Accessed May 30, 2013.
34. Kliewer EV, Smith KR. Ovarian cancer mortality among immigrants in Australia and Canada. *Cancer Epidemiology Biomarkers & Prevention.* 1995;4(5):453-458.
35. Glanz K, Basil M, Maibach E, Goldberg J, Snyder DAN. Why Americans Eat What They Do: Taste, Nutrition, Cost, Convenience, and Weight Control Concerns as Influences on Food Consumption. *J. Am. Diet. Assoc.* 1998;98(10):1118-1126.
36. Ayala GX, Baquero B, Klinger S. A Systematic Review of the Relationship between Acculturation and Diet among Latinos in the United States: Implications for Future Research. *J. Am. Diet. Assoc.* 2008;108(8):1330-1344.
37. Thamer M, Richard C, Casebeer AW, Ray N. Health insurance coverage among foreign-born US residents: the impact of race, ethnicity, and length of residence. *Am. J. Public Health.* 1997;87(1):96-102.
38. U.S. Food and Drug Administration. GRN No. 446: Red grape pomace extract *GRAS Notice Inventory* 2013; <http://www.accessdata.fda.gov/scripts/fcn/fcnDetailNavigation.cfm?rpt=grasListing&id=367>. Accessed May 25, 2013.
39. McFarlane T, Pliner P. Increasing Willingness to Taste Novel Foods: Effects of Nutrition and Taste Information. *Appetite.* 1997;28(3):227-238.
40. Pliner P, Hobden K. Development of a scale to measure the trait of food neophobia in humans. *Appetite.* 1992;19(2):105-120.
41. Birch LL. Development of Food Preferences. *Annu. Rev. Nutr.* 1999;19:41-62.
42. Unger PS, Sponheimer M. The Diets of Early Hominins. In: Dufour DL, Goodman AH, Pelto GH, eds. *Nutritional Anthropology: Biocultural Perspectives on Food and Nutrition.* New York: Oxford University Press; 2011.
43. Asperin AE, Phillips WJ, Wolfe K. Exploring Food Neophobia and Perceptions of Ethnic Foods: The Case of Chinese and Thai Cuisines. International CHRIE Conference-Refereed Track; 2011.
44. Prescott J, Young O, O'Neill L, Yau NJN, Stevens R. Motives for food choice: a comparison of consumers from Japan, Taiwan, Malaysia and New Zealand. *Food Quality and Preference.* 2002;13(7-8):489-495.
45. Hornick BA, Childs NM, Smith Edge M, Kapsak WR, Doohar C, White C. Is it Time to Rethink Nutrition Communications? A 5-Year Retrospective of

