

FOOD PRACTICES, DIETARY PATTERNS, AND LEISURE BEHAVIORS AMONG
MEXICAN IMMIGRANTS IN THE MIDWESTERN UNITED STATES

BY

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DISSERTATION

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ABSTRACT

Changes in diet that have occurred in the last several decades in many developed countries have contributed to high obesity rates and an increasing prevalence of chronic diseases among immigrant populations. My study, conducted in the Midwestern United States, examined changes in food practices and dietary patterns among Mexican immigrants and investigated how leisure was related to these food practices and dietary patterns. The overall objective of the study was to characterize this process of change in food practices and dietary patterns and the role of leisure in such changes among Mexican immigrants in the Midwestern U.S.

The dissertation consists of three papers. The primary aim of Paper 1 was to address the question of how food practices and dietary patterns of Mexican immigrants in the U.S. change after their arrival in the U.S., Based on semi-structured in-depth interviews with 23 Mexican immigrants, I had found that immigrants prepared foods of their culture using both traditional and new techniques, excluded other foods of their culture unavailable in their local environment, and consumed foods that were new to them and which they became familiar with in the new country. Following immigration, most interviewees stopped growing food as part of their leisure, and cooking became less fun and was no longer a leisurely activity as a result of time constraints and conflicting family and work schedules.

The primary aim of Paper 2 was to understand why the food procurement, food preparation, and food consumption of the Mexican immigrants change after moving to the U.S. I found that there were a number of factors that affect food practices and dietary patterns among Mexican immigrants residing in Midwestern U.S. These included (1) elements of the new environment, (2) cultural beliefs regarding food and diet, (3) psychological factors and taste preferences, and (4) changes in lifestyles and day-to-day schedules. My findings further

provided novel insights into the literature on leisure behaviors among immigrant populations by examining their leisure activities related to food preparation and consumption (e.g., cooking as leisure, eating out, social interactions during meals).

The main objective of Paper 3 was to devise a questionnaire to directly evaluate the encompassing effects of the built environment as well as individual health and leisure behaviors on food practices and dietary patterns among Mexican immigrants in the Midwestern U.S. The questionnaire that I developed based on the findings from the research that I had completed for my first two papers and an additional literature review was reviewed for content validity by a panel of experts. The face validity of the questionnaire was determined in a series of cognitive interviews with Mexican immigrants who live in the Midwest. After producing a final draft of the questionnaire and administering it to Mexican immigrant participants, its internal consistency reliability and test-retest reliability were computed. The questionnaire's low internal consistency reliability and rather unstable test-retest reliability demonstrated its need for improvement. Nevertheless, the findings from my entire study can contribute to the development of recreation programs and health promotion strategies that target Mexican immigrants. In particular, dietitians, public health practitioners, and recreational program directors can use the knowledge gained from my study to formulate culturally-tailored interventions to encourage the consumption of nutritious foods and meals within a recreational setting or community event (i.e., cooking classes, farmers markets, meal preparation education).

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TABLE OF CONTENTS

CHAPTER 1: INTRODUCTION	1
1.1 Problem and Rationale	2
1.2 Conceptual Frameworks	4
1.3 Research Goals and Structure	9
1.4 Scope of the Study	13
1.5 Conclusion	14
CHAPTER 2: FOOD PRACTICES, DIETARY PATTERNS, AND LEISURE AMONG MEXICAN AMERICANS IN THE MIDWESTERN U.S.	16
2.1 Introduction	16
2.2 Literature Review	17
2.3 Methods	23
2.4 Results	29
2.5 Discussion and Conclusions	35
CHAPTER 3: WHAT IMPACTS LEISURE ACTIVITY AND DIET AMONG IMMIGRANTS? MEXICAN IMMIGRANTS' LEISURE PARTICIPATION AND FOOD PATTERNS IN THE MIDWESTERN U.S.	44
3.1 Introduction	44
3.2 Theoretical Background	45
3.3 Literature Review	46
3.4 Methods	55
3.5 Results	60
3.6 Discussion	69
CHAPTER 4: DEVELOPMENT OF A QUESTIONNAIRE TO ASSESS MEXICAN IMMIGRANTS' FOOD PRACTICES, DIETARY PATTERNS, AND FOOD-CENTERED LEISURE ACTIVITIES	79
4.1 Introduction	79
4.2 Methods	81
4.3 Participants	95
4.4 Results	97
4.5 Discussion	104
4.6 Conclusions	106
CHAPTER 5: CONCLUSION	112
5.1 Summary of Overall Findings	112
5.2 Discussion and Contributions of the Study	115
5.3 Practical Implications	120
5.4 Final Thoughts	123
REFERENCES	124

APPENDIX A: IRB APPROVAL LETTER FOR FIRST TWO PHASES OF STUDY	143
APPENDIX B: IRB APPROVAL LETTER FOR THIRD PHASE OF STUDY	144
APPENDIX C: CONSENT FORM IN ENGLISH.....	145
APPENDIX D: CONSENT FORM IN SPANISH	148
APPENDIX E: MODEL OF THE PROCESS OF DIETARY ACCULTURATION	151
APPENDIX F: INTERVIEW QUESTIONS FOR FIRST TWO PHASES OF STUDY	152
APPENDIX G: QUESTIONNAIRE IN ENGLISH—FINAL VERSION	158
APPENDIX H: QUESTIONNAIRE IN SPANISH—FINAL VERSION.....	172
APPENDIX I: EVALUATION TOOL FOR QUESTIONNAIRE.....	185
APPENDIX J: INITIAL DRAFT OF QUESTIONNAIRE	204

CHAPTER 1: INTRODUCTION

There is a clear nexus between food and leisure as a wide array of leisure activities revolve around food. Growing produce, shopping, food preparation, and food consumption provide opportunities for contact with nature, relaxation, personal fulfillment through engagement in hobbies, and social experiences with friends and family members. This relationship is a key topic to examine as high rates of obesity and associated chronic diseases are greatly attributed to unhealthy eating habits and food choices in the U.S. and many countries around the world (World Health Organization, 2018). Immigrants who move to the U.S. are likely to incorporate new food practices, including unhealthy food choices, into their daily meal routines, contributing to the acquisition of chronic diseases and weight gain (Ayala, Baquero, et al., 2008; Batis et al., 2011). My dissertation will focus on the process of change in food practices and dietary patterns among Mexican immigrants, who are the largest foreign-born population group in the U.S. (Zong & Batalova, 2018). Dietary patterns are “the quantities, proportions, variety or combination of different foods, drinks, and nutrients in diets, and the frequency with which they are habitually consumed” (U.S. Department of Agriculture, 2014). Food practices are “all of the traditional activities, attitudes, beliefs and behaviors associated with the food in your daily life. [These] include customs of food production, preservation, preparation, presentation, gathering, and marketing (both buying and selling)” (Darnton, 2012). The main goal of my dissertation is to delineate this process of change in food practices and dietary patterns and the role of leisure in these changes among Mexican immigrants in the U.S.

1.1 Problem and Rationale

The last few decades have seen meals become abundant in convenience foods (Bove & Sobal, 2006; Hunt et al., 2011; Warde, 2005) and meal preparation and meal consumption devolving from regularly-scheduled daily activities to irregular, quickly-performed activities lacking routine or structure. Shifting work and family structures, hectic lifestyles, time scarcity, and competing demands on leisure time have contributed to the rise of food manufacturers producing pre-prepared foods, fast food, takeaways, and similar kinds of food products (Atkins & Bowler, 2001; Lang et al., 2009; Tansey & Worsley, 1995; Warde, 1999). As a result, diet among much of the U.S. population has undergone an evolution to more calorically-dense foods as well as a decline in physical activity during work, leisure, and travel (Astrup et al., 2008; Popkin, 2004, 2006; Poskitt, 2009). These shifts in diet, along with a concomitant decline in physical activity during work, leisure, and travel, have not only been observed among non-Hispanic white adults, but also among children and members of racial and ethnic minorities (Ahn et al., 2008; Gibbs & Forste, 2014; Gordon-Larsen et al., 2003; Sharkey et al., 2012; Wojcicki et al., 2012). In turn, they led to a high prevalence of diet-related morbidities along with overweight and obesity, and other negative health consequences (Hruby & Hu, 2015).

Immigration has been shown to exact extensive changes to people's nutrition and diet and lead to long-term health consequences (Castañeda et al., 2015; Popovic-Lipovac & Strasser, 2015). When immigrants move to more developed and wealthier countries, their new diets are commonly associated with greater intake of calories, sugar, saturated fat, and sodium (Astrup et al., 2008; Dekker et al., 2011; Montoya et al., 2011; Popovic-Lipovac & Strasser, 2015). Foods that are ultra-processed are in high supply in wealthy countries, although they are spreading quickly in low-income countries as well with the globalization and industrialization of the food

market (Popkin, 2009). Ultra-processed foods are low-cost, low in nutritional value, and high in saturated fat, sugar, other refined carbohydrates, and sodium (Holmboe-Ottesen & Wandel, 2012; Martínez Steele et al., 2016). Consumption of such diets may subsequently lead to obesity, cardiovascular diseases, type 2 diabetes, and other chronic conditions (Mozaffarian, 2017). High obesity rates among ethnic minorities and immigrant populations in the U.S. have been of particular concern. For example, as CDC data have shown, 81.3% of Mexican American men and 78% of Mexican American women are overweight (National Center for Health Statistics, 2016). Additionally, in a study examining the relationship between ethnicity and country of residence, Mexican children in the U.S. have been found to have a higher prevalence of overweight and obesity than Mexican children living in Mexico and non-Hispanic white children (Diaz, 2013).

Changes in diet and nutrition are concomitant with changes in leisure behavior among immigrants. Findings from past studies have indicated that immigrants may prepare their meals in both traditional ways that they are familiar with and new ways that they have learned in their host country, consume new foods that they had become familiar with after immigration, and exclude foods of their culture unavailable in the new environment (Ayala, Baquero, et al., 2008; Gilbert & Khokhar, 2008; Kim et al., 2007). Similarly, immigrants may abandon some of their traditional leisure pursuits, retain others, and participate in new leisure activities that they become familiar with in the host country (Stodolska, 2002). In fact, the eating and leisure behaviors among immigrants are intimately linked during the processes of acclimation and assimilation in the host country. The preparation and consumption of traditional dishes and the engagement in certain leisure customs help immigrants maintain ties to their native country, satisfy nostalgia for their former lifestyles, and sustain a reasonable quality of life (Coe et al.,

2018; Smith-Morris et al., 2013; Thomé-Ortiz, 2018). For both food and leisure, immigrants may struggle to achieve satisfaction, especially when trying to consume healthy and satisfying meals and to participate in fulfilling and enjoyable leisure activities. The barriers to achieving such satisfaction in mealtimes and leisure have key commonalities, such as time constraints (Flores et al., 2012; Skowron et al., 2008), hectic work schedules (Martinez et al., 2012; Tovar et al., 2013), familial obligations (Juniu, 2002), limited transportation options (Godbey et al., 2005; Sastre & Haldeman, 2015; Wright et al., 2016), and lack of financial resources (Caspi et al., 2012; Goodman et al., 2011; Jackson & Scott, 1999).

1.2 Conceptual Frameworks

The framework of acculturation has been employed in numerous studies on health disparities research as a possible link between determinants of health and health outcomes (Abraído-Lanza et al., 2006). Acculturation, which has varying definitions, is generally viewed as the process through which individuals adopt the attitudes, values, customs, beliefs, and behaviors of another culture (Clark & Hofstess, 1998). One of the aspects of cultural and behavioral change among immigrants is the change in their dietary patterns, which has been referred to as ***dietary acculturation*** (or food acculturation) (Arandia et al., 2012; Batis et al., 2011; Colby et al., 2009; Gray et al., 2005; Satia, 2010). Dietary acculturation is defined as the process by which the members of a minority population incorporate the dietary patterns and food selections of their host country (Satia-Abouta et al., 2002; Satia, 2010). Along with the globalization of food, the process of dietary acculturation is a phenomenon identified by researchers to be a major contributor to the changes in nutrition and diet among immigrants (Holmboe-Ottesen & Wandel, 2012; Satia-Abouta et al., 2002).

Numerous studies have investigated the relationship between dietary acculturation and obesity and obesity-related morbidities (e.g., Ahluwalia et al., 2007; Ayala, Baquero, et al., 2008; Delavari et al., 2013; Sussner et al., 2008) with the frequent finding that food acculturation has a negative influence on diet and health of immigrants and racial and ethnic minorities. That is, the changes in food consumption and eating behaviors increase these populations' risk for obesity and chronic diseases (Gray et al., 2005; Kim et al., 2007; Renzaho et al., 2008; Varghese & Moore-Orr, 2002). For example, Batis et al. (2011) found that Mexican Americans living in the U.S. reported higher intakes of saturated fat, sugar, dessert and salty snacks, and French fries, compared with Mexicans living in Mexico. In another study that examined the prevalence of diabetes among Latinos, Ahmed et al. (2009) found that it doubled among Latinos who have resided in the U.S. for more than 25 years compared to those who immigrated to the U.S. within the past 10 years.

Other and more recent studies, however, have argued that dietary acculturation is a complex, dynamic, and multidimensional process and not a simple unidirectional shift from “traditional” to “acculturated” and that, moreover, acculturation alone is not adequate in explaining the changes in diets of immigrants (Ayala, Rogers, et al., 2008; Creighton et al., 2012; Martínez, 2013; Pérez-Escamilla, 2009; Wojcicki et al., 2012). The relationship between dietary acculturation and body weight status also varies greatly across different immigrant populations who demonstrate increased, decreased, or unchanged body weight with regards to the degree of acculturation (Ayala, Rogers, et al., 2008; Satia, 2010; Thomson & Hoffman-Goetz, 2009). It is likely a result of the fact that health status, such as obesity, is affected by a complex interplay of culture, country of origin, and demographic variables (e.g., gender, age, ethnicity), and social structures, such as income, education, and socioeconomic status (Ayala, Rogers, et al., 2008).

In order to address such complexities and multidimensionality, Satia (2010) developed a model of dietary acculturation that features political and economic processes, such as immigration status, discrimination, and government policies, in the background of the model. The complex combination of these factors along with socioeconomic, demographic, and cultural factors, in turn, leads to differences in patterns of dietary intake. Satia (2010) categorized the subsequent new dietary patterns as maintenance of traditional eating patterns, adoption of host country eating patterns, and bicultural eating patterns. Satia's model informed the interview protocols used in the first part of the study.

The existing literature has also shown that, in addition to cultural change, income inequalities (Dodoo & Pinon, 1994; Mason, 2001), psychosocial effects of social class (Wilkinson, 1997), exposure to adverse work environments (Moure-Eraso et al., 1997; Schwartz et al., 2015), social support (including family support), and access to low-cost nutritious foods also contribute to dietary change among immigrants. For instance, food choices are predominantly actuated by taste, convenience, and cost, while health and variety are secondary factors contributing to food choices (Glanz et al., 1998). The prevalence of obesity and related chronic conditions in the U.S. is indubitably associated with socioeconomic status, in which the poor, racial-ethnic minorities and immigrants, and people with limited resources carry a disproportionate burden of disease (U.S. Department of Health and Human Services, 2009). As food choices, dietary habits, and diet quality are affected by the cost of food and an individual's income, income disparities consequently affect the quality of diet and nutrient density (Drewnowski & Specter, 2004). The unequal access to a healthy diet, and in turn, lower quality of diet, among people from low socioeconomic groups are hence prominent contributors to

health disparities among minority populations in the U.S. (Drewnowski & Rehm, 2015; James et al., 1997; Sharpe & Mohamed Abdel-Ghany, 1999).

In order to examine food practices and dietary patterns among Mexican immigrants, I will view them through the theoretical framework of the *social determinants of health*. The World Health Organization (WHO) defines social determinants of health as, “the conditions in which people are born, grow, live, work and age. These circumstances are shaped by the distribution of money, power and resources at global, national and local levels” (WHO, 2012). Such conditions include social support, education, income, discrimination, and housing, workplace, and community resources (Raphael, 2006). Immune, neurological, and hormonal systems can be weakened by stress from economic insecurity and adaptation in a new country (Lantz et al., 2007) as well as health inequities related to factors of the social environment.

During such adaptation to the new environment, immigrants may be exposed to health inequities as a result of social marginalization, psychosocial stressors, and material deprivation (Adler & Newman, 2002). Disadvantaged and marginalized communities are likely to be in a precarious situation with regards to housing, safety, the physical environment, and educational and employment opportunities (Oliver & Nutbeam, 2003). This is particularly true for immigrants who may be struggling with poverty as well as lack of access to public services and facilities, such as social services, primary health services, and transportation (Oliver & Nutbeam, 2003). Populations who are socially disadvantaged with regards to race, income, education, and political power face challenges for health and well-being as a result of living and working in comparatively unhealthy social, economic, and physical environments (Huang & London, 2012). According to WHO (2012), “the social determinants of health are mostly responsible for health inequities – the unfair and avoidable differences in health status seen within and between

countries.” For instance, Mexican Americans endure the lingering institutional racism and discrimination from having been perceived as undocumented immigrants, unskilled laborers, and foreigners who work in the fields (Almeida et al., 2016). These and other unfavorable social conditions contribute to the Mexican immigrants’ poorer health status, impaired access to jobs and resources, limited social networks, and struggles in adaptation to living in the U.S.

Consequently, it is important to study the immigrants’ *new environment*, particularly the food environment, which heavily impacts people’s health behaviors and dietary patterns and thus may contribute to the immigrants’ obesogenic behaviors (Delavari et al., 2013; Khan et al., 2012). The environment can be defined as “everything and anything outside of the individual” (Swinburn et al., 1999; van der Horst et al., 2007, p. 426) An environment that is obesogenic is one that abets an overabundance of caloric intake and minimal physical activity. Any aspect of the environment that has an impact on the access to food can contribute to body weight, health behaviors, and health outcomes (Glanz, 2009; Honeycutt et al., 2010).

Swinburn et al. (1999) devised a planning tool and framework known as the Analysis Grid for Elements Linked to Obesity (ANGELO) as a method of assessing obesogenic environments. The ANGELO framework categorizes the environment into the physical, socio-cultural, economic, and political. The foods that are available for purchase and consumption in supermarkets, restaurants, workplace and school dining halls, vending machines, and recreation centers are all part of the *physical environment* as well as the availability and accessibility of healthy and unhealthy foods (Swinburn et al., 1999; van der Horst et al., 2007). For example, Emond and colleagues (2012) identified the presence or absence of a variety of specific fresh fruits and vegetables, the quality of each fruit and vegetable item, and the cost per unit for each fruit and vegetable item. Their study suggested that Latino grocery stores, despite lacking a

variety of high-quality, nutritious food items at prices competitive to those of supermarkets, have a number of characteristics that promote fruit and vegetable intake among their Latino clientele (Emond et al., 2012). The attitudes, beliefs, and values related to eating behaviors in a community make up the *socio-cultural environment* (Swinburn et al., 1999; van der Horst et al., 2007). The costs of foods in addition to the costs of the production, manufacturing, distribution, and marketing of food are what comprise the *economic environment*. Finally, the *political environment* refers to the laws, policies, and institutional rules and regulations that are related to food consumption (Swinburn et al., 1999). I will utilize these different aspects of the environment as part of the development of the study for the third paper of my dissertation (discussed later).

1.3 Research Goals and Structure

The purpose of the study of my dissertation is to understand the changes in food practices, dietary patterns, and related leisure behaviors among Mexican immigrants in the U.S. Through exploring the mechanisms by which such modifications, negotiations, and adaptations in food and leisure occur, we can achieve a better understanding of how to help Mexican immigrants who settle in the U.S. embrace more health-promoting diets, and how leisure can be used in the process of health maintenance among immigrant populations.

My dissertation consists of three papers which build upon each other to ultimately provide a more complete understanding of the food practices and dietary patterns among Mexican immigrants. The first two papers are based on the research that I had conducted on *Changes in Food Practices and Dietary Patterns among Mexican Immigrants in the United States* funded by a grant from the Christopher Family Foundation: Health Transitions in

Immigrant Families Initiative. In Part I of this research project, I had invited a panel of experts in diet and nutritional change among minority populations to comment on the appropriateness of the model I had developed for this study based on Satia's (2010) original theorizing (see Appendix E for the model), issues related to dietary change among Mexican immigrants, and appropriateness of the questions proposed for the Part I of the project (see Appendix F for interview questions). The original set of questions sent to the expert panel was based on the components of Satia's (2010) model of dietary acculturation, which is a representation of the interaction of socioeconomic, demographic, and cultural factors with the exposure to host culture resulting in changes in psychosocial factor, taste preferences, food procurement, and food preparation. The experts invited to provide their comments were Julie Reeder (Senior Research Analyst, Oregon Health Authority, WIC Program) and Lauren Haldeman (Professor, University of North Carolina-Greensboro). Based on their feedback, I made the necessary revisions to the model and to the interview questions.

In Part II, I had conducted semi-structured in-depth interviews with 23 adult immigrant Mexican residents of Champaign-Urbana, Rantoul, and Chicago. The participants consisted of 19 women and 4 men ranging from 22 to 71 years of age. They were recruited by key informants in the community (i.e., community center directors, researchers of Mexican descent, local Mexican American residents) and through snowball sampling. As incentives for participation, the interviewees received Walmart and Target gift cards. All participants emigrated to the U.S. as adults, and each of them was responsible for decisions regarding food and diet at home before emigration. More detailed information about the methods used in the study is included in Papers 1 and 2 (Chapters 2 and 3) of the Proposal.

*The objective of the first paper of my dissertation, which is discussed in Chapter 2, was to characterize the food practices, dietary patterns, and leisure among Mexican immigrants in the U.S. In other words, I wished to answer the **research question**, “How do the food practices and dietary patterns among Mexican immigrants change after their arrival to the U.S.?”* Based on the semi-structured in-depth interviews that I had conducted with the Mexican immigrants, I perused their narratives to (1) examine the food practices and dietary patterns among Mexican immigrants residing in the Midwestern U.S., (2) investigate how leisure is related to immigrants’ food practices and dietary patterns, and (3) describe how these food practices and dietary patterns have changed after immigrants’ arrival to the United States. The findings provided an account of the Mexican immigrants’ food purchasing behaviors, food preparation methods, and food consumption patterns and health, and examined how these may have changed after the interviewees migrated from Mexico to the U.S. The main findings indicated that the Mexican immigrants employed both new and traditional food preparations methods, although they did not include certain foods of their culture that were not available locally. New foods in the U.S. that the immigrants had become familiar with were incorporated into their regular meals. The interviewees reported that due to time constraints and hectic and conflicting schedules among family members, food preparation at home had become less enjoyable and less of a leisure activity. Moreover, interviewees who used to grow food as part of their leisure no longer engaged in this activity.

*The objective of my second paper was to explore the **research question**, “Why have the Mexican immigrants’ food procurement, food preparation, and food consumption changed after moving to the U.S.?”* In order to address this question, I identified the specific factors that impacted the food practices and dietary patterns among the interviewed immigrants. The

findings revealed that elements of the new environment, such as affordability of food, geographic accessibility of stores, perceptions of food access in the host country, the selection of fresh food, and the location where one eats were important factors altering food purchasing behaviors, preparation methods, and consumption patterns. Moreover, cultural beliefs regarding food and diet that included what foods are considered nutritious and healthy, and what kinds of food to eat during illness, pregnancy, or certain holidays shaped immigrants' food practices and dietary patterns. Psychosocial factors and taste preferences, and changes in lifestyle and day-to-day schedules also impacted dietary patterns and food practices among the interviewees.

The objective of the third paper was to develop a valid and reliable tool to quantitatively assess the perceptions of factors that affect food practices and dietary patterns and the role of leisure in dietary change among Mexican immigrants. This assessment tool was informed by the findings of the second paper and focused specifically on the elements of the new environment and immigrants' daily lifestyles, schedules, taste preferences, and cultural beliefs on food. Such a tool will be helpful in designing public health interventions that promote healthy eating and lead to decreased prevalence of obesity and other diet-related conditions.