- Americans' Attitudes toward Food, Nutrition, and Health. *Journal of the Academy of Nutrition and Dietetics*. 2013;113(1):14-23.
46. Flight I, Leppard P, Cox DN. Food neophobia and associations with cultural diversity and socio-economic status amongst rural and urban Australian adolescents. *Appetite*. 2003;41(1):51-59.
  47. Gordon-Larsen P, Harris KM, Ward DS, Popkin BM. Acculturation and overweight-related behaviors among Hispanic immigrants to the US: the national longitudinal study of adolescent health. *Soc. Sci. Med.* Dec 2003;57(11):2023-2034.
  48. Yeh M-C, Ickes SB, Lowenstein LM, et al. Understanding barriers and facilitators of fruit and vegetable consumption among a diverse multi-ethnic population in the USA. *Health Prom. Int.* 2008;23(1):42-51.
  49. Lappalainen R, Kearney J, Gibney M. A pan EU survey of consumer attitudes to food, nutrition and health: an overview. *Food Quality and Preference*. 1998;9(6):467-478.
  50. Bermúdez OLI, Falcón LM, Tucker KL. Intake and Food Sources of Macronutrients Among Older Hispanic Adults: Association With Ethnicity Acculturation, and Length of Residence in The United States. *J. Am. Diet. Assoc.* 2000;100(6):665-673.
  51. Odougherty M, Story M, Lytle L. Food Choices of Young African-American and Latino Adolescents: Where Do Parents Fit In? *J. Am. Diet. Assoc.* 2006;106(11):1846-1850.
  52. Dodge-Vera T, Patton-Lopez MM. Las Comidas Latinas: Community Needs Assessment for Nutrition Education Programming. Paper presented at: Connecting Communities Conference; October 2008, 2008; Oregon State University.
  53. Byrd-Bredbenner C, Abbot JM, Cussler E. Mothers of young children cluster into 4 groups based on psychographic food decision influencers. *Nutrition Research*. 2008;28(8):506-516.
  54. Ebin VJ, Sneed CD, Morisky DE, Rotheram-Borus MJ, Magnusson AM, Malotte CK. Acculturation and interrelationships between problem and health-promoting behaviors among Latino adolescents. *J. Adolesc. Health*. 2001;28(1):62-72.
  55. Sabogal F, Marín G, Otero-Sabogal R, Marín BV, Perez-Stable EJ. Hispanic Familism and Acculturation: What Changes and What Doesn't? *Hispanic Journal of Behavioral Sciences*. December 1, 1987 1987;9(4):397-412.
  56. Marquis M, Shatenstein B. Food Choice Motives and the Importance of Family Meals: Among Immigrant Mothers. *Canadian Journal of Dietetic Practice and Research*. 07/01/ 2005;66(2):77-82.
  57. Davies KM, Heaney RP, Recker RR, et al. Calcium Intake and Body Weight. *J. Clin. Endocrinol. Metab.* December 1, 2000 2000;85(12):4635-4638.

58. Heaney RP. Normalizing Calcium Intake: Projected Population Effects for Body Weight. *The Journal of Nutrition*. January 1, 2003 2003;133(1):268S-270S.
59. Cluskey M, Auld G, Edlefsen M, et al. Calcium Knowledge, Concern and Expectations for Intake among Parents of Asian, Hispanic and non-Hispanic White Early Adolescents. 2008.
60. Cooper M, Thomson V, Aziz A. Carbohydrate, Glycemic Index, Sugar and Fiber Messages in Magazines: Do They Reflect Policy? *Journal of the Academy of Nutrition and Dietetics*. 2012;112(9):A65.
61. Baranowski T, Cullen KW, Baranowski J. PSYCHOSOCIAL CORRELATES OF DIETARY INTAKE: Advancing Dietary Intervention. *Annu. Rev. Nutr.* 1999;19(1):17.
62. Edlefsen M, Reicks M, Goldberg D, et al. Strategies based on parental roles to influence intake of calcium-rich foods by Asian, Hispanic, and non-Hispanic white young adolescent children. 2008.
63. Frey WH. *America's Diverse Future: Initial Glimpses at the U.S. Child Population from the 2010 Census*. 2011.
64. Greer FR, Krebs NF. Optimizing bone health and calcium intakes of infants, children, and adolescents. *Pediatrics*. 2006;117(2):578(578).
65. Mack N, Woodsong C, MacQueen K, Guest G, Namey E. *Qualitative Research Methods: A Data Collector's Field Guide*. Research Triangle Park: Family Health International; 2005.
66. Marin G, Sabogal F, Marin BV, Otero-Sabogal R, Perez-Stable EJ. Development of a Short Acculturation Scale for Hispanics. *Hispanic Journal of Behavioral Sciences*. 1987;9(2):183-205.
67. Dodge-Vera T. 2011.
68. Reuschenberg EJ, Buriel R. Mexican American Family Functioning and Acculturation In: Padilla AM, ed. *Hispanic Psychology: Critical Issues in Theory and Research*. Thousand Oaks: Sage Publication; 1995:15-25.
69. Garza RT, Gallegos PI. Environmental Influences and Personal Choice. In: Padilla AM, ed. *Hispanic Psychology: Critical Issues in Theory and Research*. Thousand Oaks: Sage Publications; 1995:3-14.
70. Bernard HR. *Research Methods in Anthropology: Qualitative and Quantitative Methods*. Lanham, MD: AltaMira Press; 2006.
71. USDA FaNS. Nutrition Program Facts Sheet: The Special Supplemental Nutrition Program for Women, Infants and Children. 2009; <http://www.fns.usda.gov/wic/WIC-Fact-Sheet.pdf>. Accessed March 7, 2011.
72. Dufour DL, Goodman AH, Pelto GH. Part I: A Taste of Nutritional Anthropology. In: Dufour DL, Goodman AH, Pelto GH, eds. *Nutritional Anthropology: Biocultural Perspectives on Food and Nutrition*. New York: Oxford University Press; 2013:7-8.
73. Rozin E, Rozin P. Culinary Themes and Variations. *Nat Hist*. 1981;90(2):6-14.

74. Evans A, Chow S, Jennings R, et al. Traditional Foods and Practices of Spanish-Speaking Latina Mothers Influence the Home Food Environment: Implications for Future Interventions. *J. Am. Diet. Assoc.* 2011;111(7):1031-1038.
75. Gallagher MR. Maternal Perspectives on Lifestyle Habits That Put Children of Mexican Descent at Risk for Obesity. *Journal for Specialists in Pediatric Nursing.* 2010;15(1):16-25.
76. Colón-Ramos U, Thompson FE, Yaroch AL, et al. Differences in Fruit and Vegetable Intake among Hispanic Subgroups in California: Results from the 2005 California Health Interview Survey. *J. Am. Diet. Assoc.* 2009;109(11):1878-1885.
77. Hiza HAB, Casavale KO, Guenther PM, Davis CA. Diet Quality of Americans Differs by Age, Sex, Race/Ethnicity, Income, and Education Level. *Journal of the Academy of Nutrition and Dietetics.* 2013;113(2):297-306.
78. Grigsby-Toussaint DS, Zenk SN, Odoms-Young A, Ruggiero L, Moise I. Availability of Commonly Consumed and Culturally Specific Fruits and Vegetables in African-American and Latino Neighborhoods. *J. Am. Diet. Assoc.* 2010;110(5):746-752.
79. Cooke L. The importance of exposure for healthy eating in childhood: a review. *Journal of Human Nutrition & Dietetics.* 2007;20(4):294-301.
80. Aldridge V, Dovey TM, Halford JCG. The role of familiarity in dietary development. *Dev. Rev.* 3// 2009;29(1):32-44.
81. Larios S, Ayala G, Arredondo E, Baquero B, Elder J. Development and validation of a scale to measure Latino parenting strategies related to children's obesigenic behaviors. The parenting strategies for eating and activity scale (PEAS). *Appetite.* 2009;52(1):166-172.
82. Diaz H, Marshak HH, Montgomery S, Rea B, Backman D. Acculturation and Gender: Influence on Healthy Dietary Outcomes for Latino Adolescents in California. *Journal of Nutrition Education and Behavior.* 41(5):319-326.
83. Ballew C, Sugerman SB. High-Risk Nutrient Intakes Among Low-Income Mexican Women in Chicago, Illinois. *J. Am. Diet. Assoc.* 1995;95(12):1409-1413.
84. Kenny MG. Latah: the symbolism of a putative mental disorder. *Cult. Med. Psychiatry.* 1978;2(3):209-231.
85. Simons RC. The Resolution of the Latah Paradox. In: Simons RC, Hughes CC, eds. *The Culture-Bound Syndromes.* Baltimore: Williams and Wilkins Company; 1980:43-62.
86. Ritenbaugh C. Obesity as a Culture-Bound Syndrome. *Cult. Med. Psychiatry.* 1982;6(4):347-364.
87. Puhl RM, Heuer CA. The Stigma of Obesity: A Review and Update. *Obesity.* 2009;17(5):941-964.
88. Massara EB. *Que gordita!: a study of weight among women in a Puerto Rican community.* New York: AMS; 1989.