In my dissertation, I contend that while it is important to understand how the process of acculturation may influence Mexican immigrants' dietary patterns, one must be careful not to attribute any changes in dietary patterns to changes in culture alone. Other dimensions of social, economic, and health inequalities that I would need to take into account include immigrants' social class, and its psychosocial effects (Wilkinson, 1997) as well as aspects of physical and socio-cultural environment. Overall, my study is designed to contribute to three main bodies of literature: (1) leisure studies, by examining the roles of leisure with regards to changes in food practices and dietary patterns among Mexican immigrants; (2) nutrition research by investigating

how immigrants adjust to the new methods of food procurement, preparation, and consumption in the host country, and (3) public health research through the discussion of how new dietary patterns are related to changes in health status and acquisition of stressful lifestyles, obesity, and chronic disorders among immigrants.

1.4 Scope of the Study

The population of my study are immigrants from Mexico residing in Midwestern U.S. who came to this country as adults. Mexicans are the largest ethnic minority group among the Latinos residing in the U.S. According to the U.S. Census Bureau (2017), the number of people of Mexican descent who lived in the U.S. in 2017 was over 36.6 million people, which is 62.3% of the Latino population in the U.S. As of 2016, Mexico was the top country of origin among the U.S. immigrant population (López et al., 2018). The data for this study have been collected in the Chicago metropolitan area, Champaign-Urbana, and Rantoul, Illinois. As of 2016, there were almost 1.7 million people of Mexican origin in the state of Illinois (U.S. Census Bureau, 2017). Illinois was the state with the third largest population of immigrants from Mexico (6%) during the period from 2012 to 2016, behind California (37%) and Texas (22%) (Zong & Batalova, 2018). Among U.S. cities, the greater Chicago metropolitan area had the second largest number of Mexicans (650,000 people) during the same four-year period, behind the greater Los Angeles metropolitan area (over 1.6 million people) (Zong & Batalova, 2018). Approximately 6% (12,500 people) of the population in Champaign County (which includes Champaign, Urbana, and Rantoul) in 2017 were of Latino origin (U.S. Census Bureau, 2017).

Mexican immigrants in the U.S. endure substantial disparities in health outcomes as well as access to health care services (Bouchard et al., 2015; Derosé & Bahney, 2009; Vega et al.,

2009; D. R. Williams, 2012). In fact, 37% of Mexican immigrants in the U.S. lacked health insurance in 2017 compared with 7% of the U.S.-born population and 20% of all immigrants (Berchick, 2018). In 2016, among all Mexicans in the U.S., 23.2% of those under the age of 65 and 4.4% of those 65 years old and over did not have health insurance (National Center for Health Statistics, 2016). According to the National Center for Health Statistics (2016), Mexican Americans are 1.7 times more likely to acquire type 2 diabetes than non-Hispanic whites. It is thus necessary to evaluate the economic, social, and cultural conditions of Mexican immigrants to understand this population's eating behaviors and dietary patterns while living in the U.S. It is also important to understand the mechanisms by which ethnic and racial minorities, and Mexican immigrants in particular, integrate the dietary patterns of their new adopted country (i.e., the U.S.) and to determine the factors that incline, facilitate, and strengthen habits that are conducive to the consumption of healthy foods while living in the U.S.

1.5 Conclusion

The findings of my study, including the assessment tool, have practical implications for recreation programs and health promotion strategies that target Mexican immigrants. Dietitians and public health professionals can advantageously utilize their knowledge of immigrants' cultural values, food environment, and neighborhood infrastructure to develop an understanding and connection with Mexican immigrants to treat obesity and chronic conditions. Recreational facilities' directors can likewise use this knowledge to formulate recreation programs that are attuned with cultural values and the built environment within the local community. My concluding chapter delves deeper into the novelty and significance of my findings and how they

can be applied in future studies to address issues of healthy eating and participation in leisure activities among immigrants.

CHAPTER 2: FOOD PRACTICES, DIETARY PATTERNS, AND LEISURE AMONG MEXICAN AMERICANS IN THE MIDWESTERN U.S.

2.1 Introduction

The relationship between food and leisure is a considerably under-explored topic of research (Mair et al., 2008). Food is not only necessary for human subsistence but is the center of numerous leisure activities. How people grow, purchase, prepare, consume, and value food is influenced by their beliefs, which can change with immigration and time (Andreeva & Unger, 2015; Ayala, Baquero, et al., 2008). Research has shown that immigrants in Western countries, such as the U.S. and Australia, tend to adopt new food practices, including unhealthier eating habits, which contribute to obesity and chronic health conditions (Ayala, Baquero, et al., 2008; Batis et al., 2011; Liu et al., 2012). Lifestyle and diet changes among Latino immigrants in the U.S. have been explained with the use of food acculturation frameworks (Ayala, Baquero, et al., 2008), environmental factors and socioeconomic status (Viruell-Fuentes, 2007), as well as structural conditions, immigration status, and discrimination (Ahn et al., 2008). In particular, much of the existing research that evaluated immigration's effects on obesity concentrated on how food acculturation contributes to the adoption of obesogenic behaviors and weight gain in the host country (Delavari et al., 2013; Liu et al., 2012; Renzaho et al., 2008; Sussner et al., 2008; Ullmann et al., 2011). The existing studies, however, provided little understanding of how leisure, as part of the changing environments of migrants, is related to people's food practices and dietary patterns after immigration. Additionally, other than the association with food acculturation, little is known about the true underlying causes of obesity and chronic conditions after immigration. The actual underlying causes of health issues may include the stress of

immigration and adaptation in a new country, lack of understanding of healthy preparation of food in the new environment, food preparation and consumption becoming considered as chores rather than as parts of leisure activities, and greater consumption of convenience foods. In light of this, the objectives of this study were to (1) examine the food practices and dietary patterns among Mexican immigrants residing in the Midwestern U.S., (2) investigate how leisure is related to immigrants' food practices and dietary patterns, and (3) describe how these food practices and dietary patterns have changed after immigrants' arrival to the United States.

2.2 Literature Review

Food and Leisure

The majority of leisure research whose goal was the prevention of obesity and chronic diseases explored the connection between leisure activities and physical activity (Bocarro & Edwards, 2016). The relationship between leisure and food is considerably less examined. The existing studies that explored the link between leisure and food/nutrition have focused on the Slow Food movement (Bowers, 2007; Dunlap, 2012; Hsu, 2015; Mair et al., 2008; Meneley, 2004; Paxson, 2005), cooking as a leisure activity (Amsden & McEntee, 2011; Farmer, 2012; Farmer et al., 2011; Hanus, 2016; Porter & McIlvaine-Newsad, 2013), farmers markets and community gardens (Amsden & McEntee, 2011; Farmer, 2012; Farmer et al., 2011; Porter & McIlvaine-Newsad, 2013), and eating out and food tourism (Chang & Hsieh, 2006; Hollows et al., 2014; Kwun et al., 2012; Rezende & Silva, 2014).

Research that has examined the phenomenon of the Slow Food movement defined the trend as the promotion of the recreation of “gastronomic culture by facilitating meal experiences that are convivial, mindful, and ethical” (Dunlap 2012, p. 38). It is in stark opposition to the

tenets of efficiency, standardization, control, and profit (Ritzer, 1996) that characterize fast food and other convenience foods. The center of the Slow Food movement is the dining table along with the experience of eating. Dunlap (2012) explained that individuals having a convivial meal together are as engaged with each other as they are with their food, and take their time with the preparation, consumption, and indulgence of their meal. Similarly, our study population, Mexican Americans, traditionally value family pastimes, particularly eating dinner together as a family and having meals with extended family members during get-togethers (Ayón et al., 2018; Thomé-Ortiz, 2018). With its focus predominantly on the rejection of the culture of fast food, Slow Food advocates for the careful preparation of minimally processed ingredients based on time-honored customs of cooking over the standardized, heavily processed, and homogenized food items devoid of any specific culture or locale that are typical in the fast food industry (Dunlap, 2012).

Another strand of leisure research that focused on the broadly-defined aspects of food and nutrition is cooking as a leisure activity. The leisure activity of cooking has been defined as, “food preparation in the home that is done primarily for the pleasures and satisfactions of the process rather than simply as a way to produce food for survival” (Szabo 2012, p. 300). It usually involves culinary skills, particular food knowledge, and the use of special ingredients and kitchen tools. In a modern consumer culture, cooking has become a form of creative expression with symbolic, social, and economic dimensions (Zevnik, 2012). Gourmet cooking is a serious leisure pursuit during which many gourmet cooks build personal culinary libraries replete with cooking-related information and details on specific ingredients (Hartel, 2010). Teaching younger family members how to cook and perform other food preparation skills and preparing meals with other family members is a regular social activity in Mexican culture (Ayón et al.,

2018). It is not known, however, to what extent cooking as a family leisure activity persists among Mexicans who have moved to the United States and who are faced with new social and economic realities of the life abroad.

Eating out and food tourism as leisure are other ways that food and leisure are related. Food is perceived as the main attraction and the primary travel motivation in culinary tourism (Hall et al., 2003; Park et al., 2008; Stewart et al., 2008). Culinary or food tourism is defined by Hall and Mitchell (2001) as a “visitation to primary and secondary food producers, food festivals, restaurants, and specific locations for which food tasting and/or experiencing the attributes of a specialist food production region are the primary motivating factors for travel” (p. 307). Food purchase makes up approximately one-third of all tourism expenditures (Chang & Hsieh, 2006). Even among local people, eating out at dining establishments and patronizing street vendors are popular and enjoyable leisure activities (Chang & Hsieh, 2006). The main reasons for eating out include convenience, the entertainment factor, and socializing (Alonso et al., 2012). This study will provide additional information on the role of eating out in the overall leisure experience among Mexican immigrants, including their preferences for visiting specific dining establishments and fast food restaurants.

A number of recent studies have also explored various aspects of farmers markets and community gardens that have become increasingly popular in the U.S. over the last two decades (Amsden & McEntee, 2011; Farmer et al., 2011; Porter & McIlvaine-Newsad, 2013). Farmers markets feature “farm vendors selling agricultural products [particularly local foods] directly to customers at a common, recurrent physical location” (U.S. Department of Agriculture, 2018). Local foods are defined as foods “that are consumed within a 100-mile vicinity of where they were grown/produced” (Farmer et al., 2011). Recreation has become a key aspect for consumers

at farmers markets where customers enjoy the festive atmosphere, using the market as a location to gather with friends, bond with members of the community, and shop for unique and fresh foods (Farmer et al., 2011). Similarly, community gardens have become locales for recreation and community building (Porter & McIlvaine-Newsad, 2013). Motivated by lower costs and concerned by commercial agricultural growing methods, residents and community leaders grow fresh fruits and vegetables at community gardens. Like farmers markets, community gardens have become sources of fresh produce, and sites for social gatherings and interracial interactions (Porter & McIlvaine-Newsad, 2013; Shinenew et al., 2004). Community gardens can provide leisure opportunities to individuals lacking access to green space and those who enjoy the activity of gardening for food. Nevertheless, within the U.S., farmers markets patrons are likely to have a high level of education, hold a professional occupation, and have middle or high socioeconomic status (SES) (Schupp, 2017). Farmers markets customers also tend to be white, which may discourage the patronage of people of color as the farmers markets may be a reflection of white cultural practices along with the assemblage of white bodies (Alkon & McCullen, 2011). The patronage or attendance of farmers markets and community gardens among immigrants is largely unknown. Consequently, little is known about the extent to which immigrants have access to the healthy foods and social capital present in farmers' markets and community gardens.

Food and nutrition are key elements of overall health and well-being. The importance of food and nutrition in public health renders them prime areas of exploration with regards to regular daily leisure activities. Despite the research on the nexus between food and leisure becoming more popular in recent years, numerous important aspects of the connection between leisure and food remain unexplored. For instance, little is known about how food practices and

dietary patterns are related to leisure among minority populations and how they change among immigrants after their transition to a new country. This study is intended to fill this important gap in knowledge.

Dietary Change among Immigrants

Food is a prominent representation of ethnic or national identity (Jurado, 2016; Thomé-Ortiz, 2018). Certain aspects of cultural values are contributed by ethnic or national cuisines (Jurado, 2016), which are a combination of ingredients, flavors, recipes, eating customs, cookware, and utensils. Preparation and consumption of meals and dishes of one's cultural background are leisure activities that allow individuals to personally connect with their cultural and familial identity and traditions and take pride in the uniqueness and distinctiveness of their cuisines (Greder et al., 2012; Littaye, 2016). When immigrants move to a new country, many feel that they lose connections to their country of origin or have difficulty forging connections to their places of settlement (Coles & Timothy, 2004; Frost & Laing, 2016). The preparation of their native dishes is one leisure activity that migrants engage in to preserve a link to their native country and foster relationships and a sense of unity with fellow immigrants from the same ethnic group (Ayón et al., 2018; Greder et al., 2012). Visiting ethnic food markets for recreation also satisfies nostalgia for the home country and former way of life (Hosler et al., 2016; Timothy, 2016; Vázquez-Medina & Medina, 2016).

Following the settlement, immigrants also begin to incorporate the dietary patterns and food selections of their host country in a phenomenon described as dietary acculturation (Satia, 2010). They eat at local restaurants, attend picnics at local parks, attend food festivals, and prepare meals with ingredients that are mainstream in their new country. While many of these

are leisure activities that are beneficial to their psychological well-being, studies have found that food acculturation has a negative influence on diet and health of immigrants and racial and ethnic minorities. That is, the changes in food consumption and eating behaviors increase these populations' risk of obesity and chronic diseases (Gray et al., 2005; Kim et al., 2007; Renzaho et al., 2008; Sussner et al., 2008; Varghese & Moore-Orr, 2002). The relationship between dietary acculturation and body weight status, however, varies greatly across different immigrant populations who demonstrate increased, decreased, or unchanged body weight with regards to the degree of acculturation (Ayala, Rogers, et al., 2008; Satia, 2010; Thomson & Hoffman-Goetz, 2009). It is likely a result of the fact that health status, such as obesity, is affected by a complex interplay of culture, country of origin, and demographic variables (e.g., gender, age, ethnicity), and social structures, such as income, education, and socioeconomic status (Ayala, Rogers, et al., 2008).

More recent studies have also argued that food acculturation is a complex, dynamic, and multidimensional process and not a simple unidirectional shift from “traditional” to “acculturated” and that, moreover, acculturation alone is insufficient in explaining the changes in diets of immigrants (Ayala, Rogers, et al., 2008; Creighton et al., 2012; Martínez, 2013; Pérez-Escamilla, 2009; Wojcicki et al., 2012). Past research provided evidence that immigrants may prepare foods of their culture in both traditional and new ways, exclude other foods of their culture that may be unavailable in the host country's environment, and consume new foods that they have become familiar with after arrival in their new country (Ayala, Rogers, et al., 2008; Kim et al., 2007; Satia, 2010).

Immigrants who have moved from low- or medium-income countries to high-income countries are especially at risk of overweight and obesity, and related chronic conditions

(Delavari et al. 2013). Immigrant populations experience a dietary transition, which may lead to a regression in their health status, particularly in Westernized countries, including the U.S., Australia, Canada, and the United Kingdom. For example, Batis et al. (2011) found that Mexican Americans living in the U.S. reported higher intakes of saturated fat, sugar, dessert, salty snacks, and French fries, compared with Mexicans living in Mexico. In another study that examined the prevalence of diabetes among Latinos, Ahmed et al. (2009) found that it doubled among Latinos who have resided in the U.S. for more than 25 years compared to those who immigrated to the U.S. within the past 10 years.

Other factors affecting the food practices and dietary patterns among immigrants may include nutritional beliefs (Hulshof et al., 1991), availability of food options in their local community (Franco et al., 2008; Grigsby-Toussaint et al., 2010; Kilanowski, 2010), cost of food (Fish et al., 2015; Kilanowski, 2010), convenience of food items (Fish et al., 2015), food preparation skills (Fish et al., 2015), social norms and social influences (Ayala, Rogers, et al., 2008; Emmons et al., 2007; Montoya et al., 2011; Viruell-Fuentes, 2007), and level of self-efficacy in monitoring food intake (Montoya et al., 2011; Steptoe et al., 2004). This study sheds light on how leisure is associated with food practices and dietary patterns, how weight and health status may be negatively affected in a new country, and how immigrants respond to the challenge of adapting their food consumption patterns.

2.3 Methods

The study was grounded in the interpretivist paradigm (Goulding, 1998). To attain a greater understanding of the intricate behavioral and structural processes at play, I applied a qualitative approach for my methodology, which included interviews with individual Mexican

immigrants. These one-on-one in-depth interviews allow the researchers to understand and reflect on the lived experiences of the interviewees with regards to their food practices and dietary patterns from the interviewees' perspectives. Such tools can elicit the participants' perspectives and viewpoints, which are utilized to elucidate the meanings that participants ascribe to specific foods, eating customs, and other food practices.

Study Participants

The selection of participants occurred through snowball sampling, during which current research participants recruit more research participants from the former's network of acquaintances. I began with a network of key informants and colleagues who directed me to several Mexican American acquaintances that they knew, a multicultural community center, and a refugee center. All participants were of Mexican descent had moved from Mexico to the U.S. as adults. They comprised of 19 women and 4 men between 22 and 71 years of age. They represented a variety of occupations, consisting of restaurant workers, stay-at-home mothers, day care workers, teachers, sales associates, custodians, administrative assistants, and factory workers. They lived in Chicago (N = 17), Rantoul (N = 4), Champaign (N = 1), and Urbana (N = 1). The number of years that they resided in the U.S. ranged from 1 to 43 years (0 to <10 years: N = 5, 10 to <20 years: N = 7, ≥20 years: N = 11). All of them were responsible for decisions related to food and diet in their home prior to emigration. They were given pseudonyms for the data analysis and provided with a document on the confidentiality of their information. They agreed to have their interviews audio-recorded and were subsequently rewarded either a \$25 gift card from Walmart or Target.

Data Collection

The interviews (8 in English and 15 in Spanish) lasted from 35 to 75 minutes and followed a semi-structured format in which the main questions remained the same, but additional probes were utilized to elicit more detailed and comprehensive responses. The interview questions were developed based on the components of Satia's (2010) model of dietary acculturation, which depicts the interaction of socioeconomic, demographic, and cultural factors with the exposure to host culture resulting in changes in psychosocial factors, taste preferences, food procurement, and food preparation. The interview questions are listed in the Appendix F along with a description of their connection with the research questions.

Five experts in dietetics, nutrition, and minority populations were asked to provide comments on the wording of the interview questions, which focused on issues of food environment, taste preferences, food purchasing behaviors, food preparation methods, and food consumption patterns in Mexico and the U.S. Two of the five experts, Julie Reeder (Senior Research Analyst, Oregon Health Authority, WIC Program) and Lauren Haldeman (Professor, University of North Carolina-Greensboro) responded to the invitation. Julie Reeder suggested questions to ask at the beginning of the interview to make the interviewees feel comfortable and at ease (e.g., questions about interviewees' favorite meals), helped with phrasing of several of the questions (e.g., description of one's skill level as a cook from kitchen disaster to master chef), and spoke with me over the telephone to discuss the interview script. Lauren Haldeman reviewed my interview script and recommended that I ask how the interviewees define "American foods" and "traditional foods," and that I rephrase several of the questions to be more open-ended. The questions included in the final interview script included, among others, "Thinking back to the time when you lived in Mexico, what were some of your favorite foods or

meals?” “What was the biggest change, if any, in the foods you ate when you first came to the U.S?” “When you cook, do you do it in a more traditional way / the way you learned back in Mexico, or did you learn some new ways of cooking after coming to the US?” “How often do you eat out at restaurants?”

The interview questions were initially developed in English and later translated into Spanish. The Spanish translation was conducted by a professional translator from the university’s Center for Translation Studies to ensure that the Spanish version represented the same item content as the original version. The translation was then verified by an educator fluent in both languages and strongly familiar with both American and Mexican cultures.

The interviews were conducted by three interviewers. Interviews with participants who were fluent in English were done by the authors of the study and the ones in Spanish were conducted by a trained research assistant fluent in both languages. The interviews were conducted at the interviewees’ home or workplace, a community center, or a local café. They were audio-recorded, transcribed, and those conducted in Spanish were translated into English. The accuracy of translation was verified by two people fluent in Spanish and English.

Data Analysis

The constant comparative method “generates successively more abstract concepts and theories through inductive processes of comparing data with data, data with category, category with category, and category with concept” (Charmaz, 2014, p. 187). I first compared quotations and occurrences in a single interview transcript and then compared quotations and occurrences in other interviews. While making these comparisons through qualitative coding, I would begin the process of understanding the data. The categorization of segments of data is coding, during

which each piece of data is summarized and accounted for (Charmaz, 2014, p. 43). According to Charmaz (2014), coding makes the vital connection between the “collected data and developing and emergent theory to explain these data” (p. 46). I used the following three stages of coding: 1) initial coding, 2) focused coding, and 3) theoretical coding.

Initial coding involves giving each piece of data in an interview transcript a simple and precise name (i.e., code) while concurrently looking for ideas or concepts to flesh out for data analysis afterwards. It is a first step towards determining the main conceptual categories of emerging theories, and hence requires that the researcher is accessible to any possible and new themes or ideas that may arise from the data. During my own initial coding of each interview transcript, I coded incident by incident, made comparisons incident by incident within the same transcript, and then made comparisons of incidents among different transcripts.

In focused coding, the most frequent and predominant initial codes are used to organize and categorize the data from the interview transcripts. I determined which of these initial codes made the most analytic sense for the incisive and complete categorization of the data (Charmaz, 2014, p.57). The segments of data are then compared to the newly formed focused codes, which are assessed for their adequacy and refined. Meanwhile, new ideas and concepts may arise from the data during the coding process and comparisons between focused codes and pieces of data (i.e., incidents).

The third stage, theoretical coding, is the construction of the next level of codes by organizing the focused codes into ways that they are related to one another in order to generate a coherent story and describe the possible relationships among the categories created from the focused coding (Charmaz, 2014, p. 63). Although theoretical codes may contain overlapping categories, researchers can simultaneously draw from the different codes for analysis. Charmaz

(2014, p. 66) claimed that theoretical coding can be helpful in making the analysis coherent and provide clarification as long as the researcher does not impose a forced framework onto the analysis with these codes.

I followed a number of approaches to address the issue of the trustworthiness of the study. Baxter and Eyles (1997) describe the concept of trustworthiness as “the extent to which a piece of research is believable and hence worthy of attention” (p. 506). An important challenge in qualitative research is the evaluation of the rigor of research findings from a qualitative study. Lincoln and Guba (1986) addressed this challenge by using the general principles of credibility, transferability, dependability, and confirmability as the criteria for trustworthiness. These principles are analogous to the criteria in quantitative research of validity, generalizability, reliability, and objectivity, respectively (Lincoln & Guba, 1986).

To augment the transferability of my research findings, I drew as thick and descriptive narrative from the participants as possible during the interviews by asking many probes for the clarifications and explanations of the narratives. I used persistent observation of the study population’s characteristics and peer debriefing to strengthen the credibility of my findings. During the peer debriefing, the interview script and research findings were cross-checked with two individuals with strong familiarity in Mexican and American cultures. Additionally, the data with regards to their interview quotations, interpretations, demographic information, and interview notes were painstakingly organized with the corresponding themes and findings that emerged from the interviews.

2.4 Results

The participants' narratives indicated that they prepared foods of their culture in both traditional and new ways, excluded other foods of their culture unavailable in their local environment, and consumed foods that were new to them and that they became familiar with in the new country. The interviewees also indicated that they had made many changes to their daily foods and meals while living in the U.S. and discussed the challenges of maintaining a healthy diet and overall physical health.

Food Purchasing Behaviors

Interviewees residing in two mid-size towns reported a scarcity of and dissatisfaction with the options for grocery shopping. Most of them indicated that they did their grocery shopping in the superstores such as Walmart and Meijer, some smaller chain stores such as Aldi, and a few local Mexican or Latino stores. The cost and freshness of food items and the availability of coupons and other savings were common factors in the selection of food items at the grocery store. As Anna (age 41, homemaker) said,

I'll select fruits and vegetables based on the way they look. But the good thing about Walmart is that there are discounts. So, for my favorite apples, I was able to get them for 97 cents per pound today. So that's a good deal for me.

Numerous responses regarding food purchasing behaviors related to the perceived lack of fresh foods and ingredients available in their community stores. As Rosalyn (age 35, homemaker) narrated,

If you want to eat a chicken soup... you can't because the chicken has weeks, even months that it has been frozen. One prepares the dish like in Mexico; we put the

vegetables, cilantro, the herbs to give it a smell... and simply because the chicken was frozen, the chicken soup is no longer the same as it was in Mexico.

Andrew (age 67, daycare worker) was frustrated because “Everything has been processed. Here in the United States, they kill the beef, and it takes about 9 months to a year to be consumed!”

A number of interviewees expressed a preference for doing their food purchases in Latino stores. Fiona (age 46, homemaker) reported that she preferred shopping at Latino markets because she liked, “how they present the fruits and vegetables; the colors. They get your attention.” Others commented that Latino stores offered more “authentic” Latino foods than what could be purchased in superstores such as Walmart. The perception among many participants was, however, that the Latino stores were more expensive than the chain supermarkets and that the cost was a prohibitive barrier for them.

The interviewees expressed that in Mexico they would do much of their food purchasing from street vendors (i.e., small food stands in their community selling chicharrones, tamales, tacos, tortas, esquites, fruit and other items) while these were unavailable in the United States. Food sold from those stands was considered “fresh” and “authentic,” and allowed the interviewees to have a snack “on the go” or to purchase ingredients they could use in home cooking. Several of the interviewees also indicated that they no longer grew fresh produce for leisure in the U.S. as they did in Mexico. They now purchased all their produce from stores even if it was not fresh. As Josie (age 43, maintenance worker) stated,

I grew up on the farm—everything is natural there. No pesticides or chemicals. We planted tomato, zucchini, corn...everything fresh there, even the chicken, the meat...

[Here] the foods are available, but you can see that the fruits have a lot of chemicals and pesticides.

Some interviewees occasionally purchased organic produce, eggs, or meat, but Rowena (age 43, saleswoman) concluded that “Even if you go to the regular stores, like the Meijer, Walmart, or Sam’s Club, the organic is more expensive than the regular. It can be more expensive to eat in the house [than at a restaurant].”

Finally, if specifically desired ingredients were unavailable, then the interviewees would purchase substitute ingredients. Fiona said that she had, “some ingredients to make salsas with things they [sell] here.” Viola (age 53, teacher) reported that the ingredients that she had purchased in her local area were “very different,” such as “the *mole* that they sell here and the *mole* that they sell over there [in Mexico].” Tina (age 23, custodian) purchased tortillas that were packaged and refrigerated because “There are no freshly made tortillas in the U.S.”

Food Preparation Methods

Even if the interviewees tried to cook the same dishes as in Mexico, some of the ingredients needed to be adapted or substituted, resulting in the food’s different flavors and tastes. As Josie explained, “The flavor changed a lot. Even the meat does not have the same flavor.” Many interviewees would thus cook in similar ways as in Mexico, but some added new ways of cooking and new recipes depending on what food was available as well as the flavor quality of the meals prepared in the U.S. Hector (age 32, waiter) observed, “Here, even if you do it with the same [recipes] as over there, it is never the same taste.” A few interviewees struggled to learn new ways of food preparation based on the available foods and ingredients in their local area. Tina said, “I cook what I know how to cook and what I like, and I don’t really know how to cook more American meals.”

Interviewees also expressed that, after immigration, cooking had become a less fun and leisurely activity as a result of time constraints and demanding family and work schedules.

Gloria (age 64, refugee counselor) stated,

All my life my mother was cooking every day rice, soup, and meat. It changed: the way that life is now is fast and hectic. If you're a mother who doesn't work outside, probably you have more time to decide your menu for the week, but sometimes when you work so much, people don't have the time or the energy.

Some interviewees conceded that they had either cooked less frequently or had almost completely ceased food preparation because of time constraints associated with their work or school schedules, and had consumed prepared meals purchased outside of the home more frequently. Juliana (age 46, cook) explained that her husband was the person “who would buy for us here, and the main point is that since he worked and he would leave the house, it was easier for him to go get a pizza and he would bring it home.” For Rowena,

Because I was a student [and], I was working...I get up at like around 5 in the morning, and I come back from college around 10 o'clock p.m. So for a couple of years, I didn't even have time to cook nothing.

Food Consumption Patterns and Health

As earlier described, the participants wished to eat the same foods with the same flavors that they had eaten in Mexico, but this was not possible for a variety of reasons. While the interviewees tried to incorporate more fresh foods in their meals, they emphasized the changes to the foods that they were eating, changes in their meal schedules, and the declining frequency of eating dinners together with the family in the U.S. Tina stated, “I'll eat the same food, but they

don't taste the same. Mostly [because of] ingredients and specific things I can't buy here."

Andrew said, "The biggest change in our food consumption was that nothing was fresh. It was not natural. The hamburgers weren't that fresh to say... everything was processed." Fiona described that after immigration to the U.S. she wanted to 'try new things,' including the local cuisine. The wide options of mainstream American foods that were easily available contributed to changes in her eating habits. She said,

You want to try everything. And you want to experiment other foods, and sometimes we over buy, or we overeat... and sometimes this is what changes our eating habits, because of the quantities that are larger. You have more... you see more things, and you want to try new things... you like them, and sometimes you add too much sugar on desserts...

A number of other interviewees also discussed changes in their meal schedules. Gloria expressed emphatically,

What didn't change—my food and diet? It changed everything—the time—it changed the times. The way I used to... They changed everything. Just with the times, my main meal [in Mexico] was at one o'clock or two o'clock. And then my dinner—like they call it dinner here—it was supper over in Mexico, which is light... Everything changed in my opinion.

Several interviewees reported that they ate fewer meals at home and increased their frequency of eating out, including at fast food restaurants. Juliana expressed regret when she stated, "My family does not eat together because everyone works, and everyone has a different work schedule; for that reason, we no longer have family meals regularly." Similarly, Gloria said, "Going out for dinner became more frequent than in Mexico where we eat more at home." She

discussed how these new meal patterns contributed to the increasing prevalence of obesity among the Mexican families whom she worked with:

Both of the parents work, or they don't have help around...It's easy for them to go to McDonald's—it's cheap. Even sometimes cheaper. Or order pizza. And I see that the overweight is growing. The size of those families! I see a lot of Mexicans who arrive—I see them again a year later and they're obese, you know because they eat a lot of outside [food]. And they eat those fast foods, you know, even for the children. The high calories—and it's happening.

The realization of increasing weight and negative health consequences, such as developing Type 2 diabetes and other chronic conditions after several years in the U.S. obliged many of them to alter their meals, ingredients, and portion sizes. Rowena described how her weight gain began: “When we came over here, I didn't have any time so I would stop at McDonald's and I would get it, so we gain pounds right away because it's easy.” Such meal alterations included trying to revert to a more traditional Mexican diet. As Hector revealed,

I got here skinny, and I gained a lot of weight. That is why I decided not to keep eating that [American food]. The problem is that the new arrivals to the U.S. start eating pizza and hamburgers. I would suggest to them to keep cooking like they did in Mexico.

Rowena expressed her concern, “If I'm still up with my weight, they said, you can have a heart attack, you can have diabetes.... So, I don't eat sugar. I don't eat salt.” Hector, Gloria, Rowena, and other interviewees alluded to their busyness in the U.S. periodically throughout their narratives. While they were also busy and diligent in Mexico, their daily schedules were more stable, flexible, and conducive to preparing and eating meals at home. Their daily schedules had become far more inflexible in the U.S. due to the nature of their employment, especially among

those working in agriculture or the restaurant industry. Moreover, the necessity to drive their children to school and extracurricular activities took much of their free time they could have otherwise devoted to meal preparation. The interviewees suggested that they desired to bring back cooking in the family as a means of protecting and improving the health of family members as well as a mealtime for the family members to look forward to and enjoy despite the obstacle of the hectic structure of their day-to-day lives. After several years in the U.S. and realization of their declining health, their food preparation has focused more on health improvement, health maintenance, and weight loss.

2.5 Discussion and Conclusions

The goal of this paper was to examine the food purchasing behaviors, food preparation methods, and food consumption patterns among Mexican immigrants, and how these are related to their leisure. The findings indicated that the food and dietary patterns among immigrants and their leisure aspects had been altered upon arrival in the U.S. This was caused mainly by the environmental and social changes as Mexicans immigrated from their native to the host country. In particular, the availability, accessibility, and affordability of food items in the interviewees' new residence in the U.S. had important effects on their food and dietary patterns. As reported by several of our participants, such changes can potentially impact immigrants' physical health (i.e., weight status, Type 2 diabetes) in addition to how they perceive leisure with regards to dietary patterns and food practices. The findings from our interviews also suggested that after immigration, food preparation and food consumption largely lost their leisure-like qualities and were considered more as chores and obligations.

Immigrants often have overall better health, healthier dietary patterns, and lower prevalence of chronic conditions and obesity prior to moving to the U.S. (Finch et al., 2004; Ullmann et al., 2011; Vega et al., 2009). Previous studies have discussed that immigrants are likely to make unhealthy changes to their food consumption (i.e., lower fiber intake and higher calorie, fat, and sugar intake) and unhealthy lifestyle changes (e.g., more stressful employment, less leisure activities) as a result of many factors, with acculturation often cited as the main contributor (Ayala, Baquero, et al., 2008; Batis et al., 2011; Evans et al., 2011; Gordon-Larsen et al., 2003; Sussner et al., 2008). Based on the findings of this study, however, I contend that immigrants desire and attempt to maintain traditional diets of their home country but are constrained by a combination of numerous interacting barriers, such as food availability, environment, local infrastructure, and low socioeconomic status. For instance, several of the interviewees had limited food options in the places where they lived (e.g., medium-sized towns in Illinois) because of the geographic location of supermarkets and other food vendors. Supermarkets were scarce or geographically distant in the local area, necessitating the use of a motor vehicle or public transportation (if available) for grocery shopping. Latino food vendors, in particular, were located farther away, and only available to the interviewees from the city and (albeit scarcely) one of the medium-sized towns in Illinois. They also sold more costly food items that were not necessarily fresh or high-quality. Transportation was a constraint to Mexican immigrant families with lower incomes who would like to shop at distant food stores. Moreover, they deemed some of the food items at local Latino stores to be unaffordable.

Socioeconomic status was thus an important demographic affecting the findings. For Mexican immigrants living in the Midwestern U.S., the procurement of fresh, preferred, and affordable food items was difficult to achieve unless they lived at or near a major city. While

fresh and affordable produce and meats may be more widely available in more temperate regions of the U.S., for those who lived in small or mid-sized Midwestern towns, few options of desired food items that were palatable, inexpensive, and fresh existed within a short distance. Several of the interviewees exclaimed their disgust with meat products that had been “frozen for months” and the scarcity of the variety and quality of fruits and vegetables that were sold in their neighborhoods. Though they reported their desires for cheaper and fresher meat and produce available in larger cities of the Midwest, they expressed their need to consider costs and benefits of spending time and money for transportation and gasoline for better and more satisfying foods. Those who worked long and irregular hours in the service industry were even more constrained by their schedules.

This study supports recent studies (dela Cruz et al., 2013; Isasi et al., 2015; Martínez, 2013; Maynard, 2015; Novotny et al., 2012) that suggest that immigrants’ change in diet is not a simple and unidirectional transition from “traditional and healthy” foods to “acculturated and unhealthy” foods. The interviewees of this study have expressed their frustration in their attempts to reproduce meals that they were accustomed to eating in Mexico. They observed that food that can be purchased in the U.S. has less palatable flavors and dissimilar appearances. They stressed that the alterations in their meals and ingredients were based on necessity rather than a shift in culture. Several interviewees shunned Mexican food in the U.S. altogether not because they no longer preferred Mexican food, but because they perceived Mexican food in the U.S. to be unpalatable and inauthentic. The high cost of foods in local Latino stores also constrained their ability to purchase their desired ethnic foods, thereby, further shifting them to the consumption of more mainstream American foods. These findings suggest that the activities of food procurement and meal preparation have devolved from social and recreational

experiences that individuals engage in with friends and family members to daily grind frequently done alone and at irregular times.

A number of participants in this study reported that they were dismayed and concerned about the detrimental changes to their weight and health status after a period of time in the U.S. and regularly consuming less healthy food. After gaining weight or acquiring a chronic condition, such as heart disease or Type 2 diabetes, they were compelled to revert to a healthier diet with more traditional Mexican meals. While numerous previous studies have documented the unhealthy eating habits acquired by immigrants as part of their assimilation process (Batis et al., 2011; Kim et al., 2007; Renzaho et al., 2008; Sussner et al., 2008; Turner et al., 2014), our study has found that, after a period of time, immigrants may reinstate more nutritious dietary patterns by eating meals with more nutrient-abundant ingredients.

One compelling finding was the reduction of leisure activities associated with food and mealtimes. An abundance of food-related leisure activities exists, including, but not limited to, gardening fruits and vegetables, mealtimes at home or restaurants with family or friends, and cooking, baking, and other forms of food preparation. However, the participants of this study rarely perceived their food-related activities to be enjoyable or leisurely and had irregular or less frequent mealtimes with family or friends than they used to have back in Mexico. After immigration, their food shopping and food preparation had evolved into intermittent and tedious tasks largely devoid of leisure-like qualities or pleasant anticipation. Participants would go to grocery stores and other food vendors with the knowledge that their favorite food items and ingredients will either not be available or not taste the way that they like. They would then need to adapt their food purchases into meals that they perceived as palatable. While trying to acclimate to their new life in the U.S. and struggling with pressures of time and work schedules,

many ceased regular food preparation and resorted to purchasing of prepared foods (i.e., takeout food and fast food) that may not necessarily be satisfying. A few of the interviewees intimated that fast food was the least expensive meal option in the U.S. instead of a pricier occasional treat in Mexico.

Food is a reflection of a population's culture, an opportunity for leisure activities, and an indicator of status and wealth (Harris, 2005). While the interviewees of this study were unable to replicate precisely the same meals consumed or perform the same mealtime routines as in their home country, they learned to devise new recipes and adjust to new mealtime routines based on the available food options in their local area and their new schedules and lifestyles in the U.S. Several interviewees had lamented the lack of fresh fruits and vegetables in their neighborhoods' local stores as fresh produce had been central to their daily diets in Mexico. They were obliged to adapt their meals to the fruits, vegetables, and other locally available foods, which may not have the same flavors as corresponding or similar foods in Mexico. The challenges of acclimating their food practices and dietary patterns, new employment, daily schedules, surrounding culture, and positions in their new society may engender the struggles of maintaining regular leisure activities and healthy eating.

This study highlighted the importance for immigrants of maintaining engagement in leisurely activities and preserving traditional cooking methods and learning new ways to prepare and consume nutritious meals in their host country. A number of studies (Iwasaki & Bartlett, 2006; Kim et al., 2012) have found that involvement in leisure can help people to effectively cope with stressful life events, such as immigration. With regards to Mexican immigrants, their leisure activities often center around common Mexican values, such as the importance of social interaction (Antshel, 2002; Aroian et al., 2012), personal relationships (Antshel, 2002),

traditionally prepared foods as symbols of ethnicity and hospitality (Aroian et al., 2012), and sense of family support (Antshel, 2002; Smith-Morris et al., 2013). As a very important part of cultural heritage, food and associated cuisines are conserved or altered by native populations, colonialism, and migrating populations (Di Giovine & Brulotte, 2014; Timothy, 2016). Food is a prominent component of heritage as it evinces a population's beliefs, values, traditions, and cultural norms, and is representative of a population's geography, land, and climate. Thomé-Ortiz (2016) argued that personal identity, free time, and economic capital are important in preserving cuisine heritage in contemporary society. The traditional meals that are part of the heritage cuisine are replete with history and social and cultural fulfillment, and therefore, become the centerpiece of social activities during people's leisure time. As Thomé-Ortiz (2016) demonstrated in his study of local food in Mexico, the consumption of traditional food is strongly associated with pleasurable leisure time during the weekend, a family social activity, and an occasion that bolsters links among family members. In the U.S. society where immigrants have to juggle their work and daily responsibilities, the social aspect of mealtimes seems to have diminished and the preparation and consumption of traditional foods have become incongruous with their busy lifestyles. Thus, the loss of some of the leisure aspects of their food and dietary patterns following immigration is concerning from social, cultural, and health-related points of view.

Although this study has generated some interesting findings, it had several limitations that need to be acknowledged. First, the interviewees were predominantly female. While women are more likely than men to perform meal preparation and food shopping tasks, I felt that it was important to have a wide perspective of food practices and dietary patterns among Mexican immigrant men and women. However, recruiting male participants for this study

proved quite difficult. Second, the majority of participants in this study were of working-class background. It is possible that with the growing socioeconomic status, more stable work patterns, and longer time spent in the host country, immigrants are able to bring back more leisurely aspects to their food preparation and consumption patterns. The evidence of the central role that socializing during home parties and outdoor cookouts plays in leisure among Latinos in the U.S. (Cronan et al., 2008) tends to point in this direction. Third, the interviews were conducted by three different interviewers and some interviews were conducted in Spanish while others were undertaken in English. Finally, the findings cannot be generalized to other regions of the U.S. because they are specific to the Midwestern part of the U.S. These limitations may have introduced certain biases to the study.

Food is an integral component of countless leisure activities, and the findings of this study suggest that regular food rituals among the Mexican immigrants are diminishing. Food rituals, such as family mealtimes and weekend cookouts with family members, are important because they are social leisure activities that strengthen family connections and support systems (Coe et al., 2018) slow the process of eating and reduce the point of satiation, and may reduce the amount of food consumed (Greeno & Wing, 1994). When food consumption becomes a solitary experience, it has lost much of the leisure component when the social aspect is gone. The findings of the study thus have several practical implications, which can involve offering community programs and opportunities that promote more frequent food-related activities that are social, appropriate for all family members, and provide healthy meals and ingredients.

Researchers in health care and public health have suggested that health care professionals can leverage cultural values to build rapport with specific immigrant populations to treat obesity and chronic conditions (Antshel, 2002; Aroian et al., 2012; Plasencia et al., 2017). Similarly,

managers of recreational facilities can capitalize on such cultural values to develop recreation programs for Mexican Americans. Such health-promoting recreation programs targeting new residents can be developed not only in the U.S., but also in other countries with large immigrant populations such as Australia and New Zealand. I recommend that recreation programs focus on activities that promote social interaction, spending time with family and the value of food as a vehicle for camaraderie. Based on the findings of this study, I also recommend that, in addition to health clinics, recreational facilities provide workshops and information on the preparation of healthy traditional meals made from ingredients that are available in an individual's food environment. These workshops should emphasize the leisure and ritual or traditional aspects of food procurement, food preparation, and food consumption. These may include tours at the local supermarket with shopping lessons for both parents and children, lessons on estimating portion sizes and reading nutrition labels, cooking classes for parents and children, and cooking lessons using low-saturated fat and low-sugar ingredients. The classes and lessons should feature hands-on activities, focus on meals that all family members would enjoy, and cultivate social interaction among cooking class attendees. Culturally sensitive dietitians and public health practitioners whom immigrants would trust and seek help from should provide such workshops and information. They should focus on the actual food that stores carry as well as neighborhood store characteristics, such as the size of the store, price trends, and selection and quality of food items (i.e., the freshness of produce).

In terms of research, future studies should examine how the specific factors that contribute to the changes in food practices and dietary patterns are associated with leisure among immigrants in the U.S. More information is also needed on if and how leisure becomes

reestablished as part of immigrants' food preparation and consumption patterns as they become more adapted to life in the host country.

CHAPTER 3: WHAT IMPACTS LEISURE ACTIVITY AND DIET AMONG IMMIGRANTS? MEXICAN IMMIGRANTS' LEISURE PARTICIPATION AND FOOD PATTERNS IN THE MIDWESTERN U.S.

3.1 Introduction

Food preparation and consumption are cultural leisure activities abundant with social meaning (Harris, 2005). Nevertheless, relatively little is known about the relationship between food and leisure (Amsden & McEntee, 2011; Dunlap, 2012; Farmer, 2012; Mair et al., 2008) as much of the literature on leisure and health has focused on physical activity and management of chronic diseases (Bocarro & Edwards, 2016). The nexus of food and leisure is important to examine, however, as unhealthy eating habits among many North Americans have contributed to their high obesity rates and prevalence of chronic diseases. Research has shown that immigrants in the U.S., such as those from Mexico, tend to adopt new food practices, including unhealthier eating habits, which contribute to obesity and chronic health conditions (Ayala, Baquero, et al., 2008; Batis et al., 2011). This process is known as dietary acculturation, which Satia defined as immigrants' incorporation of the dietary patterns and food selections of their host country (Satia, 2010). Despite a number of studies that have evaluated immigration's effects on obesity, most of the existing research concentrated on how dietary acculturation contributes to the adoption of obesogenic behaviors and weight gain in the host country (Ahluwalia et al., 2007; Fitzgerald, 2010; Franzen & Smith, 2009). These studies, however, contributed little to the understanding of the factors other than cultural change that lead to a shift in immigrants' weight status in the new country. I argue that the new lifestyle in the host country and elements of the new environment may be critical factors influencing food practices that eventually contribute to changes in weight

status and development of chronic diseases. The study's objectives were to identify factors that impact the food practices and dietary patterns of Mexican immigrants in the U.S. and to examine how leisure is related to these factors.

3.2 Theoretical Background

Food practices and dietary patterns among Mexican immigrants can be examined using the theoretical framework of social determinants of health. The World Health Organization (WHO) defines social determinants of health as, “the conditions in which people are born, grow, live, work and age. These circumstances are shaped by the distribution of money, power and resources at global, national and local levels” (World Health Organization, 2012). Such conditions include social support, education, income, discrimination, and housing, workplace, and community resources (Raphael, 2006). Social determinants of health have multifaceted impacts on health and are responsible for most health inequities (Commission on Social Determinants of Health, 2008). “The complex, integrated, and overlapping social structures and economic systems” (Commission on Social Determinants of Health, 2008) that contribute to health inequities include the social environment (e.g., race/ethnicity, discrimination, income, gender), physical environment (e.g., where a person lives and crowding conditions), health services (e.g., access to quality health care and health insurance), and structural and societal factors (Commission on Social Determinants of Health, 2008; U.S. Department of Health and Human Services, 2009).

During adaptation to the new environment, immigrants may be exposed to health inequities as a result of social marginalization, psychosocial stressors, and material deprivation (Adler & Newman, 2002). Disadvantaged and marginalized communities are likely to be in a

precarious situation with regards to housing, safety, the physical environment, and educational and employment opportunities (Oliver & Nutbeam, 2003). This is particularly true for immigrants who may be struggling with poverty as well as inadequate access to public services and facilities, such as social services, primary health services, and transportation (Oliver & Nutbeam, 2003). Populations who are socially disadvantaged with regards to race, income, education, and political power face challenges to health and well-being as a result of living and working in comparatively unhealthy social, economic, and physical environments (Huang & London, 2012).

3.3 Literature Review

With the high prevalence of weight gain and increased risk of related chronic conditions among immigrants to the U.S., it is crucial to elucidate the underlying factors that contribute to such adverse health outcomes. Food practices, dietary patterns, and leisure participation are likely to play a vital role in the health of the newcomers. The literature has shown that factors that may be related to immigrants' food practices, dietary patterns, and leisure participation include their cultural beliefs and values, social context, food environment, and new lifestyle. They will be examined in the following sections of the Literature Review.

Culture and Food in Modern Mexico

Helman (1994) contended that culture (consisting of the values, beliefs, traditions, and norms that impact an individual's worldviews) conveys meaning to health, information on health, and views regarding appropriate health-related behaviors. Culture will characterize the kind and quality of communication between individuals, families, communities, and health care

providers on health, health conditions, treatments, and locating health care services. As culture evolves with time, migration, and new experiences, acculturation becomes a major influence on how people perceive health and utilize the available health care systems (Nielsen-Bohlman et al., 2004). In fact, health care seeking behaviors and people's perception of their control over health care access are influenced by cultural factors combined with people's education, gender, income, age, marital status, health literacy, family networks, transportation, language ability, geographic location, legal status, community resources and support, and other factors (Lillie-Blanton & Lewis, 2005; Rogers & Gallegos, 2007; Smedley et al., 2003).