89. Brewis AA, Wutich A, Falletta-Cowden A, Rodriguez-Soto I. Body Norms and Fat Stigma in Global Perspective. *Curr Anthropol*. 2011;52(2):269-276.
90. Canning P. A Revised and Expanded Food Dollar Series: A Better Understanding of Our Food Costs. In: U.S. Department of Agriculture, ed. Vol 114: Economic Research Service Report; 2011:49.
91. Kersey M, Lipton R, Quinn MT, Lantos JD. Overweight in Latino Preschoolers: Do Parental Health Beliefs Matter? *American Journal of Health Behavior*. 2010;34(3):340-348.
92. Brewis A. Biocultural aspects of obesity in young Mexican schoolchildren. *Amer J Hum Biol*. 2003;15(3):446-460.
93. Altarriba J, Santiagorivera AL. Current Perspectives on Using Linguistics and Cultural Factors in Counseling the Hispanic Client. *Professional Psychology-Research and Practice*. Nov 1994;25(4):388-397.
94. Portes A, Hao LX. The price of uniformity: language, family and personality adjustment in the immigrant second generation. *Ethnic Racial Stud*. Nov 2002;25(6):889-912.
95. Gomel J, Zamora A. English- and Spanish-speaking Latina Mothers' Beliefs about Food, Health, and Mothering. *Journal of Immigrant & Minority Health*. 2007;9(4):359-367.
96. Féliz-Ortiz de la Garza M, Newcomb MD, Myers HF. A Multidimensional Measure of Cultural Identity for Latino and Latina Adolescents. In: Padilla AM, ed. *Hispanic Psychology: Critical Issues in Theory and Research*. Thousand Oaks: Sage Publications; 1995.
97. Rumbaut RG. Assimilation and its discontents: Between rhetoric and reality. *Int Migr Rev*. Win 1997;31(4):923-960.
98. U.S.DepartmentOfHealthAndHumanServices. Strategic Goals. 2007; <http://www.hhs.gov/afr/management/goals/index.html>. Accessed October 8, 2012.
99. Services USDoHaH. Healthy People 2020. <http://www.healthypeople.gov/2020/topicsobjectives2020/overview.aspx?topicid=29>. Accessed October 6, 2012.
100. Arredondo EM, Elder JP, Ayala GX, Campbell N, Baquero B, Duerksen S. Is parenting style related to children's healthy eating and physical activity in Latino families? *Health Educ. Res*. 2006;21(6):862-871.
101. Eyles HC, Mhurchu CN. Does tailoring make a difference? A systematic review of the long-term effectiveness of tailored nutrition education for adults. *Nutr. Rev*. 2009;67(8):464-480.
102. Elder JP, Ayala GX, Campbell NR, et al. Long-Term Effects of a Communication Intervention for Spanish-Dominant Latinas. *Am. J. Prev. Med*. 2006;31(2):159-166.
103. Johnson CM, Sharkey JR, Dean WR, St John JA, Castillo M. Promotoras as Research Partners to Engage Health Disparity Communities. *Journal of the Academy of Nutrition and Dietetics*. 2013;113(5):638-642.

104. Sharkey JR, Sharf BF, St. John JA. "Una persona derecha (staying right in the mind)": Perceptions of Spanish-Speaking Mexican American Older Adults in South Texas Colonias. *The Gerontologist*. 2009;49(S1):S79-S85.
105. Perl P, Greely JZ, Gray MM. What Proportion of Adult Hispanics Are Catholic? A Review of Survey Data and Methodology. *J. Sci. Study Religion*. 2006;45(3):419-436.
106. PewHispanicCenter. Changing Faiths: Latinos and the Transformation of American Religion. 2007; <http://pewhispanic.org/reports/report.php?ReportID=75>. Accessed March 2, 2011.
107. Bopp M, Fallon EA, Marquez DX. A Faith-Based Physical Activity Intervention for Latinos: Outcomes and Lessons. *Am. J. Health Promot*. 2011;25(3):168-171.
108. Wilcox S, Parrott A, Baruth M, et al. The Faith, Activity, and Nutrition Program: A Randomized Controlled Trial in African-American Churches. *Am. J. Prev. Med*. 2013;44(2):122-131.
109. Dahlia. Personal Interview. August 1, 2011 2011.
110. Luz. Personal Interview. 2011.
111. Carmen. Personal Interview. August 4, 2011 2011.
112. Claudia. Personal Interview. July 8, 2011 2011.
113. Manuela. Personal Interview. August 4, 2011 2011.
114. Marissa. Personal Interview. July 7, 2011 2011.
115. Ana. Personal Interview. July 12, 2011 2011.
116. Victoria. Personal Interview. August 1, 2011 2011.