Diet and physical activity, which are both culturally-based, are two important determinants of health. Values that are central to Mexican culture include the importance of family support (Antshel, 2002; Smith-Morris et al., 2013), close personal relationships (Antshel, 2002), social interactions (Antshel, 2002; Aroian et al., 2012), and the preparation of traditional foods to symbolize ethnicity and hospitality (Aroian et al., 2012). Traditional Mexican staple foods include rice, tortillas, beans, corn, tomato, onion, chicken, and fish (T. M. Smith et al., 2015). Foods such as *tamales*, *buñuelos*, and *pozole* are often prepared during family gatherings, including barbecues/cookouts (*carne asadas*) that are central to the leisure experiences among Mexican immigrants in the U.S. (Acevedo, 2009; Camarillo, 2018). Spending time with their children during cooking and other food preparation is a typical family leisure activity that Mexican parents use to share their culture, nurture family relationships, and engage in social interactions (Ayón et al., 2018). The families share their meals sitting at a table together as a family, which is an experience that Mexican parents look forward to and take pride in (Ayón et al., 2018). Other leisure activities that are revolved around food include family parties and exploring outdoor food markets.

The regional differences in Mexican culture, evolving and modernizing culture in Mexico, population fluxes among Mexico's cities, and disparate socioeconomic status in different parts of Mexico have all contributed to changing food practices and leisure participation in this country in the last several decades. For instance, the population living in urban areas had dramatically increased between 1950 to 2015 from 42% to 78% (Instituto Nacional de Estadística y Geografía, 2015). Rural areas in Mexico are no longer remote or isolated with many rural residents commuting to cities for employment, education, leisure, or other aspects of their lives. In recent decades, women in Mexico have reported less time spent on food preparation and consumption (Instituto Nacional de Estadística y Geografía, 2014). Women's entry in to the labor force along with urbanization, globalization, the growth of the food industry, and the reconfiguration of agricultural production have affected the dietary patterns, food practices, and day-to-day activities of Mexicans in various ways (Garza-Montoya & Ramos-Tovar, 2017). Such large-scale social and economic transformations in Mexico have contributed to the greater exposure and consumption of processed foods, prepared meals, dishes prepared with less raw ingredients, and food consumed outside of the home. Eating out as leisure has also become a popular family activity with the increased number of restaurants in Mexico (Ortiz-Hernández et al., 2006).

Disadvantaged Position in Society

Researchers must be cognizant, however, of the extent to which culture plays a role in Mexican immigrants' food practices, dietary patterns, and leisure participation. Culture processes are not an isolated factor, necessitating the examination of the intersection of culture with the social and physical environment and lifestyle conditions in the study of the mechanisms

by which Mexican immigrants integrate the dietary patterns of their new adopted country (i.e., the U.S.) and the factors that incline, facilitate, and strengthen habits that are conducive to the consumption of healthy foods while living in the U.S. The intersection of the racialized environment in the U.S. and the immigrants' socioeconomic status may be a salient element that impacts their acclimation into their new community. New immigrants who arrive in the U.S. are faced with the challenge of navigating through the complex ethnic and racial hierarchies that are unique to the U.S. and little is known on how such a negotiation may influence food practices and engagement in leisure activities.

The stress of living in a racialized environment may result in negative outcomes on health. When Mexican immigrants establish their lives in the U.S., they need to learn to adapt to their stigmatized position within a society deeply entrenched in racialized social hierarchy. Mexican immigrants are stigmatized as a result of being perceived as foreigners, having ethnic background associated with lower socioeconomic status, and negative stereotypes of Mexicans that exist in the U.S. based on historical, social and political contexts (Almeida et al., 2016; Buriel, 2012; Paradies et al., 2015). Mexican immigrants are also exposed to the process of "othering," which is a form of marginalization by which people of mainstream society identify those whom are thought to be different from them, reinforcing and reproducing positions of domination and subordination (Johnson et al., 2004, p. 253). The Mexican immigrants' adaptation may be interpreted by researchers as a cultural change, or acculturation, when in a more nuanced and less apparent process is likely to be the establishment of a new ethnic identity within the racialized American society.

Viruell-Fuentes (2011) theorized that the stress that Mexican immigrants endure while living and becoming accustomed to a racialized environment while also negotiating their ethnic

identities has a salient impact of health outcomes. Additional related stressors include, but are not limited to, the discrimination that accompanies the negative stereotypes of Mexicans, disadvantages in socioeconomic opportunities, structural barriers, and pressures to fit into and be accepted in their new environment (Viruell-Fuentes, 2011). All of these factors may interact with the Mexican immigrants' cultural beliefs to affect their food practices, dietary patterns, health behaviors and leisure participation.

Social Context

Similar to culture and disadvantaged position in society, social context can have an enabling and constraining effect on health care seeking behaviors, healthy eating, and leisure participation among immigrants (Coe et al., 2018; Emmons et al., 2007; Portes et al., 1992; Ralston & Escandell, 2012). For example, social networks, including number of family members living in the new country, can impact decisions regarding migration, employment, and level of salary based on social capital (Aguilera & Massey, 2003; Livingston, 2006; Portes & Sensenbrenner, 1993). As many immigrants from Mexico are likely to have limited skills and knowledge specific to the U.S., they need to utilize resources and assistance from their social networks and social capital to seek information on health care and diet in the U.S. (Aguilera & Massey, 2003; Livingston, 2006; Portes, 1998).

Family networks have been demonstrated to be a consistent source of valuable support for Mexican immigrants (Massey et al., 1987), many of who have a sizable network of distant relatives who can provide information on health care and diet in the U.S. (Bernosky de Flores, 2010; Marquez et al., 2014; Ralston & Escandell, 2012; Rogers & Gallegos, 2007). A strong commitment to the family is considered to be a core Mexican value (Padilla & Villalobos, 2007).

The social capital from family ties helps to smooth the transition process to life in the U.S., including obtaining employment and learning where to seek health care. Families are key to the facilitation of family members' health care usage (Padilla & Villalobos, 2007) as well as helping family members maintain healthier diets for weight or chronic disease management, such as managing diabetes (Vincent, 2009). Families who offer support and nutrition knowledge can facilitate adherence to healthy food choices and other health-promoting behaviors (Plasencia et al., 2017). Families can also provide both financial assistance to their family members to pay for healthcare services and information to help make decisions related to the health care (Litwak et al., 1989).

Food Environment

The food environment profoundly impacts people's health behaviors and dietary patterns, and may thus contribute to the immigrants' obesogenic behaviors (Delavari et al., 2013). The environment can be defined as "everything and anything outside of the individual" (Swinburn et al., 1999; van der Horst et al., 2007, p. 426). An environment that is obesogenic is one that abets an overabundance of caloric intake and minimal physical activity. For the purposes of studying obesogenic environments, Swinburn and colleagues (1999) developed a framework and planning tool called the Analysis Grid for Elements Linked to Obesity (ANGELO), which can be utilized to identify key elements in the relationship between the environment and health behaviors, including eating behaviors and physical activity. The ANGELO framework divides the environment into four categories: physical, socio-cultural, economic, and political.

The physical environment describes the food items that are available for purchase and consumption (Swinburn et al., 1999). The foods that are available in supermarkets, restaurants,

workplace and school cafeterias, vending machines, and recreation, sports, and arts venues make up the physical environment with regards to food. The physical environment also describes availability and accessibility of healthy and unhealthy foods (van der Horst et al., 2007). The socio-cultural environment encompasses the attitudes, beliefs, and values associated with eating behaviors (Swinburn et al., 1999). It is affected by social and cultural subjective and descriptive norms, the mass media, parental and peer influences, as well as workplace, school, and neighborhood contexts (Swinburn et al., 1999; van der Horst et al., 2007). The economic environment refers to the costs of various foods in a community as well as the costs related to production, manufacturing, distribution, and marketing of food (Swinburn et al., 1999). These costs, in turn, are related to the costs associated with healthy and unhealthy behaviors. The political environment describes the laws, regulations, policies, and institutional rules that affect eating behaviors (Swinburn et al., 1999). Examples of elements of the political environment include the school nutrition policy (Booth & Samdal, 1997), regulations regarding food labeling, health claims on food packages and advertisements (Glanz et al., 1992), and regulations regarding food advertising targeted at children (Dibb & Castell, 1995).

The characteristics of the food environment are likely key influences of leisure activities with regards to food. For example, the lack of green spaces in homes eliminates the daily leisure activities of gardening produce and transferring fresh food from the farm to the table (Bellows et al., 2010; Porter & McIlvaine-Newsad, 2013). The high cost of fruits, vegetables, and other specialty foods at farmers markets diminishes the utility of farmers markets as social gathering sites among low-income populations (Farmer et al., 2011). Ubiquitous advertisements for convenient and inexpensive fast food in the local area promote patronage at fast food restaurants,

which is linked to overweight and obesity among some ethnic and racial groups (Powell et al., 2014; Yancey et al., 2009).

New Lifestyle

The time structure of immigrants is likely to be overhauled upon arrival in the U.S. and employment is a prime factor influencing their new lifestyles and schedules. Past studies have shown that Latina women in the U.S. who worked outside of the house have reported time constraints caused by their hectic and faster-paced lifestyles. These constraints, in turn, led to changes in food preparation methods and alterations to their dietary patterns (Lindberg & Stevens, 2011; Sliwa et al., 2015; Sussner et al., 2008; Tovar et al., 2013). One study had found that Mexican immigrants used to prepare meals from raw ingredients in Mexico, such as procuring their tortillas (growing corn, grinding corn, and cooking the tortillas), making soup (making broth, growing vegetable ingredients, obtaining fresh meat), and cooking produce grown in their gardens (Scholomann et al., 2012). These were activities that they had engaged in with family members as part of their family bonding. Other activities that they regularly participated in with family members while living in Mexico included gardening, fishing, potluck meals, and picnics (Stodolska et al., 2017). With less time for meal preparation, and hence, less time to enrich and nurture family relationships, Mexican immigrants in the U.S. had experienced an overall lessened amount of time spent on these leisure activities.

Lindberg and Stevens (2011) found that Mexican immigrant women in the U.S. had become dependent on eating out or meals that are ready-made and processed as they lacked time to purchase fresh ingredients and cook, and received little help from family members. Another study found that Mexican immigrant women resorted to eating unhealthy food that was

comforting as a response to high stress in the U.S. (Coe et al., 2018). Similarly, members of Mexican immigrant families in the U.S. have reported reduced time to prepare homemade meals because of the necessity to accompany their children to planned after-school activities (Colby et al., 2009; Tiedje et al., 2014). One study (Bojorquez et al., 2018) found that Mexican immigrants who grew up in urban areas in Mexico were already familiar with fast food, which was regarded as an occasional treat in Mexico. These immigrants frequented fast food restaurants in the U.S. where fast food is ubiquitous and convenient.

Other researchers have further argued that Mexican women immigrants are more likely to be stymied in dead-end jobs with little power, respect, and control over work schedules (Allensworth, 1997) and thus have less time to spend on food preparation (Sliwa et al., 2015). Latino migrant farmworkers also struggle with lack of meal preparation time, distant food stores, and limited skills to prepare healthy meals with food available in their community in the U.S. (Kilanowski, 2010). Their work requires early arrival in the morning to harvest crops by hand to prevent damage to produce and extend its store shelf life. The migrant farmworkers would return home late at night and hurriedly cook meals for their family members (Kilanowski, 2010).

Mexican immigrants face a myriad of stressors and challenges related to their new life in the U.S. These include their immigration status, discrimination, high cost of living, unstable and physically demanding employment, hurried daily schedules, the need to maintain family and other social relationships, and adjustment to the food available in the U.S. Their immigration status can bring anxiety because it can restrict their involvement in the new society and incite discrimination from local residents who may treat them as outsiders (Cartwright, 2011; Chavez, 2012; O'Connor et al., 2015). The cost of living is also much higher in the U.S., and Mexican immigrants worry about paying the bills, expensive health care, and the lack of an emergency

fund (Scholomann et al., 2012). They also find building social connections to be a challenge because they are usually either at home or work and have few opportunities to develop friendships and solidarity with other members of their new community (Barrington et al., 2012; Scholomann et al., 2012). The demands on their time from jobs and child-rearing reduce time and energy available for meal preparation. All of these stressors and challenges interact to affect the diet, health, and leisure of Mexican immigrants.

While abundant prior research has established an association between immigration and acquisition of chronic health problems (Flynn et al., 2014; E. Hall & Cuellar, 2016; Lindberg & Stevens, 2011), there is not a clear understanding of the mechanism through which immigrants develop their health issues. Many previous studies on dietary acculturation have suggested that immigrants acclimate to the high-fat and calorically dense meals, snacks, and beverages ubiquitous in the U.S. without delving deeper into the underlying motives for adopting such poor diets (Batis et al., 2011; Colby et al., 2009; Delavari et al., 2013). This study sheds light on the underpinnings of food practices and dietary patterns among Mexican immigrants in the U.S. I examine whether and to what extent immigrants' cultural beliefs and values, social context, food environment, and new lifestyle contribute to the food practices and dietary patterns in the U.S., subsequently leading to detrimental health outcomes, and what roles leisure plays in this process.

3.4 Methods

Study Participants

This qualitative study, grounded in the interpretivist paradigm (Goulding, 1998) involved in-depth, individual interviews with first-generation Mexicans residing in three cities in Illinois (Chicago, Champaign, and Rantoul). The first participants were recruited via key informants and

colleagues. I recruited additional participants from a multicultural community center, a refugee center, and through snowball sampling by which existent participants referred me to their network of acquaintances to draw from. Individuals of Mexican descent who had moved from Mexico to the U.S. as adults were recruited for this study. There were altogether 23 participants: 19 women and 4 men ranging from 22 to 71 years of age. They emigrated to the U.S. as adults, and each of them was responsible for decisions regarding food and diet at home before emigration. The participants held a variety of occupations in the U.S., including restaurant workers, stay-at-home mothers, daycare workers, teachers, sales associates, and factory workers. Each participant was given a document that explained how their information will be kept confidential and a \$25 gift card from Walmart or Target as monetary compensation. Pseudonyms were used in place of the participants' names to protect their identity.

Data Collection

The interviews followed a semi-structured format by which the main questions were the same, with the exception of further probes employed to evoke responses that were more elaborate and comprehensive. The main questions in the interviews were based on the components of Satia's (2010) model of dietary acculturation, which is a representation of the interaction of socioeconomic, demographic, and cultural factors with the exposure to host culture resulting in changes in psychosocial factors, taste preferences, food procurement, and food preparation. The initial set of interview questions had been reviewed by two researchers: Julie Reeder (Senior Research Analyst, Oregon Health Authority, WIC Program) and Lauren Haldeman (Professor, University of North Carolina-Greensboro). Dr. Reeder and Dr. Haldeman have expertise in research in nutrition, dietetics, and minority populations in the U.S. Examples

of the questions used in the final interview script included, “What was the biggest change, if any, in the foods you ate when you first came to the U.S?” “In general, how do you choose the foods that you buy at the store?” “Do you have any specific beliefs about food and diet?”

Eight interviews were conducted in English and 15 in Spanish. The interviews were 35 to 75 minutes in duration. The English version of the interview questions was translated to Spanish by a professional translator from the university’s Center for Translation Studies. To ensure that the Spanish and English versions conveyed the same item content, an educator fluent in both languages and strongly familiar with both American and Mexican cultures verified the Spanish translation. The authors of the study interviewed participants who were fluent in English. The Spanish-language interviews were conducted by a third interviewer who was a trained research assistant fluent in both languages. The interviews were conducted at the homes of the participants, cafes, and a community center serving the local immigrant population. They were audio-recorded and subsequently transcribed. The transcripts of the Spanish interviews were translated into English, and the translations were verified by two persons fluent in Spanish and English.

Data Analysis

In the constant comparative method, abstract concepts and theories are generated successively “through inductive processes of comparing data with data, data with category, category with category, and category with concept” (Charmaz, 2014, p. 187). For each individual interview transcript, quotations and occurrences are compared. Quotations and occurrences are then compared across multiple interview transcripts. Charmaz (2014, p. 43) described the categorization of segments of data as coding, by which individual pieces of data

are summarized and accounted for. I began the process of understanding the data in the interviews by making comparisons through qualitative coding. Coding makes the vital connection between the “collected data and developing and emergent theory to explain these data” (Charmaz, 2014, p. 46). Three stages of coding were used in this study: initial coding, focused coding, and theoretical coding.

The first stage of coding is initial coding, during which each piece of data is assigned a precise and simple name (i.e., code). During the initial coding, I paid attention to emerging ideas or concepts to expound for further analysis. Initial coding is the commencing procedure by which I established the main conceptual categories of emerging theories. I was cognizant and open to any theme or idea stemming from the data. For each interview transcript, I coded incident by incident and compared incident by incident. Afterwards, I compared incidents from several different interview transcripts.

The second stage of coding is focused coding, during which the data from the interview transcripts are organized and categorized by the most prevalent and prominent initial codes. I selected the initial codes that made the most analytic sense for the clearest and most complete organization and categorization of the data (Charmaz, 2014, p. 57). The newly created focused codes are compared against the pieces of data and further evaluated for adequacy and refined. This coding process and the comparisons made between focused codes and data segments (i.e., incidents) may be concurrent with the emergence of new ideas and concepts.

During the third stage, theoretical coding, I produced the next level of codes by organizing the focused codes by how they are related to each other to create a coherent story that can provide explanations to the possible relationships among the categories that were developed from focused coding (Charmaz, 2014, p. 63). Theoretical codes may have overlapping

categories, and researchers may draw from several codes for analysis. Theoretical coding can offer coherence and clarity to the analysis provided that the researcher does not use the coding to impose a forced framework onto the analysis (Charmaz, 2014, p. 66).

Several techniques were carried out in order to strengthen the trustworthiness of the study. Trustworthiness is the degree by which research findings are credible and worthy of attention (Baxter & Eyles, 1997). Determining whether an interpretation of data based on interviews is credible, worthy of attention, and truthful is a perpetual issue in qualitative research. Lincoln and Guba (1986) tackled this problem by utilizing four criteria for trustworthiness: credibility, transferability, dependability, and confirmability. These criteria have the purpose of addressing the aspects of truth value, applicability, consistency, and neutrality of research findings (Lincoln & Guba, 1986). Approaches to strengthen the criterion of credibility include prolonged engagement (with study populations), persistent observation of characteristics of the study population, and peer debriefing (obtaining the assistance of disinterested researchers) (Lincoln & Guba, 1986). To strengthen transferability, the findings should be based on thick descriptive data in order for other researchers to be able to apply these findings in future studies.

To maximize the probability of credibility and transferability, the participants of the study were probed intensively during the interviews to elicit as thick and descriptive a narrative as possible with thorough explanations and clarifications of the participants' responses. Two individuals who were familiar with both Mexican and American cultures and fluent in both Spanish and English cross-checked the interview script and data (i.e., triangulation). To strengthen confirmability, findings were meticulously organized with their corresponding interview quotations, interpretations, demographic information, and notes about the interviews.

3.5 Results

The results of the study helped me identify a number of factors that affect food practices and dietary patterns among Mexican immigrants residing in Midwestern U.S. They included (1) elements of the new environment, (2) cultural beliefs regarding food and diet, (3) psychological factors and taste preferences, and (4) changes in lifestyles and day-to-day schedules.

Elements of the New Environment

The findings suggested that elements of the new environment, such as affordability of food, geographic accessibility of stores, perceptions of food access in the host country, the selection of fresh food, and the location where one eats affected interviewees' food purchasing behaviors, preparation methods, and consumption patterns. The affordability of food refers to the prices of food items and ingredients that the participants were interested in purchasing. Many interviewees sought low-cost foods and regularly looked for savings, deals, and coupons at grocery stores. One interviewee, Flora (age 46, homemaker), stated,

It's a routine... the lime, pepper, tomato... I buy it almost every week; I simply just look into who will sell it to me at the cheapest price....My husband sometimes says that the dollar I save, I waste it in gas.

Several of the participants lived in smaller towns with few supermarkets and even fewer, if any, Hispanic food stores, rendering the geographic accessibility of stores essential for food procurement. The location and distance of food markets from one's home affected not only the food items they purchased, but also the frequency of grocery shopping and the perceptions of food access. While in Mexico, many interviewees were able to purchase food from vendors within walking distance from their homes. After moving to the U.S., most of the participants

drove and purchased their groceries from Walmart or Meijer, which were located in their towns. Some also drove to Hispanic food stores usually located farther away or in a different part of town. The foods sold in Hispanic stores were perceived as superior in taste and freshness to those available in major grocery stores, but were also considered more expensive and less available, particularly for the interviewees who lived in smaller towns. For example, Martin (age 46, cook) went grocery shopping only once a month and reported, “I take the bus [to Walmart]. When I do not have bus because [it] is not available, I take a friend [who drives me].” He further explained that there were very few Mexican products at the local Walmart in his town and that the Mexican products at Hispanic stores were expensive. Consequently, he said, “Always...I am always eating out. I rarely buy [groceries].” The need to drive or take public transportation to complete grocery shopping during disparate weather throughout the year had affected immigrants’ perceptions of the degree of convenience, effort, and cost needed for food shopping.

As the interviewees (including those who had lived in rural areas, small towns, and large metropolitan centers in Mexico) reported that they were accustomed to eating fresh foods in Mexico, the selection of fresh food was key in creating (or re-creating) satisfying meals in the U.S. As Ella (age 43, maintenance worker) explained,

I’m trying to find a cheaper [store] like Aldi and Ruler Food. Because food is getting so expensive now. And Aldi I think is a good store for vegetables. I like to buy there because their vegetables—they’re selling a lot and I think that they’re putting more fresh vegetables.

In addition, the location of where one eats affected food consumption as many interviewees looked for quick meals on the go and often ate meals in the workplace. Purchasing and consuming fast food from take-out restaurants were often perceived as more convenient,

easier, and cheaper than preparing meals at home. For example, Barbara (age 22, homemaker) revealed, “Definitely I don’t cook as much as I used to [in Mexico] just because there’s fast food availability. They’re closer here. There’s more of it.” With fast food restaurants widely available and relatively low in cost in the U.S., a significant portion of meal preparation and grocery shopping has been replaced by the purchase of fast food meals. While some of the interviewees who had originated from large urban centers in Mexico mentioned eating out at fast food restaurants in their home country, they considered such outings as a “treat” and a leisure activity and not as a “necessity,” as in the U.S.

Some interviewees mentioned dining out for leisure in the U.S., mainly in local Mexican, American, Chinese, and Italian restaurants. Their views on Mexican restaurants in their area were divided. For some, eating out at Mexican restaurants was an important part of their family leisure, and they frequented such establishments mainly on Sundays. Discussing going to Mexican restaurants, Diana (age 53, teacher) said, “It’s what I like the most... Sometimes we go to different restaurants and we try them out, and each one is very different to what you cook, and we go to the one where we like its seasoning of the food.” Rosa (age 35, homemaker), however, revealed that, “From Monday through Saturday I cook Mexican food so on Sunday no one wants Mexican food. We usually vote, almost always Chinese food wins, or we go to an Italian restaurant.” She and several other interviewees explicitly stated that they never ate out at Mexican restaurants either because the food there was “inauthentic,” their daily diet consisted of Mexican food and they wanted to try out a different cuisine during their leisure engagements, or they worked in Mexican restaurants and thus they associated them with work and not leisure.

Cultural Beliefs Regarding Food and Diet

Cultural beliefs regarding food and diet included what foods are considered nutritious and healthy, and what kinds of food to eat during illness, pregnancy, or certain holidays. As will be discussed more in-depth in the next section, many interviewees equated fresh, “natural” food with healthfulness and authenticity. When Angela (age 41, homemaker) was pregnant, she was told by her family what foods to avoid during pregnancy:

When you become pregnant, you cannot eat certain foods that people like—chiles, meat, and greasy foods. I love spicy food—chiles. I ate chiles here all the time even when I was pregnant, but I wasn’t allowed to in Mexico. Just some beliefs because...of my family.