## **Appendix**

## Appendix A: Screening Form for Research Study Eligibility (English)

Thank you for your interest in our research study. My name is Rocío Petersen. I would first like to tell you more about our study and find out your interest in taking part in our study. The purpose of this study is to talk with parents or guardians to discover what they do to help promote calcium rich foods within the household.

I need to ask you a few questions to see if you are eligible for this study. This screening is voluntary and will take about 10-15 minutes. All responses are confidential. May I proceed?

### Screening Questions

- 1) Are you a parent of a child aged 10-13 years?  Yes No
- 2) Are you the primary food preparer in the household?  Yes No
- 3) Have you lived in the United States at least 1 year?  Yes No
- 4) In what language would you like to participate in the study?  Spanish  English  Either
- 5) How do you self-identify your race/ethnicity?  
(i.e. Hispanic or Latino, Non-Hispanic White/Caucasian, Black or African American, Alaska Native or American Indian, Asian, Native Hawaiian or other Pacific Islander, Other)

**ELIGIBILITY** - Yes No

*If no, from the information you have given me so far, you are not eligible for this study. Thank you for your time.*

OR

*If yes, from the information you have given me so far, it looks like you are eligible for this study.*

Are there any other questions that I can answer for you? Yes No

The group discussion would be held on ...../...../..... at .....

Name: \_\_\_\_\_

Date of Screen: \_\_\_\_\_

Phone number you can be reached/e-mail: \_\_\_\_\_

## Appendix B: Screening Form for Research Study Eligibility (Spanish)

Gracias por su interés en nuestro estudio. Mi nombre es Rocío Petersen. Me gustaría contarte más sobre este estudio para entender su interés en participar en nuestro estudio. El propósito de esta investigación es hablar con padres para aprender más acerca de cómo ellos promueven alimentos ricos en calcio con su familia.

Tengo unas preguntas para acertar si usted está elegible para participar. Estas preguntas son voluntarias y determinaran su elegibilidad. Sus respuestas se mantendrán confidenciales. Puedo seguir?

### Screening Questions

1) ¿Eres un padre de un niño de 10 a 13 años de edad?  Si  No

2) ¿Eres la persona principal quien prepara la comida en su hogar?  Si  No

3) ¿Has vivido en los Estados Unidos por lo menos un año?  Si  No

4) ¿En qué idioma quisiera participar en este estudio?  Español  Inglés  
 Cualquiera

5) ¿Cómo se identifican: su raza/etnia?  
(i.e. Hispano/Latino, no Latino/Hispano, blanca, negra, indígena, asiática, mezclada)

**ELEGIBILIDAD** -  Si  No

**Si NO**, de la información que usted me ha dado, no es elegible para participar en este estudio.  
Muchas gracias por su tiempo e interés.

O

**Si SI**, de la información que usted me ha dado, parece que esta elegible para este estudio.

¿Tiene algunas preguntas para mí?  Si  No

La sesión de este estudio será ...../...../..... a las .....

-----  
**Nombre:** \_\_\_\_\_

**Fecha de la Sesión:** \_\_\_\_\_

**Número de teléfono o correo electrónico donde la/lo puedo contactar:** \_\_\_\_\_

## Appendix C: Questionnaire for Interviews (English)

### ***Background***

Where were you born?  
 Where was your mother born? Your father?  
 How many years have you lived in the USA?  
 Have you lived in any other states?  
 How many children do you have?  
 What are their ages?

### ***Short Acculturation Scale*** (Marín & Marín 1991)

In general, what language do you read and speak?  
 Only Spanish  
 Spanish better than English  
 Both equally  
 English better than Spanish  
 Only English  
 What language do you usually speak at home?  
 In which language do you usually think?  
 What language do you usually speak with your friends?  
 When you see nutrition-related advertising or campaigns, in what language (or languages) do you prefer the messages to be in?  
 What do you think about messages:  
 Only in English  
 Only in Spanish  
 Mixed Spanish and English

### ***Additional Questions Raised by Focus Groups***

Since the time when we met for the Focus Group, has the discussion we had made you think about anything else related to calcium, or even nutrition?  
*(Show summary of the results of the ratings – from the flipboard)*  
 What do you think of these results?  
 Have you thought of any reasons you would add?

***Diet and Food Preferences***

How would you describe the food preferences for your family? (ex. mostly Hispanic, some American, some Hispanic, mostly American)

In the time you've lived in the U.S., do you feel your diet has changed?

How has it changed?

Why or what influenced the change?

Describe your family's favorite food choices

Does your husband or wife cook?

Do your adolescent children have favorite food choices?

How your children influence the foods that the family eats?

Do you teach your recipes or how to cook?

Do you talk to them about food?

What occasions provide the most opportunities for trying foods that are new to your family? (ex. work, school, socializing outside of the home, etc)

How willing would you say your family is to trying new foods? (*food neophobia*)

Are there any foods you see in the grocery store that you never buy?

## Appendix D: Questionnaire for Interviews (Spanish)

### ***Background***

Donde nació?

Donde nació su madre? Su padre?

Hace cuantos años que está viviendo en los Estados Unidos?

Has vivido en otros estados?

Cuantos hijos tiene?

Que edades tienen?

### ***Short Aculturación Scale*** (Marín & Marín 1991)

¿Por lo general, qué idioma(s) lee y habla usted?

Sólo Español

Más Español que Inglés

Ambos por lo igual

Más Inglés que Español

Sólo Inglés

¿Por lo general, qué idioma(s) habla usted en la casa?

¿Por lo general, en qué idioma(s) piensa?

¿Por lo general, qué idioma(s) habla usted con sus amigos?

Cuando ves avisos o campañas relacionadas a la nutrición, ¿en qué idioma (o idiomas) preferís que sean los mensajes?

Qué te parece de los mensajes:

Solamente en inglés

Solamente en español

Una mezcla de inglés y español

### ***Additional Questions Raised by Focus Groups***

Desde el tiempo que nos encontramos para el Focus Group, ¿has pensado un poco sobre lo que hablamos, sobre el calcio, o hasta algo de la nutrición?

*(Show summary of the results of the ratings – from the flipboard)*

¿Qué piensa de los resultados?

¿Has pensado en alguna otra razón que quisieras agregar a la lista?

***Diet and Food Preferences***

¿Cómo describiría las comidas preferidas/favoritas de su familia? (por ejemplo, mayormente comida hispana, un poco comida Americana, un poco comida Hispana, mayormente comida Americana)

En el tiempo que has vivido en los Estados Unidos, ¿siente que su comida ha cambiado?

¿Como ha cambiado, si ha cambiado?

¿Tiene alguna idea porque o que influyo los cambios?

¿Que son las comidas favoritas de su familia?

¿Tu esposo o esposa cocina?

¿Sus hijo(s) adolescentes tiene(n) comidas preferidas/favoritas?

¿Cómo influyen sus hijos los alimentos que come la familia?

¿Enseñas a sus hijo(s) sus recetas o como cocinar?

¿Les hablas de la comida?

¿Que ocasiones provienen más oportunidades de probar comidas nuevas para su familia? (por ejemplo: su trabajo, escuela, iglesia, etc.)

¿Qué tan dispuesta diría usted que su familia es dispuesta a probar comidas nuevas? (*food neophobia*)

¿Hay comidas que ves en la tienda que usted nunca compra?