It is interesting to note that lack of family “supervision” in the U.S. related to the fact that her parents, in-laws, and extended family members remained in Mexico, allowed Angela to circumvent this cultural belief and eat her favorite foods (e.g., chiles) while she was pregnant. Similarly, other participants believed in avoiding spicy foods to prevent getting sick and consuming soup during illness. As Gabriela (age 64, refugee counselor) said, “It could be carrot [soup]; it could be beans; it could be broccoli; it could be potato soup.”

Several of the interviewees alluded to their belief that traditionally-prepared Mexican food conjured affection and hospitality. They would hence cook traditional meals for social events and holidays, such as *tamales*, *pozole* (meat stew with hominy), and *chiles en nogada* (a Mexican dish that has the colors of the Mexican flag), where such meals would create camaraderie or nostalgia. For Saturday social events, Angela would host a grill cookout, serving “grilled chicken, *carnitas*, roast beef.” The meals that were prepared for special occasions were mainly either dishes that included meat, colorful vegetables, cheese, and seasonings, or sweet

and decadent desserts. Throughout the interviews, the participants emphasized the importance of preparing foods with the “correct” flavors.

Eating traditional foods likely took on a new meaning among Mexican immigrants in the U.S. who began to equate them with the nostalgic feeling of “home” and warm memories of past events spent in the company of family members and friends. For instance, Rosa described, “[*Pozole*] reminds me of my land... Let’s say it is to compensate for the distance of not being close to our home country. [It makes me remember] that I’m with my family.” Paula (age 43, saleswoman), who had arrived in the U.S. at the age of 23, emphatically discussed the authenticity of the favorite restaurant in her town:

There is a really good restaurant - Maize. Have you been there? *I like it because it’s technically Mexico* [emphasis added]. They make really really fresh, and when I say “fresh,” I mean totally fresh. You can feel it. You can taste it. That is the only restaurant in the whole [town] that they still make it step by step, they make it the same way. Because over here, Taco Bell is Mexican. But it’s not Mexican! It’s not!

For Paula, eating out in this “authentic” Mexican restaurant helped to maintain a connection to her culture and former way of life.

Psychosocial Factors and Taste Preferences

Food flavors were also a priority with regards to psychosocial factors, which refer to diet- and disease-related knowledge and values ascribed to eating patterns (Satia-Abouta et al., 2002). A theme that cut across most interviews was that despite their various places of origin in Mexico (e.g., Gurrero, Michoacán, Puebla), many participants showed a strong preference for and emphasized the importance of eating fresh fruits, vegetables, and meats, as well as their

expectations of the foods' flavors based on their experiences from Mexico. Paula, for example, said that while living in the U.S. she ate: "...fresh fruits every three hours. Eating the right way and healthy." Freshness and "naturalness," however, were the characteristics that were missing from the foods they were able to purchase in most stores in the U.S. Teresa (age 23, custodian) complained, "There are no freshly made tortillas in the U.S. Here they sell packaged tortillas, which are very different. They are packaged in a bag and are refrigerated, and the bag doesn't even really have a logo on it." Flora added, "You can tell with the fruits you buy... you can tell that it is no longer the original food, you can see the changes... like in the fruits... I would still like to eat food that is the original fruit and has not been altered."

All the interviewed immigrants, regardless of their age or socioeconomic status, believed that eating healthy was very important and demonstrated some level of understanding of which foods are healthy and unhealthy. Fruits, vegetables, and grains were considered healthy and fast foods, fried foods, and processed foods were deemed unhealthy. As Rosa stated, "I try to avoid eating pork, it's harmful. It's not as natural as in Mexico." Another interviewee, Ella, believed that, "Here [in the U.S.] is where I have learned how to pick foods that are more nutritious, and healthy. Over there [in Mexico] I would not think about that. I thought in Mexico everything was healthy." Flora revealed her thoughts on what foods should be avoided: "I try to avoid processed food, canned food, food that has too much pesticide."

The interviewees were also asked about their favorite foods in Mexico and how they changed after coming to the U.S. Many of the participants shared a preference for the same foods (e.g., *mole*, *enchiladas*, *pozole*) while others were more popular among the interviewees from specific places of origin in Mexico (e.g., *chiles rellenos* among the immigrants from

Puebla). Teresa, who is from the Mexican state of Tamaulipas, described that her favorite dishes were mostly corn-based or made with tortillas:

[I like] everything—*gorditas* [a small cake made with masa and stuffed with cheese, meat or other fillings], *tostadas* [a flat or bowl-shaped tortilla that is deep fried or toasted], tortillas, tacos, *flautas* [rolled up tortillas with filling]. Anything made from corn and [that] has to do with tortillas.

Teresa also expressed that her preferences for specific tastes and flavors were those that she had been accustomed to in Mexico. Since she was unable to purchase most of the ready-made Mexican foods in the U.S., she tried to recreate them in her cooking:

There are great differences in the foods and flavors between Mexico and the U.S. In Mexico there are street vendors that sell foods that I like, such as *chicharrones* [fried pork rinds]. In the U.S., if there is something specific Mexican that I want, then I need to cook it myself.

Similar to Teresa, many other interviewees tried to prepare their favorite Mexican meals, but were compelled to create new recipes or learn to cook new dishes based on the availability of specific ingredients in the U.S. Flora reported,

Now [in the U.S.] you put what you are able to find here. So, it's not going to taste the same because it is missing ingredients. But you are trying to eat let's say a *pozole*... [In Mexico] you can buy the grain, but now you can find [it] in a can, but you are eating a *pozole*, even if it comes in a can.

Alternatively, Flora prepared some Mexican meat dishes with American marinades:

It's still Mexican, but we put some American condiments, like Lawry's beer. In Mexico, I did not use that. I would use a rock grinder and pepper, with garlic, and I would mix it with the meat and here you add Lawry's, a beer... [*Laughter.*] This is an American way. While most interviewees struggled with recreating the traditional tastes, Flora described that she was able to find more and better ingredients in the U.S. to make her favorite food (pasta):

I have learned some ways here. But I try for it to be the original recipe. For example, the pastas. I had less ingredients over there of what is really a pasta, an Italian pasta. I learned how to make it better here. I found the ingredients that over there wouldn't sell.

Sometimes, I have mixed some ingredients to make salsas with things they buy here. As many interviewees were dissatisfied with the flavors and ingredients within their local area, they looked for new kinds of food, new ingredients, and new ways of food preparation, which, for some, became part of their new leisure experiences. For others, however, preparing meals that were both satisfying and nutritious became a daily challenge.

Changes in Lifestyle and Day-to-Day Schedules

Interviewees reported eating more processed foods, fast foods, and take-out foods due to lifestyle changes and time constraints in the U.S. Changes in lifestyle and day-to-day schedules included planning food consumption times around their work schedules and the hours that stores were open. After immigration, food preparation and food consumption appeared to lose their leisure-like qualities and became perceived more as chores, subsistence, and sporadic and unstructured activities. Paula, who had arrived from Mexico as a college student, described her first few years in the U.S., during which she lacked time to cook.

When we came over here, I won't have any time, so I would stop at McDonald's, and I would get it, so you can see now... We gain pounds right away because it's easy.

Because I was in college, I was working, I wasn't in the gym... That's why I started eating like that [a lot of fast foods].

Gabriela, who was a homemaker in Mexico, described how the size and quality of each meal had changed after coming to the U.S. She missed her hearty meals for breakfast and lunch that she used to consume in Mexico:

I used to eat my breakfast, orange juice... But real orange juice [freshly squeezed]. These are the things that I will miss that I didn't have time to do it. I had to work, we had to... it was different. The hours—our main meal was at six, seven o'clock when before it used to be at two o'clock. In Mexico, the main meal is at two, not at six. It changed! But the schedule of the [meals]—that was the big [thing].

Interviewees who had children also reported hectic and conflicting schedules due to their children's school and extracurricular activities. For instance, Gabriela discussed the difficulty in managing her daily activities around her children's and husband's schedules in addition to not having extended family members in the U.S.

You have two children. You work. Your husband works. You came from Mexico. You don't have family here. You don't have help, so I arrive at, I don't know, at five o'clock. My children have to go to dance class, whatever. You don't—they don't cook every day... and people don't have the time... or the energy.

Martin, a cook with two adolescent children, was disheartened that his family no longer ate dinner together on a regular basis. He reported, "My family does not eat together because everyone works, and everyone has a different work schedule; for that reason, we no longer have

family meals regularly.” While several other interviewees made conscious efforts to eat meals at home with their family members despite time constraints, the lack of regular family mealtimes embodied a great loss of the opportunity for families to engage in close social interactions and bond together as a unit. It also indicated a loss in a daily leisure activity (i.e., family bonding over a meal) that is deeply rooted in Mexican culture.

3.6 Discussion

The findings of this study are consistent with the past research that found that immigrants may prepare foods of their culture in both traditional and new ways, exclude other foods of their culture that may be unavailable in the host country’s environment, and consume new foods they became familiar with after arrival to their new country (Ayala, Rogers, et al., 2008; Gilbert & Khokhar, 2008; Kim et al., 2007). The study offered insights into factors that may facilitate or hinder changes in healthy food practices and dietary patterns, such as the changes in attitudes and norms about diet, lifestyle modifications that affect meal schedules, nutritional quality of foods eaten in the host country, and dietary customs either preserved from Mexico or acquired in the U.S. It further provided novel insights into the literature on leisure behaviors among immigrant populations and, in particular, on leisure of immigrants, by examining their dietary patterns and activities related to food preparation and consumption (cooking as leisure, eating out, social interactions during meals) absent in the previous literature (Stodolska & Floyd, 2016). The examination of food practices related to leisure among an understudied population—first-generation immigrants to the U.S.—is a novel contribution to the developing literature on food and leisure that has thus far concentrated on the Slow Food Movement, cooking as a leisure

activity, farmers markets and community gardens, and eating out and food tourism (e.g., Amsden & McEntee, 2011; Farmer, 2012).

Based on the conceptual framework of social determinants of health, the present study demonstrated that elements of the new environment, cultural beliefs regarding food and diet, psychosocial factors and taste preferences, and changes in lifestyle and day-to-day schedules contribute to the dietary patterns and food practices of Mexican immigrants in the U.S. Our findings that different aspects of the food environment impact food procurement, food preparation, and food consumption, support past studies that investigated the relationship between the food environment and food practices (Franzen & Smith, 2009; Guarnaccia et al., 2012; Rodriguez et al., 2016). Many of our interviewees detailed the aspects of the physical environment, such as the availability of foods (especially lack of availability of fresh fruits and vegetables), the easy and close access to fast food restaurants, and the characteristics of their local supermarkets that affected their food behavior and dietary patterns in the U.S. Patronizing at fast food places and Chinese and other ethnic restaurants became regular outings as they were so common in their physical environment in the U.S. The interviewees also mentioned the economic environment when they discussed the cost of food and ingredients as direct contributors to their decisions in food purchasing. These findings related to the effects of various elements of the food environment on people's food practices and dietary patterns are consistent with the existing research on the association between the environment and food-related health behaviors (Delavari et al., 2014; Swinburn et al., 1999).

While our findings illustrated that psychosocial factors and taste preferences were influential in shaping the food practices and dietary patterns among Mexican immigrants, the interviewees were limited by the availability of specific foods and ingredients that they desired.

The participants had preferences for specific foods, flavors, and tastes. These included corn-based dishes, spicy flavors, and the “taste” of freshness. They generally believed that fresh food was nutritious as well as authentic and high-quality. Foods that had been packaged and frozen for months were considered lower quality, less desirable, and less palatable. The interviewees expressed their dismay and dissatisfaction with the flavors of food and ingredients that they purchased in the U.S. as they did not align with the flavors they had enjoyed in Mexico. This largely contributed to the alteration of traditional recipes and creation of new recipes based on locally available food that they deemed palatable. While few studies have directly investigated specific taste preferences among Mexican immigrants in the U.S., researchers have commented on the Mexican population’s tolerance and preference for capsaicin (the spicy component) in chili peppers (Pilcher, 2014). They also noted the priority of seeking out fresh food among Latina women (Fish et al., 2015), the festive connotations inherent in each dish in Mexican culture (Vázquez-Medina & Medina, 2016), and the strong appreciation of home-cooked meals prepared from scratch among Latinos (Gray et al., 2005).

The interviewees’ descriptions of their changes in lifestyles and day-to-day schedules are well supported by prior research on immigrants and their food practices. Similar to past studies (e.g., Schlomann et al., 2012; Sliwa et al., 2015; Tiedje et al., 2014; Tovar et al., 2013; Turner et al., 2014), many of our interviewees highlighted the challenges they had faced, including time constraints, hectic schedules that conflicted with those of their children and spouses, increased consumption of convenience foods, and reduced frequency of family mealtimes. Several of them also emphasized that the intentional need to consider the nutritional value and freshness of the foods and ingredients during grocery shopping added to their regular tasks, busyness, and stress. This is compelling because of its stark contrast to the leisure characteristics of gardening fruits

and vegetables, food shopping at outdoor markets in Mexico, and occasional visits to ethnic (e.g., Chinese, Italian) and fast food restaurants.

The findings from the interviews offered a glimpse into the complex relationship between food and leisure among immigrants. Food, while necessary for human survival, is also integral to a wide array of social events and other leisure activities. The immigrants from the study used to look forward to meals made from fresh ingredients during family meals, gatherings with loved ones on days off, or outside at a picnic or outdoor market. The notion of food with regards to leisure for the immigrants has changed in the U.S., where food is viewed more as subsistence than a central part of a leisure activity. Food consumption has become a perpetual negotiation process by which one needs to continually weigh the pros and cons of various aspects of their food intake, such as nutritional value, cost, effort required for food preparation, expectation of flavors, social setting, and social expectations. The leisure aspect of food consumption has diminished for the immigrants. The frequency of leisure participation among many of the interviewees of the study has also seemingly diminished as engagement in leisure activities appear to oblige individuals to plan ahead and organize their (and their family members') schedules. Leisure engagements have become less spontaneous, more deliberate, and restricted to a specific time frame. As innumerable pastimes revolve around food, the reduced frequency of leisure engagement may lead to sporadic meal consumption requiring little thought and time and devoid of conviviality. The type of leisure activities that remain in the lives of the Mexican interviewees of the study further dictate food choices, portions consumed, and nutritional value of foods consumed. For instance, those who enjoy eating at restaurants as their regular social activity would have very different food intake from those who attend potlucks or picnics on their leisurely weekends.

With regards to the changes in food practices and dietary patterns that the participants described, they appear to be more of a nutrition transition that was forced upon them in a new country than dietary acculturation by their own choice or free will. Acculturation is neither a unidirectional progression (immigrants adopting the host country's culture, but not the converse) nor a smooth, continual occurrence that individuals eagerly embrace. The relationship between food and migration is complex with many immigrants initially trying to make their knowledge of food preparation skills and repertoire of recipe "work" with the food ingredients available and accessible in their new environment. Migration has obliged the immigrants to become more cognizant and aware of their food choices and overall health. It is hence important not to pin cultural processes or dietary acculturation as the predominant reason for any changes in the immigrants' food and diet.

The stress that accompanies the process of migration may have contributed to the development of chronic health conditions (along with the nutrition transition), leading to fatigue, anxiety, less frequent leisure participation, and more visits to the doctor. This stress may be associated with acclimating to living in not only an unfamiliar environment, but a racialized environment, adapting to both a new lifestyle that may seem foreign and the stigma of being perceived as foreigners, and the expectations of seizing economic opportunities in the U.S amid possible discrimination and structural obstacles that immigrants may face. With weight gain and other changes in health status, the interviewees in the study reported the need to revise their diet, and by extension, leisure activities. Examples include taking cooking classes for leisure instead of eating at restaurants, and parents trying to make healthy eating and consuming healthy portion sizes a fun and rewarding challenge with their children.

The interviews broached the need to convey the feeling of leisure back to food preparation and food consumption for the Mexican immigrants. This becomes especially important when immigrants have a low skill level in cooking with ingredients available in the local community in the U.S. When cooking feels like a chore, then people become more dependent on convenience foods, some of which are highly processed and high in fat, sugar, and salt (Stitt et al., 1996). Past research has shown that some Latinos are open to obtaining fresh fruits and vegetables from farmers markets and community gardens, but lack access to green space, adequate time, or transportation to these alternative sources of produce (Fish et al., 2015). Moreover, farmers markets and community gardens may not have locations and hours of operation that would accommodate the hectic schedules of Latino families. The Mexican immigrants our study had not mentioned any farmers markets or community gardens as sources of their produce, which may indicate their lack of awareness of such vendors in their local community.

The findings from the interviews also pose the need for planning and organization for leisure activities, including mealtimes. Food consumption as a commensal activity appears to be problematic to a family's daily schedule as it necessitates a set locale (family home dining area), a specific time, the presence of specific family members, and the task of meal preparation. Food restrictions that arise with health conditions also complicate the family mealtime. A mealtime is a social pastime that individuals look forward to for companionship along with food. Both leisure and non-leisure activities, such as exercising, grocery shopping, transporting children, patronizing in recreational facilities, running errands, and meeting friends all require intricate and often stress-inducing planning and organization (Thompson, 1996; Warde, 1999). When individuals are juggling their various tasks while attempting ideal personal schedules, setting

aside time for a planned mealtime becomes a great challenge. In fact, the Mexican immigrants of this study had to make a number of complicated negotiations and adaptations, such as the adaptation to living in a country with a complicated social and racial hierarchy, and the negotiation of a less than ideal food environment in trying to make healthy food choices and consuming traditional Mexican dishes. They also had to negotiate of the advantages and disadvantages of a variety of aspects related to food (e.g., nutrition, food preparation time, satisfying meals for every member of a family, family expectations). Such challenges appear to have contributed to the dwindling of leisure activity participation and altered the meaning of leisure related to food consumption among the Mexican immigrants.

The findings of the study would also be useful for recreation and public health practitioners who can utilize this information to assess characteristics of the built environment (e.g., availability, accessibility, and transportation feasibility of food vendors and recreational areas). They further allow for the formulation of specific recommendations for practice in the field of recreation and leisure. As the participants of the study expressed a specific loyalty to the flavors of traditional Mexican cuisine, it is recommended that recreation centers provide cooking classes on preparing healthy traditional meals with locally available ingredients, and consequently, make cooking more enjoyable and less laborious. Cooking can be a challenge when they are only familiar with food preparation methods traditional in their native country, or when there is limited local availability of food from their native country. Such classes should be taught by culturally sensitive dietitians and public health practitioners from whom Mexican immigrants would trust and seek help. Dietitians and public health practitioners should also offer information on how to cook low-cost healthy meals that can be quickly prepared using traditional ingredients. They can help Mexican immigrants make food preparation in the U.S. a

more leisurely experience. Furthermore, practitioners should collaborate with researchers who are involved with local coalitions or community- or city-based programs to boost procurement of healthy foods and leisure activity opportunities. They should learn about the local challenges and issues facing members of the community and become liaisons for Mexican Americans. This would allow practitioners to foster a connection with Mexican Americans in order to gain trust and a deeper understanding of their food and leisure behaviors. Researchers and practitioners can work together to develop training materials for cooking classes and lessons and then make them easily accessible.

There were several limitations to this study that need to be acknowledged. During the interviews, the participants were not asked about their weight and health status before arriving in the U.S. While several participants reported weight gain and the development of chronic conditions while living in the U.S., their diet and lifestyle in Mexico, along with their new diet and lifestyle in the U.S., may have contributed to these health issues. This is important to note because over the last 30 years, the prevalence of obesity among adults in Mexico has increased over threefold throughout all socioeconomic groups, at 32%, 37%, and 24% for the overall adult population, female population, and male population, respectively (World Health Organization, 2015). Obesity-related mortality is higher in Mexico than the U.S. In the last several decades, Mexico has undergone a rapid “nutrition transition” with processed and high-fat foods becoming widely available (Popkin, 2004). This nutrition transition particularly affected women and people living in urban areas (Astrup et al., 2008; Pérez-Ferrer et al., 2018). The spread of urbanization has contributed to the demand and availability of calorically-dense fast food in Mexico and resulting changes in health and weight status (Pérez-Ferrer et al., 2018; Popkin, 2009).

Similarly, it was not possible in our study to extricate all the demographic variables, such as SES, to determine the degree to which the participants' dietary patterns, food practices, and leisure participation in the U.S. contribute to their health issues. Such health issues may be related to SES in addition to current diet and lifestyle. In the U.S., the prevalence of obesity among Latinos is highest for women of the low-income group, women whose education level was high school graduate or less, men in the middle-income group, and men whose education level was high school graduate or less (Ogden et al., 2017). In Mexico the population in the lowest SES tertile as well as those who live in rural areas have been found to consume an overabundant intake of carbohydrates and fats (Barquera et al., 2009). In fact, almost half of women of low socioeconomic status in Mexico were obese in 2016 (Pérez-Ferrer et al., 2018). One study (Riosmena et al., 2013) found that the risk for individuals to become overweight or obese increases in communities with a high rate of international migration (i.e., frequent circulation of people between Mexico and the U.S.), which may accelerate the nutrition transition as a result of lifestyle and dietary alterations acquired from living in the U.S.

Another limitation of the study was that the interviewees were predominantly female. While women are more likely than men to perform meal preparation and food shopping tasks, I felt that it was important to have a comprehensive perspective of food practices and dietary patterns among Mexican immigrants in the U.S. Additionally, some of the interview questions stressed the health aspects of food practices and dietary patterns, which may have steered the interviewees' responses towards elaborating on the diet and health issues that they were trying to rectify. For example, none of the interviewees talked about cooking with unhealthy or high-fat ingredients common in Mexico, such as lard, cheese, and large meat portions, in order to maintain the authenticity of their dishes. They primarily discussed their desire for foods that

were fresh because they believed that fresh foods were tastier, higher in quality, and healthier. Furthermore, as the participants only consisted of Mexican immigrants in specific parts of the Midwestern U.S., Mexican-origin populations in other sections of the U.S. may have different experiences as it relates to their food preferences and dietary patterns. Finally, the wide variety of behaviors and motivations involved in food consumption among Mexican immigrants were not all addressed.

Based on the findings of the study and the existing literature, I suggest that it is important for future research to explore and pinpoint the mechanisms by which the factors impacting food and dietary practices lead to unhealthy food consumption among Mexican immigrants. Addressing them is key in the prevention of chronic conditions and obesity among this population. More focus in leisure research on diet and nutrition as critical components of public health is necessary. Such studies should examine how food and dietary behaviors, as a leisure activity, can help to reverse the obesity epidemic and improve the health of American population. For instance, future research should examine changes in family meal patterns, the effect of involvement in leisure and sport programs on the foods that are consumed and where meals are obtained, and the role of leisure in developing healthy food habits. Furthermore, more leisure research is needed on food-related behaviors among minorities, including Mexican immigrants. These include the growing and purchasing food (e.g., community gardens, farmers markets), food preparation as leisure, family meals as leisure, food as a center of traditional cultural celebrations, and eating out as leisure.

CHAPTER 4: DEVELOPMENT OF A QUESTIONNAIRE TO ASSESS MEXICAN IMMIGRANTS' FOOD PRACTICES, DIETARY PATTERNS, AND FOOD-CENTERED LEISURE ACTIVITIES

4.1 Introduction

The increasing worldwide prevalence of chronic disease and obesity can be greatly ascribed to nutrition transition, evolving lifestyles, and expeditious globalization (Popkin, 2004, 2009; World Health Organization, 2018). Immigrants, for example, are likely to undergo an upheaval of their diet, lifestyle, and family and work schedules when they move to a new country. In order to comprehensively and directly tackle the effects of the built environment as well as individual health and leisure behaviors on food patterns and dietary patterns, an instrument was devised to quantitatively assess several of these factors specifically for Mexican immigrants in the midwestern U.S.