### Appendix E: Results of Demographics Forms

<b>Group</b>		<b>English</b>	<b>Spanish</b>	<b>Average</b>
<i># Participants</i>		9	5	14
<i>Men/Women</i>		1 man/ 8 women	all women	1 man/ 13 women
<i>Adolescent Child: Boy or Girl</i>		6 boys/ 3 girls	all boys	11 boys/ 3 girls
<i>Married</i>		7	all	
<i>Age</i>	18-30yrs	1 (11%)		1 (7%)
	31-40 yrs	6 (67%)	3 (60%)	9 (64%)
	41-50 yrs	1 (11%)	2 (22%)	3 (21%)
	51 yrs or older	1 (11%)		1 (7%)
<i>Highest level of formal education</i>	Not completed HS	1 (11%)		1 (7%)
	Received HS diploma/GED	3 (33%)	1 (20%)	4 (28%)
	Some college/technical, 4 year college, etc.	4 (44%)	3 (60%)	7 (50%)
		1 (11%)	1 (20%)	2 (14%)
<i>Employment Status</i>	Homemaker/househusband	2 (22%)	1 (20%)	3 (21%)
	Not employed			
	Employed part-time	2 (22%)		2 (14%)
	Employed full-time	5 (56%)	4 (80%)	9 (64%)
	Retired			
<i>Participating in Programs:</i>	WIC	2	4	
	SNAP	1	3	
	Free/reduced school lunch	5 (56%)	3 (60%)	8 (57%)
	None	4 (44%)		4 (29%)
<i>Born in USA</i>		1 (11%)		1 (7%)
<i>Born outside of USA</i>		8 (89%)	all	13 (93%)
<i>Birthplace outside USA: Mother, father, grandparents</i>		all	all	
<i>Language spoken at home</i>	Only English			
	Mostly English	2 (22%)		2 (14%)
	English & another language the same	4 (44%)	1 (20%)	5 (36%)
	Mostly another language	3 (33%)	4 (80%)	7 (50%)
	Only another language			
<i>Lived in USA</i>	1-5 years	1		1 (7%)
	6-10 years	1	1	2 (14%)
	More than 10 years	7	4	11 (79%)

### Appendix F: Additional Illustrative Quotes in Spanish

<i>Theme</i>	<i>Subtheme</i>	<i>Quotes in Spanish</i>
Changes with immigration to a new cultural environment	Balancing Spanish & English	<p>“En español. Me sentiría más cómoda.”<sup>109</sup></p> <p>“Porque he visto que si uno no habla inglés es como que esta mudo.”<sup>110</sup></p> <p>“Me confundo porque a veces las palabras que utilizan yo no las conozco. Si es el español pero depende de que español estamos hablando.”<sup>109</sup></p> <p>“A mí me gustaría [mensajes sobre nutrición] en inglés y español. Uno porque español lo puedo entender mejor lo que dice. Y en inglés para que mi hijo, para compartirlo con él porque él sabe más inglés.”<sup>111</sup></p> <p>“Mucha gente...aunque pueden hablar un poco inglés, prefieren alguien que hable en español porque le da confianza que la persona con quien vas a hablar te va a poder entender y tu lo vas a poder expresarlo.”<sup>112</sup></p>
Adapting to the United States	Traditional foods as favorites	<p>“A veces es eso de jugar con lo que es la misma proporción en dinero y en tiempo. Y es mejor cuando uno lo hace fresca.”<sup>109</sup></p> <p>“[La comida que aquí, comparado a México] es más o menos lo mismo porque supuestamente usamos los mismo ingredientes, pero no tienen el mismo sabor.”<sup>113</sup></p>
	Role of mothers in preserving traditions	<p>“Siento de que necesito tener una cena en la casa porque es el único tiempo que tenemos para sentarnos y comer todos.”<sup>109</sup></p> <p>“Lo que yo sé, les trato de enseñárselos”<sup>114</sup></p> <p>“Claro quisiéramos estar en nuestra tierra pero al final dices: ‘no, si esta así de feo y peligroso, mejor me quedo aquí.’ Con sus limitaciones, tú sabes...Hay muchas limitaciones para nosotros pero no importa. El sacrificio es así.”<sup>115</sup></p> <p>“Crear niños aquí en los EEUU es <u>tan</u> difícil. No solo por la comida, pues gracias a Dios siempre hay comida. Pero me enfoco en la crianza. Es tan duro poder tenerlos en el camino.”<sup>110</sup></p>

<p>Desire to maintain traditional habits</p>	<p>Traditional beliefs about health</p>	<p>“Que en México estar más gordo quiere decir estar más nutritivo, más fuerte. Sí, me dicen a mi hijo: ‘¡hay mira esta flaco!’ Pero come bien. Pienso que el prototipo es que estar gordo es estar saludable. Lo contrario.”<sup>116</sup></p> <p>“Me decía mi mama: ‘vergüenza me da andar en la calle contigo. Todo el mundo se queda viendo y dicen: ‘¡hay tan flaca, no le dan de comer!’ antes de decir que no tenemos dinero.’...Y [mi hermano] fue gordo toda la vida, pero mi mama era feliz cuando comía.”<sup>115</sup></p> <p>“Y es cierto porque en México podíamos comer todo eso pero ahí para todo caminas. Allá no tienes carro para ir al mercado, para ir a la tienda. Allá para todo tiene que caminar uno. Para comprar un mandado de la casa, te vas caminando. Vienes del mercado con las bolsas, entonces tú necesitabas toda esa energía. Aquí no, para todo utilizas tu carro...Y por eso debemos de cambiar nuestra rutina de alimentación.”<sup>113</sup></p>
--	---	---

### Appendix G: Additional Illustrative Quotes Translated into English

<i>Theme</i>	<i>Subtheme</i>	<i>Quotes in Spanish</i>
Changes with immigration to a new cultural environment	Balancing Spanish & English	<p>"In Spanish. I would feel more comfortable."<sup>109</sup></p> <p>"I've seen that if you don't speak English, it's like you don't have a voice."<sup>110</sup></p> <p>"I get confused because sometimes the words they use are ones I don't know. Yes, it's in Spanish, but it depends what kind of Spanish we're talking about."<sup>109</sup></p> <p>"I would like [nutrition-related messages] in English and Spanish. One, because I could understand what they say better. And [two] because in English for my son, so I could share it with him since he knows English better."<sup>111</sup></p> <p>"Many people...although they can speak a little English, prefer someone who speaks Spanish because it gives them confidence that the person you're talking to will be able to understand you and you will be able to express what you're trying to say."<sup>112</sup></p>
Adapting to the United States	Traditional foods as favorites	<p>"Sometimes it's about playing with the same proportions of money and time. And sometimes it's best if you cook it fresh [from scratch]."<sup>109</sup></p> <p>"[The food here, compared to that from Mexico] is more or less the same because supposedly we use the same ingredients, but they don't taste the same."<sup>113</sup></p>
	Role of mothers in preserving traditions	<p>"I feel like I need to have dinner at home because it's the only time we have to be sit and eat together."<sup>109</sup></p> <p>"What I know, I try to teach them."<sup>114</sup></p> <p>"Of course we would like to live in our home country, but in the end you think: 'no, if it's so bad and dangerous [there], better that I stay here.' With its limitations, you know...there are many limitations for us but it doesn't matter. That's our sacrifice."<sup>115</sup></p> <p>"Raising kids in the U.S. is <u>so</u> difficult. Not only because of the food, which thanks to God we always have food. I focus myself on parenting. It's so hard to keep them on track."<sup>110</sup></p>

<p>Desire to maintain traditional habits</p>	<p>Traditional beliefs about health</p>	<p>“In Mexico being fatter means you’re better nourished, stronger. Yes, they tell my son: ‘Look how skinny he is!’ But he eats well. I think it’s the model that being fat means being healthy. On the contrary.”<sup>116</sup></p> <p>“My mom would tell me: ‘I’m ashamed to walk down the street with you. Everyone stops and stared and say ‘She’s so skinny, they must not feed her!’ saying we don’t have money.’ ...And [my brother] he was fat all his life, but my mother was happy when he ate.”<sup>115</sup></p> <p>“And it’s true because in Mexico we could eat a lot but there you walk everywhere. There you don’t have a car to go to the market, to go to the store. You have to walk everywhere. To run errands, you go walking. You get back from the market with bags, so you need all that energy. Not here, here you use the car for everything...and that’s why we need to change our dietary routine.”<sup>113</sup></p>
--	---	---