The findings of my prior studies (Phan & Stodolska, 2019a, 2019b), provided important insights into the Mexican immigrants' perceptions and behaviors regarding their food and leisure environments. These perceptions and behaviors investigated in our previous work included their opinions (e.g., fruits, vegetables, and meats are not fresh in their neighborhood supermarkets), reports (e.g., preferred ingredients used in regular meal preparation are not locally available), compromises (e.g., ease of purchasing fast food when under time constraints), and frustrations (e.g., food preparation and even food consumption have become chores). These perceptions and behaviors are important for the understanding of the relationship between immigrants' new lifestyles and environments in the Midwestern U.S. and their participation in leisure activities, particularly those that are centered around meals and food.

The main objective of this study is to develop an instrument to directly evaluate the encompassing effects of the built environment as well as leisure behaviors on food practices and dietary patterns among Mexican immigrants in the Midwestern U.S. The novelty of this instrument lies in its capacity to assess an individual's food environment, mealtimes, and food-related leisure activities, which would then provide insight into one's likelihood to consume more nutritious meals and participate in more health-promoting pastimes. Such a tool will contribute to the measurement of the accessibility and availability of healthy, satisfying, and palatable foods and ingredients, and the conduciveness of the environment to the engagement in food-centered leisure activities. Thus, this tool can enhance our knowledge of the interrelatedness of the elements of the new environment, new lifestyle and daily schedules, cultural beliefs on food and diet, and psychosocial factors and taste preferences, with the cumulative effect on dietary patterns, food practices, and food-related leisure behaviors among Mexican immigrants in the U.S.

This questionnaire will gather a specific population's self-reports to provide insights on the complex interconnections between individual behaviors and elements of the environment (i.e., home, workplace/school, community) that affect the diet and recreational activities among Mexican immigrants. Additionally, this questionnaire will be a useful tool in the identification of constraints to the consumption of healthier meals within the food environment and options for changes that can be implemented to the food environment to promote more nutritious food consumption and more frequent engagement in leisure activities related to healthy foods. These constraints could include aspects of food vendors (e.g., supermarkets, supercenters, farmers markets), restaurants, and individuals' day-to-day meal habits. Ultimately, they can be addressed by communicating and initiating strategies and solutions with members of the population of

interest, owners and stakeholders, such as food vendors, local public health organizations, and directors of recreation centers and park districts. Obtaining a more thorough and nuanced understanding of Mexican immigrants' perceptions of their environments and food decision-making with such an instrument would be helpful in the creation of potentially fruitful interventions and recreational programs that would be conducive to healthy lifestyles among Mexican immigrants. In sum, the objectives of this study are to develop this questionnaire and to assess its validity and reliability in accordance with an expert review panel, face validity, internal consistency, and test-retest reliability.

4.2 Methods

The development of the questionnaire consisted of five steps: (1) literature review, (2) initial item generation, (3) tool analysis by experts, (4) translation of the questionnaire to Spanish, (5) cognitive interviews with individuals from the targeted population, and (6) administration of the revised questionnaire. In the first step, a literature search was performed to review previously validated questionnaires, surveys, and scales that evaluate food environments, immigrant food practices and food shopping, and leisure behaviors. Based on the findings from our prior studies and the previously validated instruments from the literature review, I devised items for the questionnaire in development. A draft of the questionnaire was sent to a panel of experts for analysis and input. The questionnaire was revised using the expert feedback and translated into Spanish. The English and Spanish versions of the questionnaire were each reviewed by a sample of Mexican immigrants who live in the Midwest during a set of cognitive interviews. These cognitive interviewees provided their critique and comments for the questionnaire, which then underwent further revisions. Finally, the latest drafts of the English

and Spanish versions of the questionnaire were each administered to another sample of Mexican immigrants living in the Midwest.

Literature review

Dietary assessment instruments that are presently being used for research include the most recent iteration of the Healthy Eating Index from 2015 (HEI-2015; National Cancer Institute, 2017), the Diet History Questionnaire (DHQ; National Institutes of Health, Applied Research Program, & National Cancer Institute, 2018), and the Automated Self-Administered 24-Hour Dietary Assessment Tool (ASA24; Subar et al., 2020). The Healthy Eating Index is an instrument that uses a scoring system to measure an individual's diet quality by evaluating how well his/her consumed foods align with key recommendations of the Dietary Guidelines for Americans (U.S. Department of Agriculture & U.S. Department of Health and Human Services, 2020). It is used by dietitians and health professionals to help those ages two and over to consume healthy and nutritious meals and is a useful way to assess the quality of an individual's overall diet. The Diet History Questionnaire is a food frequency questionnaire that is used by dietitians, researchers, educators, and health professionals to evaluate food and dietary supplement intakes. Its items ask for specific frequency of intake and portion sizes and consists of 124 food items. The most recent version is the DHQ III, which has 135 items about food and beverages and 26 items about dietary supplements. The Automated Self-administered 24-Hour Dietary Assessment Tool is a web-based instrument that can automatically code a respondent's 24-hour recall of his/her food record. On its website, the ASA24-2020, which is the latest version, guides respondents to report foods, beverages, and dietary supplements consumed over the last 24 hours as well as details about the specific quantities consumed.

With the sizable proportion of immigrants in the U.S., the issues of obesity and related chronic conditions as well as dietary acculturation (or food acculturation) have risen to the forefront of public health concern over the last half century (Arandia et al., 2012; Batis et al., 2011; Colby et al., 2009; Gray et al., 2005; Satia, 2010). Dietary acculturation is defined as the process by which the members of a minority population incorporate the dietary patterns and food selections of their host country (Satia-Abouta et al., 2002; Satia, 2010). Along with the globalization of food, the process of dietary acculturation is a phenomenon identified by researchers to be a major contributor to the changes in nutrition and diet among immigrants (Holmboe-Ottesen & Wandel, 2012; Satia-Abouta et al., 2002). Several research groups have developed tools and scales to measure dietary acculturation for specific ethnic populations. They include the Food Similarity Index (Van Hook et al., 2015), a food frequency questionnaire for children of Mexican descent (Vera-Becerra et al., 2016), the Asian Indian Dietary Acculturation Measure (Venkatesh & Weatherspoon, 2018), and two scales to measure dietary acculturation among Chinese immigrants in the U.S. and Canada (Satia et al., 2001). In a similar vein, numerous instruments have been either developed or adapted from other previously validated tools to obtain people's self-reports of their specific eating behaviors and dietary patterns. One of these was the Latino Dietary Behaviors Questionnaire (Fernandez et al., 2011), a self-report questionnaire in Spanish that asks Spanish-speaking adults with type 2 diabetes about various aspects of eating behavior, including healthy dietary changes, intake of artificial sweeteners, and fat consumption. Likewise, the questionnaire that was used for the Seattle Obesity Study (Monsivais et al., 2014) aimed to identify social determinants of diet and health within a population by assessing time spent on food preparation, food consumption patterns, food spending, and frequency of patronizing at restaurants. It included items that were adapted from

the Flexible Consumer Behavior Survey (Centers for Disease Control and Prevention & National Center for Health Statistics, 2012), which was a section of the National Health and Examination Survey. In addition, the questionnaire from the Fenland Study, a population-based cohort study that investigated predictors of obesity and diabetes conducted in the United Kingdom (Mills et al., 2017), was created to establish the relationship between the frequency of home-cooked meals and quality of diet and metabolic health (Burgoine et al., 2014). Several of the items in the questionnaire that I had developed were adapted from the Latino Dietary Behaviors Questionnaire, the questionnaire used for the Seattle Obesity Study, and the questionnaire from the Fenland Study.

Two well-known validated instruments have been used by researchers to assess food environments. One is the U.S. Department of Agriculture Thrifty Food Plan (Carlson et al., 2007; Center for Nutrition Policy and Promotion, 1999), which is a food guidance system that offers “a representative healthful and minimal-cost meal plan to demonstrate how a nutritious diet may be achieved by consumers using a limited budget or food stamp benefits” (Lino, 2001). The Thrifty Food Plan is one of the most widely used measures of retail food store environments, particularly food prices (Glanz et al., 2016).

A second and more recent survey developed to measure the nutrition environment in retail food stores is the Nutrition Environment Measure Survey for Stores (NEMS-S; Glanz et al., 2007). Glanz and colleagues (2007) defined the community nutrition environment as “the number, type, location, and accessibility of food outlets such as grocery stores” (p. 282) and the consumer nutrition environment as “what consumers encounter in and around places where they buy food, such as availability, cost, and quality of healthful food choices” (p. 282). The objective of the NEMS-S was to evaluate the availability of healthy food options, prices, and

quality of food stores. The NEMS-S focuses on consumer nutrition environments, including but not limited to the location and type of food outlets, healthy food options available, and the quantity, store placement, costs, and information on more nutritious food items. A past study using NEMS-S that was conducted in a Latino community in the Midwest found that “healthy” food items were reasonably available and of good quality in local stores, but had higher prices relative to “regular” food items (Khan et al., 2012). The store measures in NEMS-S are used to evaluate the availability and differences in costs between healthier and less-healthy food options. These consist of eleven measures of store nutrition environments: milk (whole, low-fat, and skim), cereal (regular and low-sugar), bread (refined and whole grain), baked goods (regular and lower fat), ground beef (regular and lean), beverages (soda and juice), frozen dinners (regular and reduced calorie), hot dogs (regular and low-fat), fresh fruits, and fresh vegetables (Glanz et al., 2007, 2015). One of the earliest studies using NEMS-S, which was conducted in Atlanta found that stores in higher income neighborhoods offered more nutritious food options, and that grocery stores offered more nutritious food options than convenience stores (Glanz et al., 2007). A similar study performed in Baltimore found significantly lower availability of healthy foods in predominantly African American and lower-income neighborhoods compared with predominantly Caucasian and higher-income neighborhoods (Franco et al., 2008). A more recent study conducted in a Latino community in the Midwest found that “healthy” food items were reasonably available and of good quality in local stores, but had higher prices relative to “regular” food items (Khan et al., 2012).

The Nutrition Environment Measures Survey has also been adapted for restaurants and parks. The former is known as the Nutrition Environment Measures Survey for Restaurants (NEMS-R). The latter was developed in a collaboration between National Park Service (NPS)

and the Centers for Disease Control and Prevention (CDC) and is known as the CDC-NPS Healthy Foods Evaluation (Eyler et al., 2015; Goodman et al., 2011).

While various questionnaires included items that sought to assess the food environment and aspects in the community that promote healthy lifestyles, an instrument that would be specifically designed to comprehensively measure a person's food environment, meals, and food-centered leisure activities does not exist to my knowledge. The questionnaire that I have developed in this study seeks to assess a person's likeliness and feasibility to adopt healthier meals and engage in leisure activities that promote a healthy lifestyle. The literature review, along with findings from our prior studies, were hence utilized to guide the initial item generation for the questionnaire.

Initial questionnaire item generation

Based on the findings from the first study and a thorough review of the existing literature on related or similar surveys, a first draft of the questionnaire was developed. During the initial survey item generation, the I tried to keep the questionnaire brief, culturally sensitive and relevant, and at a third-grade reading level. All items in the initial draft of the questionnaire (see Appendix J), which had consisted of 58 items, were provided to the dissertation committee members with a description of how each was developed, whether taken directly or adapted from a previously published and validated questionnaire, or based on our own findings from the first part of the study. This initial draft underwent review by the committee members, and then revised based on the committee members' comments. The revisions, which were minor, included the replacement of certain words or phrases for easier understanding, the elimination of double-barreled questions, and amendments to response options.

The final draft of the questionnaire comprised of 53 survey items and is included in Appendices G (English) and H (Spanish). Its first section consists of 45 items (items #1 to #32 including the sub-questions for items #5-11 and the seven sub-questions for item #19), which were based on the four dimensions of findings obtained in the first part of the study: (1) elements of the new environment, (2) cultural beliefs on food and diet, (3) psychosocial factors and taste preferences and (4) new lifestyle and daily schedules. The conceptual frameworks of acculturation (Clark & Hofstess, 1998) and social determinants of health (Raphael, 2006; World Health Organization, 2012) had been used to identify these four dimensions on which these questionnaire's items were based. The second section of the questionnaire (items #33-53) contained demographic questions, including the subsection for the Bidimensional Acculturation Scale (Marin & Gamba, 1996) in item #43.

Elements of the new environment. The 15 items (#1-15) included in this category pertained to the selection of fresh food and Mexican food accessible in the respondents' towns, the places where they eat (e.g., home, workplace, restaurants), the experience of food shopping, and the affordability of ingredients. The types of food vendors listed in response options for items #5-11 ("Do you buy food items from the following places? Do not include prepared meals purchased for take-out or eaten at restaurants") were adapted from the North American Industry Classification System (NAICS) codes (U.S. Census Bureau, 2017a). The other items (#1-4 and #12-15) were developed from previous findings of our research (Phan & Stodolska, 2019a, 2019b).

Cultural beliefs regarding food and diet. The 5 items in this category (#18, #19B, #19F, #19G, and #25) included questions about the level of importance that respondents placed on consumption of traditional Mexican meals, the healthfulness of locally available food as

perceived by the respondents, and food preparation based on cultural beliefs regarding food. All of these items were developed from our previous findings (Phan & Stodolska, 2019a, 2019b).

Psychosocial factors and taste preferences. The 8 items in this category (#19A, #19C, #19D, #19E, and #20-23) concerned the palatability of flavors in the meals consumed in the U.S., attitudes on what ingredients or methods of food preparation make a meal satisfying, and the feelings engendered when consuming meals in the U.S. These items were all developed from our previous findings (Phan & Stodolska, 2019a, 2019b).

Lifestyle and day-to-day schedules. The 10 items in this category (#16-17, #24, and #26-32) inquired respondents about their level of stress that they experience from food procurement and food preparation, their perceptions of food preparation and food consumption as a leisure activity or a chore, their frequency of mealtimes attended by all members of the household, and the frequency of food preparation, eating at restaurants, and purchasing take-out food or prepared meals to consume at home or work. Items #16 (“How often do you eat breakfast, lunch, or dinner prepared at either restaurants or fast food places? Include only meals eaten at the restaurant”) and #17 (“How often do you eat take-out food prepared at either restaurants or fast food places for breakfast, lunch or dinner?”) were adapted from the English version of the Latino Dietary Behaviors Questionnaire (Fernandez et al., 2011). Item #24 (“How often do you prepare meals that have both ingredients that you consider “Mexican” and ingredients that you consider “American”? Please think of main ingredients, such as specific types of rice, meat, and vegetables”) was adapted from a questionnaire used in the Fenland Study by researchers at the Institute of Health & Society in the United Kingdom (Mills et al., 2017). Items #26 (“How many hours on average per day do you spend preparing food, cooking, and cleaning up from meals on a weekday (Mondays to Fridays)”) and #27 (“How many hours on

average per day do you spend preparing food, cooking, and cleaning up from meals on a weekend (Sundays and Saturdays)?”) were adapted from a questionnaire used in the Seattle Obesity Study (Monsivais et al., 2014). Items #27-32 were developed from our previous findings (Phan & Stodolska, 2019a, 2019b).

Tool analysis by experts

Following the revisions recommended by the dissertation committee, I invited researchers, practitioners, and other experts in recreation, nutrition, public health, and Latino populations by e-mail to review the questionnaire items in order to assess the content validity of the survey instrument. The existing research recommends 5 to 10 experts on the panel with more than 10 experts deemed as unnecessary (Gilbert & Prion, 2016; Kennedy et al., 2019). For this study, 13 experts were invited to review the questionnaire. The experts who were contacted had a range of expertise (i.e., registered dietitians, academics, public health professionals, recreation specialists), represented various professional and academic institutions (i.e., universities, public health departments, government organizations, park districts), and were not affiliated with the University of Illinois.

Six experts responded to the invitation to evaluate the questionnaire’s content validity. They consisted of a professor in biostatistics, a professor in nutrition and dietetics, a director of health for the National Recreation and Park Association, a Hispanic outreach coordinator, a professor in health sciences at a university in Mexico, and an Illinois park district superintendent. They were asked to review the comprehension and readability of the survey items and provide suggestions on how to reword items or remove some items altogether. An evaluation tool (see Appendix I) was sent to them along with the draft of the survey. It consisted of the questionnaire’s items along with sections for the panelists to rate and comment on each item. A

5-point Likert scale to rate the importance of each item with the following options: 1 = completely unimportant, 2 = not very important, 3 = neutral, 4 = somewhat important, and 5 = very important was provided. The criterion for retention of an item was a mean rating of importance of ≥ 4 . For each questionnaire item, the Likert scale was followed by a comments section where the experts could provide open-ended feedback on the item, such as the clarity, phrasing, and connotation. The end of the evaluation tool included a concluding section for the panelists to provide general comments, feedback, and opinions.

The panelists commented on the items' literacy level and clarity, suggested the merging of similar items, recommended the deletion of unclear items, amended the way that certain items were phrased, and offered ideas for new items. Based on their input regarding the survey draft, the dissertation committee was then consulted on how to further modify the survey instrument. The survey was subsequently revised according to these recommendations and the experts' consideration. Approximately 20 items from the first section of the questionnaire were revised to lower the literacy level and make them more readable to respondents. For instance, the phrase "What is your frequency of ...?" was replaced by "How often do you...?" One item was deleted, and eight items were given more response options. Approximately 10 items from the second section of demographic questions were revised to reduce human error. For example, dropdown selections for year of birth and state in Mexico that one was born in were added to replace write-in responses.

Translation of the questionnaire to Spanish

A Spanish version of the revised questionnaire was developed via translation done by a well-qualified translator to ensure that the Spanish version represented the same item content as the original version and was conceptually equivalent (Monticone et al., 2014). Conceptual

equivalence refers to the conveyance of similar meaning between the two different cultural groups and “the degree to which the constructs or concepts operationalized in the source instrument exist in the same form in the thoughts of members of the target culture” (Harrison et al., 2003, p. 1195). I used a professional freelance translator based in Illinois who consulted with an editor of Mexican heritage in the translation of the instrument from English to Spanish. The Spanish version of the survey was then back-translated by a public health practitioner of Mexican heritage with expertise in nutritional epidemiology and whose native languages were English and Spanish. Any discrepancies in the translation were reconciled by discussions between the principal investigator and the translators.

Cognitive interviews

The process of cognitive interviewing is a method which researchers use to critically assess data collection instruments, such as survey questionnaires, that they had developed (Willis, 2005). Cognitive interviewing is especially useful to identify and pinpoint how the target population of the study reacts to, interprets, registers in their minds, and responds to the items of the survey questionnaire (or other data collection tool). Researchers can use the information obtained from cognitive interviewing to detect words or phrases that are difficult to understand, frequently misinterpreted, not culturally congruent with the study population, or that elicit responses that would not address the goals of the research study that the questionnaire had been designed for. Cognitive interviewing allows for the examination of the interviewees’ responses with substantial depth (Arredondo et al., 2012) and look for inadequate assessment of the measured concepts, conflicting interpretations, and misinterpretations (Collins, 2003). It also enables researchers to deduce the interviewees’ ability to understand the concepts in the survey questions as well as whether the interviewees’ understanding of the questions is consistent with

the researchers' intentions (Collins, 2003). Cognitive interviewing is crucial in preventing misinterpretations of survey items by respondents, which may lead to fallible results and conclusions drawn. Willis (2005) outlined five major categories of results that may emerge from the cognitive interviews: (1) item-specific recommendations for changes to wording, (2) need for further specification of objectives, (3) ordering of items or sections, (4) problems regarding the length or burden of the questionnaire, and (5) limitations on what can be asked. The objective of cognitive interviewing is hence to revise questionnaire items so that they have the utmost clarity, cultural congruency, and appropriate findings.

Cognitive testing protocol

The questionnaire (both the English and Spanish versions) that was used during the cognitive interviews had been adjusted based on feedback from the expert panel and the dissertation committee and was developed before the emergence of the COVID-19 pandemic. The cognitive interviews and questionnaire administration were conducted during the pandemic in the spring, summer, and fall of 2020. Since all in-person and face-to-face research activities had been suspended by the Institutional Review Board in March 2020, all cognitive interviews were conducted by telephone. I conducted 10 interviews for the English version of the questionnaire and a Mexican American bilingual graduate student in public health conducted 10 interviews for the Spanish version of the questionnaire. The bilingual student was trained by observing me conduct the first half of a cognitive interview over Zoom with a bilingual participant and then conducting the second half of the interview with the same participant. The following day, I observed the bilingual student conduct a cognitive interview over Zoom with a Spanish-speaking participant to review the Spanish version of the questionnaire.

During the cognitive interviewing process, the interviewers followed a set of instructions, which made up the cognitive testing protocol. The protocol consisted of the following steps:

1. Review the questionnaire for familiarity.
2. Read the instructions aloud (listed in the next section) to the interviewee.
3. Record the start time prior to asking the first question.
4. Be sure that the interviewee is paying attention to you when you ask questions instead of reading the questionnaire.
5. Use the probe questions that were prepared beforehand or think of other probes.
6. For each survey item, write down the problems and issues that arise based on the interviewee's interpretations and responses.
7. Record the end time when the interview is finished.
8. Clarify comments and write down new comments regarding the interview.

Cognitive interview guidelines

After the research protocol was approved by the IRB (see Appendix B for IRB approval), each recruited participant was e-mailed a consent form (in English and Spanish) prior to the cognitive interview. After the participant signed the consent form and e-mailed it to the interviewer, a date and time was scheduled for the telephone interview. During the actual interview, the interviewer gently reminded the participant to concentrate on the survey questions rather than answers to the questions as the primary objective was identifying problems in the survey questions. For each survey item, the interviewer asked the interviewee to explain the process by which they formulated an answer to the question and what issues were perceived in the question. The interviewees were encouraged to verbalize and articulate all the thoughts that arose from the question and to be frank and explicit in describing difficulties within each

question. After the cognitive interviews were completed, the comments for each item were recorded and analyzed by the interviewers. The questionnaire items were then subsequently revised based on these comments for both the English and Spanish versions of the questionnaire. The specific recommendations provided by the interviewees and the changes made to the questionnaire will be described in detail in the Results section.

Questionnaire administration

Further revisions to the questionnaire were made based on the results of the cognitive interviewing and then reviewed by the dissertation committee. The most prominent change to the questionnaire was the addition of directions at the beginning to have the respondent think back to a specific time frame (i.e., the last 12 months). New response options were added to 10 items. Minor amendments to phrasing were made to several items to reduce ambiguity. For revisions to the Spanish version of the questionnaire, I consulted with the professional freelance translator who had translated the earlier draft of the questionnaire. After approval by the dissertation committee, the English and Spanish versions of the questionnaire were administered to a sample of 18 English-speaking and 25 Spanish-speaking Mexican immigrants, respectively, at time T_1 . Two weeks later, at time T_2 , the same (unchanged) questionnaires were administered to the same sample of Mexican immigrants. Because of the COVID-19 pandemic, the questionnaires were administered online using Survey Monkey. The participants were e-mailed a link to the online questionnaire, which was preceded by the online consent form. Their questionnaire completion times at T_1 were recorded. The participants were e-mailed a reminder that they were expected to complete the questionnaire for the second time two days before T_2 . On the morning of T_2 , the participants were e-mailed a new link to the online questionnaire and instructions to complete it during that same day.

4.3 Participants

Cognitive interviews

The participants in the cognitive interviews consisted of Mexican immigrants who came to the U.S. at age 18 or over and currently resided in Illinois. All participants were recruited using snowball sampling beginning with community leaders, previously established contacts, Latino organizations based in Illinois, and other informants, such as directors or administrators of public health organizations, recreation centers, and places that offer English conversation classes (e.g., libraries, churches, refugee centers). Due to the COVID-19 pandemic, all recruitment was conducted via e-mail, social media, and telephone. Online flyers advertising the study were distributed in English and Spanish. Organizations that advertised the flyers via e-mail distribution or social media included the Resurrection Project, Mano a Mano Family Resource Center, Mujeres Latinas en Acción, Enlace Chicago, and the Midwest Latino Health Research, Training and Policy Center. Each participant was compensated with a \$25 Walmart gift card.

The 20 participants in the cognitive interviews consisted of 12 women and 8 men whose ages ranged from 22 to 60 years of age. Their ages of immigration from Mexico to the U.S. ranged from 18 to 42 years of age. Their current occupations in the U.S. included teachers, restaurant employees, supermarket employees, custodians, students, and office administrators. A few of the participants had two jobs. The participants who reviewed the English version of the questionnaire during the cognitive interviews were bilingual, younger, completed more formal education in the U.S., and more “acculturated” (based on their responses to the Bidimensional Acculturation Scale in item #43) than participants who reviewed the questionnaire in Spanish.

Questionnaire administration

Due to problems with recruitment at the time of the COVID-19 pandemic, the criteria for the participants in the questionnaire administration were expanded to include Mexican immigrants who came to the U.S. at any age and currently live in Illinois. I did not restrict the participants to only those who immigrated to the U.S. at age 18 or over as with the cognitive interviewees. The participants for the questionnaire administration were recruited in the same way as those for the cognitive interviews. One additional organization, La Casa Cultural Latina at the University of Illinois at Urbana-Champaign, e-mailed a flyer advertising the study to recruit questionnaire participants. At time T₁ 18 participants (7 females and 11 males) completed the English version of the questionnaire (mean age: 32 years old) at time. Their ages at the time of the study ranged from 18 to 62 years old and their ages at immigration to the U.S. ranged from less than 1 year old to 22 years of age. Their occupations included students, food service workers, and sales personnel. Several participants reported that they were currently not working. Of these 18 participants, 16 (7 females and 9 males) completed the English version of the questionnaire at T₂.

The Spanish version of the questionnaire was completed by 25 participants (18 females, 6 males, and 1 unknown) at time T₁. At the time of the study, their ages ranged from 22 to 63 years old (mean age: 43 years old) and their ages at immigration ranged from less than 1 year old to 40 years old. Their occupations of the participants included homemakers, sales personnel, teachers, and babysitters. Several participants were unemployed at the time of the study. At T₂, 18 out of the 25 original participants (15 females and 3 males) completed the Spanish version of the questionnaire.

4.4 Results

Cognitive interviews

The topic of the current pandemic situation was unavoidable during the cognitive interviews. The most commonly cited comment (for both the English and Spanish versions) was that the questionnaire needed to start with instructions for the respondent to consider a specific time frame (e.g., over the last twelve months) or to specify whether the respondent should answer the questions based on their lives either before or during the pandemic. One major reason for this is, for instance, that participants who had children under the age of 18 reported more frequent family mealtimes at home with their children during the pandemic. I consequently added a few sentences at the beginning of the questionnaire that instruct the respondents to answer the questions based on the last 12 months.

The interviews lasted between 40 and 70 minutes. Some of the feedback that arose from the participants of the cognitive interviews was that there were no questions pertaining to existing chronic health conditions and dietary restrictions. While I considered these topics during the development of survey items, I decided to exclude these items from the questionnaire to keep the instrument concise and more focused on food-related leisure activities and to avoid health-related questions that may appear intrusive to respondents. Other topics that were considered for survey items but ultimately omitted were beverage consumption, food portion sizes, leisure time physical activity, substitution of ingredients in recipes, and the characteristics and number of hours of one's job(s).

For items #5A, #6A, #7A, #8A, #9A, #10A, and #11A, ("Which of the following are reasons you shop at [food vendor]?"), many participants offered various pandemic-related reasons for shopping at a particular food vendor. These reasons included the availability of

curbside grocery pick-up and grocery delivery, availability of a store app that allows shoppers to learn whether a product is in stock, ability to shop outdoors (i.e., a farmers' market), and availability of free parking (so that shoppers can drive to the store to avoid public transportation). Based on this feedback, the following response options: "An app available for easier shopping," "Delivery or store pick-up is available," and "Free parking/parking lot is available" were added to items #5A, #6A, #7A, #8A, #9A, #10A, and #11A. Similarly, the response options "I don't go to the store because another family member buys my food (and groceries) and brings them to my home" and "I don't go to the store because I have my food (and groceries) delivered to my home" were added to item #12 ("How do you usually get to the store where you buy food?").

Other survey items that were more frequently commented on were the ones related to food preparation. Several participants reported that either they or a family member could spend over two or three hours on food preparation in a day, which led to the addition of more time options to items #26 ("How many hours on average per day do you spend preparing food, cooking, and cleaning up from meals on a weekday (Mondays to Fridays)??") and #27 ("How many hours on average per day do you spend preparing food, cooking, and cleaning up from meals on a weekend (Sundays and Saturdays)??"). A few participants suggested additional reasons for preparing traditional Mexican dishes for item #19 ("If you (or another member in your household) prepares traditional Mexican dishes, how important are the following reasons that you (or another member in your household) prepare them??"). These reasons included that they or someone who they knew was not accustomed to eating non-Mexican food, and that they felt a sense of pride for their culture. These two reasons were then added to the item #19. For item #32 ("Do you consider food preparation to be a leisure activity or a chore?"), a few participants asked for either a definition or clarification of the term "leisure" (in English) or

“ocio” (in Spanish). As a result of this feedback, a definition was provided in the revised version of the questionnaire. Among the demographic questions, most participants for both the English and Spanish cognitive interviews described feeling overwhelmed, burdened, or confused with items #48 (“What type of work did you do in Mexico?”) and #49 (“What type of work do you do now in the U.S.?”) because the items’ options of job categories were very long and provided examples of occupations that the participants were unfamiliar with. The participants hence strongly recommended that these items become open-ended questions. As a result of this feedback, questions regarding participants’ occupations were changed to an open-ended format. Other feedback that arose from the cognitive interviews included minor modifications to improve the understanding and clarity of the items.

Questionnaire administration

The data from the questionnaire administration were downloaded from Survey Monkey and analyzed using SPSS v.27. To evaluate internal consistency, Cronbach’s α statistics were utilized for the T₁ sample (first questionnaire administration). Test-retest reliability was computed for each item at the two time points of questionnaire completion by calculating the Kendall’s tau-b correlation coefficient.

To determine the internal consistency reliability of the questionnaire, Cronbach’s α (Table 1) was found for each of the four constructs of interest, which are the four dimensions of findings from my first part of the study: (1) elements of the new environment, (2) cultural beliefs on food and diet, (3) psychosocial factors and taste preferences and (4) new lifestyle and daily schedules. The English and Spanish versions of the questionnaire had fairly low reliability with regards to internal consistency for three of the four: elements of the new environment, cultural beliefs on food and diet, and psychosocial factors and taste preferences. The Cronbach’s α was

very low for new lifestyle and daily schedules for the questionnaire in both languages. Nevertheless, I decided not to eliminate any of the items for two reasons: (1) removing a particular item has resulted in increases in the Cronbach's α in the questionnaire for one language but reduced the Cronbach's α in the questionnaire for the other language version, and (2) any increases in Cronbach's α from removing an item were very small (less than 0.1) and only for either the English or Spanish version but not both.

For the test-retest reliability computations (Tables 2 to 5), the respondents were asked to complete the same online questionnaire at exactly 14 days after they had completed it the first time. However, the actual number of days after the first questionnaire was completed ranged from 14 days to 22 days among respondents who completed the questionnaires at T₁ and T₂. For the English version of the questionnaire, the Kendall-s Tau-b correlation coefficient was significant and acceptable for 10 out of 15 items for “elements of the new environment,” 3 out of 5 items for “cultural beliefs on food and diet,” 2 out of 8 items for “psychosocial factors and taste preferences,” and 8 out of 10 items for “new lifestyle and daily schedules.” For the Spanish version of the questionnaire, the Kendall's Tau-b correlation coefficient was significant and acceptable for 11 out of 15 items for “elements of the new environment,” 1 out of 5 for “cultural beliefs on food and diet,” 1 out of 8 items for “psychosocial factors and taste preferences,” and 6 out of 10 items for “new lifestyle and daily schedules.”

Table 1. Questionnaire Internal Consistency Reliability

Constructs of Interest	Number of items	Cronbach's α: English	Cronbach's α: Spanish
Elements of the new environment	15	0.539	0.582
Cultural beliefs on food and diet	5	0.465	0.607
Psychosocial factors and taste preferences	8	0.648	0.636
New lifestyle and daily schedules	10	0.061	0.214

Table 2. Test-retest reliability—English and Spanish questionnaires
Construct: Elements of the new environment

Elements of the new environment: 15 items	Kendall's tau-b: English	p-value: English	Kendall's tau-b: Spanish	p-value: Spanish
Q1: How satisfied are you with the options of fruits (such as bananas, oranges, and apples) available for purchase in your community?	0.196	0.420	0.597**	0.004
Q2: How satisfied are you with the options of vegetables (such as spinach, onions, and bell peppers) available for purchase in your community?	0.350	0.148	0.660***	0.001
Q3: How satisfied are you with the options of meats (such as chicken, beef, pork, and fish) available for purchase in your community?	0.667**	0.006	0.474*	0.025
Q4: How satisfied are you with the options of grains/starches (such as rice, tortillas, and bread) available for purchase in your community?	0.000	1.000	0.316	0.146
Q5: Do you buy food items from supermarkets/grocery stores?	0.579*	0.017	0.552*	0.016
Q6: Do you buy food items from supercenters?	0.698**	0.002	0.378	0.085
Q7: Do you buy food items from membership/warehouse club stores?	0.854***	0.000	0.875***	0.000
Q8: Do you buy food items from specialty stores?	0.660**	0.003	0.536*	0.022
Q9: Do you buy food items from convenience stores?	0.521*	0.023	0.510*	0.027
Q10: Do you buy food items from outdoor food stands?	0.608**	0.008	0.341	0.116
Q11: Do you buy food items from farmers markets?	0.300	0.223	0.878***	0.000
Q12: How do you usually get to the store where you buy food?	0.741***	0.001	0.784***	0.000
Q13: On average, how long does it take for you (or the primary shopper in your household) to get to the store where you buy the majority of your food items (whether by driving, walking, taking public transportation, etc.)?	0.845***	0.000	0.427*	0.042
Q14: How often do you buy food at farmers markets?	0.501*	0.037	0.372	0.073

Table 2. Test-retest reliability—English and Spanish questionnaires
Construct: Elements of the new environment (continued)

Elements of the new environment: 15 items	Kendall's tau-b: English	p-value: English	Kendall's tau-b: Spanish	p-value: Spanish
Q15: How often do you shop at ethnic stores (e.g., Mexican or Hispanic stores) to buy food and/or ingredients?	0.428	0.056	0.726***	0.001

Significance: * $p \leq 0.05$; ** $p \leq 0.01$; *** $p \leq 0.001$

Bolded Kendall's tau-b correlation coefficients are significant at $p \leq 0.05$.

Values not followed by asterisks are not significant at $p \leq 0.05$.

Table 3. Test-retest reliability—English and Spanish questionnaires
Construct: Cultural beliefs on food and diet

Cultural beliefs on food and diet: 5 items	Kendall's tau-b: English	p-value: English	Kendall's tau-b: Spanish	p-value: Spanish
Q18: How important is it to you that you follow family beliefs regarding food and diet while in the U.S.?	0.554*	0.014	0.268	0.239
Q19B: Reason - I think that Mexican dishes are healthy.	0.479*	0.042	0.042	0.849
Q19F: Reason - I feel a sense of pride for my culture when I cook traditional Mexican dishes.	0.378	0.106	0.332	0.144
Q19G: Reason - Preparing traditional Mexican dishes is a way to show affection and hospitality.	0.245	0.301	0.637**	0.005
Q25: How important is it for the meals that you eat to taste "fresh," as in recently cooked, recently harvested (fruits and vegetables) or slaughtered (meat), or not canned or frozen?	0.583*	0.016	0.225	0.343

Significance: * $p \leq 0.05$; ** $p \leq 0.01$; *** $p \leq 0.001$

Bolded Kendall's tau-b correlation coefficients are significant at $p \leq 0.05$.

Values not followed by asterisks are not significant at $p \leq 0.05$.

Table 4. Test-retest reliability—English and Spanish questionnaires
Construct: Psychosocial factors and taste preferences

Psychosocial factors and taste preferences: 8 items	Kendall's tau-b: English	p-value: English	Kendall's tau-b: Spanish	p-value: Spanish
Q19A: Reason - They are my favorite dishes.	0.319	0.173	0.245	0.304
Q19C: Reason - They are my family's favorite dishes.	0.000	1.000	0.268	0.215
Q19D: Reason - They remind me of my home in Mexico.	0.202	0.380	0.253	0.286
Q19E: Reason - I am not used to eating non-Mexican foods.	0.150	0.542	0.209	0.306
Q20: If you or someone in your household prepares traditional Mexican dishes, how satisfied are you with their flavors?	0.592*	0.022	0.255	0.256
Q21: How satisfied are you with the flavors of non-Mexican meals that you or a family member prepare at home?	0.331	0.167	0.760***	0.000
Q22: How satisfied are you with the flavors of meals that you buy at the Mexican restaurant that you go to most often?	0.617**	0.009	0.286	0.199
Q23: How satisfied are you with the flavors of meals that you buy at a non-Mexican restaurant that you go to most often?	0.366	0.138	0.083	0.685

Significance: * $p \leq 0.05$; ** $p \leq 0.01$; *** $p \leq 0.001$

Bolded Kendall's tau-b correlation coefficients are significant at $p \leq 0.05$.

Values not followed by asterisks are not significant at $p \leq 0.05$.

Table 5. Test-retest reliability—English and Spanish questionnaires
Construct: New lifestyle and daily schedules

New lifestyle and daily schedules: 10 items	Kendall's tau-b: English	p-value: English	Kendall's tau-b: Spanish	p-value: Spanish
Q16: How often do you eat breakfast, lunch, or dinner prepared at either restaurants or fast food places?	0.808**	0.001	0.855***	0.001
Q17: How often do you eat take-out food prepared at either restaurants or fast food places for breakfast, lunch or dinner?	0.187	0.444	0.593*	0.037
Q24: How often do you prepare meals that have both ingredients that you consider "Mexican" and ingredients that you consider "American"?	0.514*	0.030	0.056	0.791

Table 5. Test-retest reliability—English and Spanish questionnaires
Construct: New lifestyle and daily schedules (continued)

New lifestyle and daily schedules: 10 items	Kendall's tau-b: English	p-value: English	Kendall's tau-b: Spanish	p-value: Spanish
Q26: How many hours on average per day do you spend preparing food, cooking, and cleaning up from meals on a weekday (Mondays to Fridays)?	0.817***	0.000	0.140	0.526
Q27: How many hours on average per day do you spend preparing food, cooking, and cleaning up from meals on a weekend (Sundays and Saturdays)?	0.546*	0.013	0.114	0.612
Q28: How often do all members in your household eat breakfast together at your home?	0.516*	0.046	0.698***	0.001
Q29: How often do all members in your household eat lunch together at your home?	0.913***	0.000	0.631**	0.002
Q30: How often do all members in your household eat dinner together at your home?	0.922***	0.000	0.574**	0.008
Q31: How often do you attend social events that involve home-prepared foods (whether they be Mexican food, American food, or any other kind of food)?	0.707**	0.002	0.443*	0.042
Q32: Do you consider food preparation to be a leisure activity (i.e., something that you do for fun or because you enjoy it) or a chore?	0.484	0.052	0.270	0.228

Significance: * $p \leq 0.05$; ** $p \leq 0.01$; *** $p \leq 0.001$

Bolded Kendall's tau-b correlation coefficients are significant at $p \leq 0.05$.

Values not followed by asterisks are not significant at $p \leq 0.05$.

4.5 Discussion

This paper described the development and preliminary validation of an instrument to assess the factors that affect the dietary patterns, food practices, and leisure engagement among Mexican immigrants in the Midwestern U.S. with respect to the four dimensions of elements of the new environment, cultural beliefs on food and diet, psychosocial factors and taste preferences, and new lifestyle and daily schedules. The main purpose of such an instrument was

to attain more comprehensive and nuanced discernment of the relationship between individual behaviors and environmental aspects that influence the diet and food-related leisure activities of Mexican immigrants. One reason for the development of this instrument was to capture a sense of the degree of enjoyment that Mexican immigrants experience during food preparation and other food-centered activities so that researchers, dietitians, directors of recreation facilities, and other stakeholders can strategize on how to make cooking and healthy mealtimes more fun and leisurely for specific ethnic populations. Transforming the preparation of nutritious meals into a more enjoyable daily activity and less of a chore is especially timely during the ongoing pandemic with much the U.S. population forced to shelter at home, confront with restricted shopping options, and save money.

The Cronbach's α for "elements of the new environment," "cultural beliefs on food and diet," and "psychosocial factors and taste preferences" for both language versions of the questionnaire were fairly low, ranging from 0.465 to 0.648. An acceptable value for Cronbach's α is at least 0.7 (Landis & Koch, 1977). The Cronbach's α for "new lifestyle and daily schedules" was very low for both the English ($\alpha = 0.061$) and Spanish ($\alpha = 0.214$) versions of the questionnaire. This may be due to low interrelatedness among the items for this construct or the heterogeneous nature of the construct (Tavakol & Dennick, 2011). Out of the 38 items included in the test-retest reliability calculations, only a total of 24 items in the English version and 19 items in the Spanish version had acceptable test-retest reliability. The wide range in number days (between 14 to 22 days) that the questionnaire was completed for the second time may have contributed to the low test-retest reliability for the items that had low correlation coefficients.

Past instruments and scales that evaluated the food practices and dietary patterns among immigrants and ethnic minorities have focused on important areas such as dietary acculturation,

food environments, health status, quality of meals, mealtime habits, dietary adherence, food selection and food preparation skills, food and nutrition literacy, and ethnic-specific food frequency questionnaires (Glanz et al., 2007; Van Hook et al., 2016; Venkatesh & Weatherspoon, 2018; Vera-Becerra et al., 2016; Wong et al., 2011). The instrument described in this paper is unique in that it has an emphasis on the leisurely and social aspects of mealtimes, food preparation, and gatherings among families and friends centered around food. Furthermore, it combines various aspects of influences of the built environment, the socio-cultural factors that shape a population's eating behaviors and dietary practices, and the socioeconomic constraints to the consumption of healthier meals and more food-centered leisure activities. The leisurely and social aspects are meaningful and valuable because they may contribute to the compliance of recommendations to healthy practices (Barnard et al., 2020; Lewis et al., 2016) and provide psychological health benefits (Henderson & Ainsworth, 2002; Standridge et al., 2020).

4.6 Conclusions

Limitations

The most apparent limitation of this process of questionnaire development was that none of the survey items accounted for the ongoing COVID-19 pandemic. Several survey items were amended to take the pandemic into consideration. During the questionnaire administration, respondents needed to recall their day-to-day lives before and during the pandemic in order to produce the most accurate responses. The other major issues from the present study were the low internal consistency reliability (i.e., all values of Cronbach's α were less than 0.7) and the lack of stability of the questionnaire's items based on test-retest reliability calculations. As all of the computed values of Cronbach's α were below 0.7, this indicates that some of the items for

each construct may not be representative of that actual underlying construct. The low values of Cronbach's α may also be a result of the heterogeneous nature of the constructs, low correlation between the items in a construct, or low number of questionnaire items. The two things can be done to increase the Cronbach's α values are adding more items to each construct and increasing the number of respondents to have a bigger sample size. Additionally, if a large enough sample size were obtained, exploratory factor analysis (EFA) could be run to determine the items that do not empirically fit within the intended construct and should thus be deleted from the questionnaire. EFA would be particularly helpful to explore patterns or plausible constructs that are underlying the set of responses to the questionnaire's items based on the correlation between the items.

In addition, due to the pandemic, participant recruitment was especially challenging because of the reliance on e-mail distribution and social media presence of flyers advertising the study, word of mouth, and telephone recruitment. Without in-person recruitment at community centers, health clinics, and other places and organizations that serve Mexican immigrant populations, the diversity and representativeness of the participants were likely greatly reduced and restricted to those who engage in social media or use e-mail. The participants who were interviewed during the cognitive interview process were Mexican immigrants who came to the U.S. as adults. As a result of the challenges with participant recruitment, the inclusion criteria for the participants who were asked to complete the questionnaire was expanded to Mexican immigrants who came to the U.S. at any age. While the participants from both groups lived in Illinois during the time of the study, they were nevertheless different in some important ways. Those who completed the questionnaire were more likely to be students and have never had a job. Their mean age was lower, and they all had completed their education in the U.S. The

participants who participated in the cognitive interviews, on the other hand, were more likely to hold one or two jobs, had a higher mean age, and completed some, if not all, formal education in Mexico.

Furthermore, there were a number of disadvantages with conducting the cognitive interviews and questionnaire administration over the telephone instead of face-to-face. A prime disadvantage was the inability to observe the facial expressions and body language of the interviewees as well as the lack of nonverbal and contextual information, consequently rendering greater difficulty in establishing initial rapport with the interviewees, probing, and interpreting the interviewees' comments. Another disadvantage was that the communication over telephone necessitated that the researchers regularly confirm with the interviewees that they are discussing the same question or are on the same page.

A major limitation of the study that was not associated with the pandemic was that the participants for the English and Spanish versions of the questionnaire were different in several important ways. This is a common occurrence in research studies involving Mexican immigrant populations (Deyo, 1984). These differences in language, culture, age, and other demographics may have led to differences in how the questionnaire was perceived, the level of attentiveness of the participants, and how the survey items were interpreted. For example, several of the cognitive interviewees of the Spanish version of the questionnaire discussed chronic diseases and health as topics for possible survey items to add. Participants who did the cognitive interviews for the English version of the questionnaire and participants who completed the online questionnaire in English were younger, more proficient in English, more likely to be bilingual, skipped fewer questions in the survey, and were more likely to report a higher household income than those who completed the Spanish cognitive interviews or Spanish questionnaire. These

important differences may lead to differing responses between the two groups because the former group may have more access to desired food items and ingredients, perceive food items to be more affordable, have greater knowledge and understanding of reading food labels and nutrition, and be less concerned with chronic health conditions.

Suggestions for Future Research and Implications for Practice

Although the analyses from the questionnaire administration were exploratory, they offered unique preliminary insight into the interrelatedness of food-related leisure activities and dietary patterns. Future studies with larger numbers of respondents to the questionnaire would be necessary to determine reliability and validity. While one of the strengths of the developed instrument was that it was administered via a web-based platform and thus cost-efficient with easy transfer of electronic data, respondents were required to have basic computer knowledge and Internet access to complete one of the questionnaires, which excluded an important segment of the population of interest, i.e., Mexican immigrants without Internet or computer knowledge. A future study with the questionnaires in a hard copy paper-based form could be conducted after the pandemic situation for respondents uncomfortable or unable to complete an online version.

Additionally, this questionnaire can contribute to the advancement of dietary acculturation research. As I had found in my previous studies (Phan & Stodolska, 2019a, 2019b), Mexican immigrants had not intended to consume less healthy and less nutritious foods and meals in the U.S., however, their new lifestyles, daily schedules, time constraints, lack of available palatable foods in their environment, and other factors were more conducive to eating foods high in calories, fats, sugars, and sodium. The questionnaire that I have developed can help to identify environmental factors or aspects in a person's lifestyle or leisure participation

that render healthy eating and cooking at home less or more feasible, and therefore, pinpoint those that lead the immigrants to adopt foods of their new country to their regular diets.

The built environment of food vendors (i.e., supermarkets and other merchants for food shopping), restaurants, recreational areas, and parks has immense potential to influence public health by affecting eating behaviors, dietary patterns, and food-related leisure activities. By collaborating with leaders and stakeholders of this built environment, public health practitioners can develop and implement programs and interventions that promote healthier eating behaviors that are low-cost, accessible or near home, enjoyable, and culturally tailored to Mexican immigrants (and other specific populations). More deliberate collaboration among recreation agencies, public health organizations, food vendors, and restaurant owners may create ways for these parties to devise complementary strategies to make food-centered activities more leisurely, pleasurable, and healthy. Questionnaires are a cost-efficient method of a surveillance effort to provide a regular and sustained effort to track the food and leisure behaviors of Mexican immigrants in their built environment in order to develop such strategies.

It is important to note, though, that the questionnaire was developed with the Midwestern section of the U.S. in consideration and is not generalizable to the entire U.S. The examples of each of the food vendors used in the questionnaire can all be found in the Midwest, but not necessarily the rest of the U.S. Additionally, as the participants were sampled from two mid-sized and one large metropolitan area, the items of the questionnaire reflected the types of food vendors available and accessible in such areas. If this questionnaire were to be adapted for other geographical regions of the U.S. or rural areas, for instance, the items would need to be adjusted based on the types and examples of food vendors available and accessible, as well as the regional population's food-related leisure activities and variations in aspects of their lifestyle.

The questionnaire developed in this study will help to identify the accessibility and availability of nutritious foods within a community, the accessibility and availability of recreational centers and infrastructure to promote leisure participation and healthy food consumption, food options that are culturally congruent with Mexican immigrants' values and beliefs, and an overview of the local environment within which Mexican immigrants live, work, and engage in leisure activities. The questionnaire can also provide guidance to policy-makers, public health practitioners, recreation administrators, government organizations, and researchers who wish to plan, establish, and implement effective intervention programs to facilitate long-term healthy eating behaviors among Mexican immigrants in the U.S. and ultimately promote health among these populations.

CHAPTER 5: CONCLUSION

In my dissertation research, I sought to understand the mechanisms by which the food practices, dietary patterns, and food-related leisure activities among Mexican immigrants evolve during their time living in the Midwestern U.S. I also investigated the factors that may facilitate or hinder the changes in food practices, dietary patterns, and leisure activities, such as any changes in attitudes, beliefs, and social norms about diet, lifestyle modifications that affect meal schedules, nutritional quality of foods eaten in the host country, and dietary customs either preserved from the country of origin or acquired in the host country. Prior studies have done little to examine the leisure and enjoyment aspects of the complex process of change in food practices and dietary patterns related to immigration. The relationship between leisure and food is important because food is the centerpiece or the main draw of a multitude of leisure activities from regular family meal gatherings to large-scale festivals.

5.1 Summary of overall findings

In the first phase of my study (Chapter 2), my objective was to delineate the food practices, dietary patterns, and leisure participation among Mexican immigrants in the U.S., that is, *how* the eating behaviors, diet, and leisure evolve after a certain period of time in the U.S. I found that Mexican immigrants interviewed in the study were preparing meals using both existing and new methods of food preparation. Some of them were unable to cook using ingredients they were familiar with from their home country because the ingredients were locally unavailable, and hence cooked and consumed foods that were both available and familiar to them from their culture along with foods that they had familiarized with in the U.S. Several of the

interviewees selected the food and ingredients that they purchased and cooked based on the freshness and cost. Even if a desired food item was locally available, its perceived lack of freshness or high cost dissuaded some interviewees from its purchase.

Cooking had become less enjoyable and less leisurely overall for Mexican immigrants because of their time constraints, hectic work and family schedules, and the thought and effort required to prepare meals in their adopted country. Some of the interviewees expressed dissatisfaction or discouragement that some of the ingredients that they liked or were accustomed to needed to be adapted or substituted, consequently leading to dishes' different flavors and tastes. A few individuals described the challenge that they had experienced in teaching themselves new methods of food preparation incorporating the available food items and ingredients in their local community. Several interviewees conceded to either cooking less frequently or no longer doing any food preparation altogether for various reasons. They reported that they consumed fewer meals at home and ate out or purchased take-out food more often. Others who still continued to cook regularly found that cooking had become less enjoyable because they needed to focus on the nutritional value and portion sizes of their meals due to weight gain or other health issues that they had acquired while living in the U.S.

In the second phase of my study (Chapter 3), I sought to explore the reasons that the Mexican immigrants' food procurement, food preparation, and food consumption changed after a period of time in the U.S. In other words, *why* do Mexican immigrants have different food shopping habits, adopt new cooking methods, and eat different kinds of food in the U.S. compared to in Mexico? I found that there were four main factors that contributed to the Mexican immigrants' changes in food practices and dietary patterns. These were the (1)

elements of the new environment, (2) cultural beliefs regarding food and diet, (3) psychological factors and taste preferences, and (4) changes in lifestyles and day-to-day schedules.

The findings and insight from the first two phases of my study led me to form the objective of the third phase of my study (Chapter 4), which was to devise a questionnaire to quantitatively assess the comprehensive impacts of the food environment along with engagement of leisure activities on food practices and dietary patterns among Mexican immigrants in the Midwestern U.S. An acceptable questionnaire must fulfill the requirements of validity and reliability. To evaluate the content validity of the questionnaire, an expert panel of six individuals around the U.S. who worked in public health, food sciences and nutrition, and parks and recreation reviewed the questionnaire's items with an evaluation tool supplemented with the questionnaire. In accordance with the feedback provided by the six experts, I revised 20 items in the questionnaire to make them easier to read and understand, deleted one item, added more response options to 8 items, and adjusted 10 demographic questions.

The face validity of the questionnaire was assessed by a set of telephone cognitive interviews, during which the cognitive interviewees were asked to comment on the items' wording or phrasing, ordering of items or sections, any need for clarification, and any other problems with the questionnaire. While the cognitive interviewees generally thought that the questionnaire was straightforward and not difficult to understand, 12 items were either revised for more clarity or given more response options.

Despite the meticulous modifications made to the questionnaire to strengthen its content validity and face validity based on the feedback obtained from the expert panel and the cognitive interviewees, the internal consistency reliability for the four constructs of interest (elements of the new environment, cultural beliefs on food and diet, psychosocial factors and taste

preferences, and new lifestyle and daily schedules) were low (Cronbach's α values ranging between 0.061 and 0.648). Moreover, the test-retest reliability of the items of the questionnaire indicated low stability with 24 items in the English questionnaire and 19 items in the Spanish questionnaire having acceptable test-retest reliability coefficients out of a total of 38 items.

5.2 Discussion and Contributions of the Study

In my study, I had sought to understand *how* the eating behaviors and dietary patterns, and leisure activities of Mexican immigrants in the U.S. change after residing in the U.S. for a period of time, and *why* they evolve. Based on my findings, I developed an instrument in order to identify aspects of the Mexican immigrants' food, diet, and leisure activities that contribute to the healthfulness of their food intake and meals in the U.S. One of the important strengths and a novelty of this study is that the questionnaire that I had developed is founded on the actual experiences of Mexican immigrants in the Midwest. Most of the items of the questionnaire were generated as a result of the reports of the Mexican immigrants interviewed during the first two phases of the study. This is critical because food procurement, food preparation, food consumption, and flavor preferences are heavily influenced by cultural factors (Asp, 1999; Grier & Kumanyika, 2008) and ethnic identity (Laroche et al., 1998). A culturally appropriate survey is paramount for a thorough and comprehensive analysis of Mexican immigrants' eating behaviors, dietary patterns, and leisure activities.

The findings of my dissertation appear to be greatly connected to the construct of "food agency," which is a person's "ability to obtain cooking skills and translate those skills into action within the contexts of [the person's] social, physical, and economic environments" (Wolfson et al., 2020, p. 1). A recent study (Wolfson et al., 2020) found that U.S. adults with greater food

agency had higher frequencies of cooking all meals and cooking all meals from scratch, a lower frequency of cooking with packaged ingredients, and greater intake of vegetables. Nevertheless, the frequency of cooking in the U.S. has decreased over the second half of the 20th century and until 2003 (Smith et al., 2013) with reasons including low level of cooking skills, diminished availability of time, and increased cost of food (Caraher et al., 1999; Jabs & Devine, 2006; Winkler & Turrell, 2010). According to the National Health and Nutrition Examination Survey 2007–2008, Americans cook five times per week on average (Virudachalam et al., 2014).

While Wolfson and colleagues (2020) found differences in food agency in several demographic categories (i.e., gender, age, education level, employment status), differences based on ethnicity or race were not found. Factors that have been shown to be associated with food agency among people in the U.S. include time availability for cooking, job schedules, and family responsibilities (Brunner et al., 2010; Trubek et al., 2017; Wolfson et al., 2017), which support my findings of the factors that impact Mexican immigrants' dietary patterns and eating behaviors. Interventions to encourage people to develop their cooking skills and cook healthy meals at home are numerous in the U.S. and tailored for various kinds of populations (Reicks et al., 2018). Although much of my findings from my first two papers hold true for the general population in the U.S., the barriers that Mexican immigrants experience to regular consumption of healthy meals may be more complicated and of a greater magnitude than other population groups. For example, Mexican immigrants may face additional and interrelated issues and stressors such as acclimation to their new living environment (especially recent immigrants), language proficiency, immigration status, employment options available, marginalized status, financial expenses for family members in Mexico, and limited knowledge of their environment and community.

The probing of the Mexican immigrants' leisure participation and pastimes is another innovation of my study as the aspect of leisure, in particular the leisurely aspects of food consumption and food preparation, are frequently overlooked in research on food and diet, obesity, and public health issues. This is a stark contrast to the research on exercise and physical activity, which are areas where there is an abundant investigation on leisure. Such leisure aspects, such as the enjoyment of cooking, family bonding during mealtimes at home, and the social interactions that occur at farmers markets, are critical considerations in food consumption and food preparation because of their impacts on the nutritional content of an individual's food intake and meals.

Overall limitations

The two most important limitations of the overall study were related to participant recruitment and the COVID-19 pandemic. To be eligible to participate in the interviews in the first two phases of my study, participants needed to be Mexican immigrants who came the U.S. as adults at age 18 year or over and currently live in the Midwestern U.S. For the third phase of my study, though, I relied on snowball sampling to identify eligible Mexican immigrants because of the difficulty in recruiting interviewees who met these requirements and cancellations by potential interviewees, due to the COVID-19 pandemic. Without the opportunities for in-person recruitment at multicultural community centers, recreational facilities, Mexican restaurants, and other locations, I was obliged to conduct all recruitment either online using e-mails and flyers posted on social media or by making telephone calls to directors and leaders of community organizations. As a result, the sample in this phase of the study included more women than men and a substantial proportion of college-educated participants, which may have affected the

findings as the women and college-educated participants were more likely to discuss reading food labels, measuring portion sizes, and trying to improve their health.

With my limited means of participant recruitment during the third phase of my study, it had taken several months to complete 20 cognitive interviews to develop the questionnaire. The eligibility requirement for participants was the same as in the first and second phases of my study (Mexican immigrants who arrived in the U.S. as adults and now live in the Midwest), but it was especially difficult to find enough participants who felt comfortable reviewing the English version of the questionnaire. For the questionnaire administration part of my study, I therefore expanded the criterion to include Mexican immigrants currently living in the Midwest who came to the U.S. at any age. Consequently, the 20 participants who did the cognitive interviews (who only included those who immigrated to the U.S. as adults) were different from the 43 participants who responded to the questionnaire (who included Mexican immigrants who came to the U.S. at any age). Additionally, all the participants in the third phase of my study (both cognitive interviews and questionnaire respondents) used Internet and were recruited by either answering an online flyer posted on social media or a forwarded e-mail or by being told of my study by a fellow participant. I was hence unable to include any participants who do not use the Internet.

Moreover, the questionnaire development study had taken place during the ongoing COVID-19 pandemic, and the participants frequently referred to the pandemic to explain reasons for their food shopping and food preparation behaviors. The questionnaire had been developed before the onset of the pandemic, and therefore, does not take a large-scale shelter-in-place situation into account. The selected responses to the questionnaire were certainly affected by the pandemic, which needs to be taken into consideration in determining the questionnaire's reliability.

Areas for future research

With regards to the findings of my entire study, there should be more culturally specific investigation of immigrant populations' food-related leisure activities and food-related "chores." What do immigrants enjoy in the food-related leisure activities and dislike in food-related "chores"? Researchers should try to pinpoint the enjoyable aspects of the food-related leisure activities to make food purchasing, food preparation, and food consumption feel less like obligations and more like pleasurable activities that people look forward to. For example, if a person considers food shopping to be a chore, perhaps adjusting it to a more social experience can make food shopping more leisure-like. Grocery shopping can be daunting or overwhelming for immigrants not accustomed to the food and ingredients in their new country. A supermarket may host a cooking demonstration at a designated time to encourage friends to do their food shopping together or give customers something to look forward to while they are shopping.

Likewise, learning about what makes certain food-related activities seem chore-like to an immigrant population may be key to reducing the constraints to consuming healthy and palatable meals in their new country. For instance, a person new to the U.S. may find cooking "American" foods to be tedious, time-consuming, or futile because of any unsatisfying or unpalatable meals that one cooks. What can researchers, dietitians, and public health practitioners do to help lessen the burden of food preparation or create more satisfying and palatable dishes for a particular immigrant population?

As the internal reliability and test-retest reliability of the online questionnaire were low, the instrument should be tested again with a larger and more diverse sample of questionnaire respondents. The sample of respondents should include participants who are not proficient with technology, more participants who are middle-aged or older adults, and more participants who

immigrated to the U.S. at age 18 years and over. This may require the testing of a paper format of the questionnaire in order to reach the subset of individuals who do not use the Internet.

Another direction for future research is to test the questionnaire using a different time frame. The questionnaire in my study asked respondents to consider their lives over the last 12 months when answering the questions. A different time frame to use would be the current era of the pandemic when eating out at restaurants and attending social gatherings are infrequent or not possible, desired food items and ingredients are scarce or unavailable, store pick-up for groceries is more widely utilized, and cooking at home is more frequent. This kind of questionnaire could help us learn about a population's food practices, dietary patterns, and food-related leisure activities (if any) during a pandemic.

Finally, the questionnaire can be adapted for Mexican immigrants who live in a different part of the U.S., such as California and Texas. Mexican immigrants who live in other regions of the U.S. are likely to have dissimilar patterns of food shopping, a wider or more limited selection of Mexican food items and ingredients available, different ways of holding social gatherings over a meal, and have varying opinions of how traditional Mexican foods and dishes taste in the U.S. These regional differences may result in higher or lower frequencies of preparing traditional Mexican meals at home, shopping at ethnic food stores and farmers markets, and holding potlucks, cookouts, or other social mealtimes with friends.

5.3 Practical implications

The participation in leisure activities and an individual's food and diet are similar in that they are both strongly connected to psychological, cultural, and socioeconomic factors.

Research on the complex interactions of food practices, dietary patterns, and leisure activities of

immigrant or ethnic minority populations can hence have applications in the leisure, public health, and nutrition fields. The popularity of leisure cooking had exploded beginning with the establishment of the Food Network television channel in the U.S. in 1993 and the ensuing mass of cooking shows, food competition shows, cookbooks, food blogs, and recipe websites, all of which are geared towards entertainment. The societal shift to more frequent food preparation at home as a result of the shelter-in-place pandemic has taken the area of cooking as a leisure activity to the forefront with timely and renewed focus. Before the onset of the pandemic, cooking as a leisure activity had increased in popularity in modern industrial societies where electrical appliances, indoor plumbing, and other technology in the home are available, and the purchase of prepared foods and take-out food is more elective.

With the indefiniteness of the pandemic, strategizing ways to make food preparation at home an enjoyable regular leisure activity is a major task for practitioners and researchers in leisure studies, public health, and nutrition. One of the challenges of making cooking at home as a more regular and leisurely activity will be to increase people's skill level in cooking because a low skill level in food preparation can lower self-motivation to cook and render one dependent on convenience foods, some which are highly processed and high in fat, sugar, and salt. A number of Mexican immigrants interviewed in the first phase of my study discussed the necessity of learning new ways of cooking with the foods and ingredients available in their local community in the U.S. During an ongoing pandemic, the variety of options for foods and ingredients may be substantially diminished depending on where one lives, which further adds a new layer to the challenge of increasing one's skill set in preparing meals that are nutritious, palatable, and satisfying. This may be particularly true for Mexican immigrants because many of those whom I had interviewed emphasized the importance of fresh foods, especially fresh

produce and meats. Furthermore, the ability and willingness of an individual to cook are important for public health because they contribute to the way people make informed decisions about their food choices and diet.

Another related challenge is the prevention of cooking fatigue or burn-out, especially for those who think of food preparation as a time-consuming chore. In modern times, Latinos and Filipinos are overrepresented in the U.S. as cooks and numerous ethnic minorities operate modest restaurants in the U.S. Regardless of their level enjoyment of cooking, several Mexican interviewees from my first study reported eating out at restaurants and sharing meals at potlucks and other social gatherings on a regular basis, which provided them with respites from cooking. Now that much of the U.S. population is obliged to cook at home more frequently with few respites, devising ways to maintain a sense of enjoyment and novelty in cooking meals is critical to curbing cooking fatigue and burn-out.

Finally, the findings from my study can be used to develop strategies to help immigrants and ethnic minorities adopt or maintain healthy food practices and dietary patterns, during or after the pandemic. Several of the Mexican immigrants interviewed in the first phase of my study reported that they needed to alter their diet to include more healthy foods with less sodium, saturated fats, and sugar because of weight gain or chronic conditions that they had acquired while living in the U.S. When cooking classes, dinner parties, and potlucks are no longer occurring during the pandemic, people need to find new and creative ways of sharing healthy recipes, learning new cooking methods, and engaging in social interactions. Community organizations, recreation facilities, dietitians, and public health practitioners can use their knowledge of the people of their community to create new ways teach healthy recipes, make nutritious foods more available and accessible, and provide meal preparation advice for those

with dietary restrictions. They can also guide populations on how to maintain a regular routine of cooking meals that are both nutritious and satisfying when cities and towns reopen after the pandemic and people may revert to their old habits of sporadic and unstructured instances of meal preparation.

5.4 Final Thoughts

The most meaningful thing that I learned from my dissertation research was how important it is for health and overall well-being to have leisurely qualities in our regular food- and meal-related activities, especially food preparation, food consumption, and food shopping. Several studies on food intake and household chores support this importance of leisure. One study on food intake among Australian women found that women who typically perceived cooking to be a chore were less likely to consume two or more servings of fruits and vegetables per day, spent on average less than 15 minutes preparing dinner, more likely to eat take-out food from fast food restaurants, and frequently decided on what to eat for dinner on the same night (Crawford et al., 2007). Another study performed in Belgium found that people perceive cooking to be mainly a household chore that is a necessary task, and this was especially true among those who live alone and only cook for themselves (Daniels et al., 2012). On a related note, I learned that the social aspects of food- and meal-related activities can provide a variety of benefits to people's daily lives and are particularly salient for Mexican immigrants. Food preparation and food consumption tend to be more pleasurable and enjoyable activities with others as well as being ways to show care or affection with others.

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APPENDIX A: IRB APPROVAL LETTER FOR FIRST TWO PHASES OF STUDY

UNIVERSITY OF ILLINOIS
AT URBANA-CHAMPAIGN

Office of Vice Chancellor for Research
Institutional Review Board
528 East Green Street
Suite 203
Champaign, IL 61820



May 28, 2014

Monika Stodolska

Recreation Sport and Tourism

104 Huff Hall

1206 S Fourth St

M/C 584

RE: *Food Acculturation among Hispanic Immigrants*

IRB Protocol Number: 14839

EXPIRATION DATE: 05/27/2017

Dear Dr. Stodolska:

Thank you for submitting the completed IRB application form for your project entitled *Food*

Acculturation among Hispanic Immigrants. Your project was assigned Institutional Review Board (IRB) Protocol Number 14839 and reviewed. It has been determined that the research activities described in this application meet the criteria for exemption at 45CFR46.101(b)(2).

This determination of exemption only applies to the research study as submitted. Please note that additional modifications to your project need to be submitted to the IRB for review and exemption determination or approval before the modifications are initiated.

We appreciate your conscientious adherence to the requirements of human subjects research. If you have any questions about the IRB process, or if you need assistance at any time, please feel free to contact me or the IRB Office, or visit our website at <http://www.irb.illinois.edu>.

Sincerely,

Rebecca Van Tine, MS
Assistant Human Subjects Research Specialist, Institutional Review Board

c: Angela Wiley
Maggie Phan

APPENDIX B: IRB APPROVAL LETTER FOR THIRD PHASE OF STUDY



OFFICE OF THE VICE CHANCELLOR FOR RESEARCH & INNOVATION

Office for the Protection of Research Subjects
805 W. Pennsylvania Ave., MC-095
Urbana, IL 61801-4822

Notice of Exempt Determination

April 6, 2020

Principal Investigator	Monika Stodolska
CC	Maggie Phan
Protocol Title	<i>Design of Survey to Examine the Food Practices, Dietary Patterns, and Leisure Behaviors among Mexican Immigrants in the Midwestern United States</i>
Protocol Number	20707
Funding Source	Seymour Sudman Dissertation Award
Review Category	Exempt 2 (ii)
Determination Date	April 6, 2020
Closure Date	April 5, 2025

This letter authorizes the use of human subjects in the above protocol. The University of Illinois at Urbana-Champaign Office for the Protection of Research Subjects (OPRS) has reviewed your application and determined the criteria for exemption have been met.

The Principal Investigator of this study is responsible for:

- Conducting research in a manner consistent with the requirements of the University and federal regulations found at 45 CFR 46.
- Requesting approval from the IRB prior to implementing major modifications.
- Notifying OPRS of any problems involving human subjects, including unanticipated events, participant complaints, or protocol deviations.
- Notifying OPRS of the completion of the study.

Changes to an **exempt** protocol are only required if substantive modifications are requested and/or the changes requested may affect the exempt status.

UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

IORG0000014 • FWA #00008584

217.333.2670 • irb@illinois.edu • oprs.research.illinois.edu

APPENDIX C: CONSENT FORM IN ENGLISH

Design of Survey to Examine the Food Practices, Dietary Patterns, and Leisure Behaviors among Mexican Immigrants in the Midwestern United States

You are being asked to participate in a voluntary research study. The purpose of this study is to evaluate a questionnaire that examines the process of change in food practices and dietary patterns and the role of leisure in these changes among Mexican immigrants in the U.S. Participating in this study will involve providing feedback to a questionnaire concerning the food and diet and leisure activities among Mexican immigrants. Your participation will last approximately 60 to 90 minutes during an interview. Risks related to this research include questions regarding health, diet, and nutrition that may be sensitive to you; benefits related to this research include your contribution to the improvement of a questionnaire to help researchers understand the food practices, dietary practices, and leisure behaviors among Mexican immigrants. The alternative to participating in this study is to decline participation.

Principal Investigator Name and Title: Monika Stodolska, Professor
Department and Institution: Recreation, Sport, and Tourism, University of Illinois at Urbana-Champaign
Contact Information: E-mail: stodolsk@illinois.edu
Telephone: (217) 244-5644

Why am I being asked?

You are being asked to be a participant in a research study about the food and leisure behaviors among Mexican immigrants. The purpose of this research is to delineate the process of change in food practices and dietary patterns and the role of leisure in these changes among Mexican immigrants in the Midwestern U.S. You have been asked to participate in this research because you are a resident of the Midwestern part of the U.S. and had immigrated to the U.S. from Mexico as an adult (age 18 or over). Approximately 20 participants will be involved in this research at the University of Illinois at Urbana-Champaign.

Your participation in this research is voluntary. Your decision whether or not to participate will not affect your current or future dealings with the University of Illinois at Urbana-Champaign. If you decide to participate, you are free to withdraw at any time without affecting that relationship.

What procedures are involved?

The study procedures are answering questions and providing feedback for a draft of a survey about the food and leisure behaviors among Mexican immigrants.

This research will be performed at a laboratory at the University of Illinois at Urbana-Champaign, an office, a community center, or a café. You will need to come to the study site. The visit will last approximately 60 to 90 minutes. Additionally, you have the option of being interviewed over the telephone after you return this consent form to the researchers.

What are the potential risks and discomforts?

There are no foreseeable risks or discomforts from your study participation, however, the questions regarding health, diet, and nutrition may be sensitive to you.

Are there benefits to participating in the research?

Your participation will contribute to the improvement of a questionnaire to help researchers understand the food practices, dietary patterns, and leisure behaviors among Mexican immigrants.

What other options are there?

You have the option to not participate in this study.

Will my study-related information be kept confidential?

We will use all reasonable efforts to keep your personal information confidential, but we cannot guarantee absolute confidentiality. When this research is discussed or published, no one will know that you were in the study. But, when required by law or university policy, identifying information (including your signed consent form) may be seen or copied by: a) The Institutional Review Board that approves research studies; b) The Office for Protection of Research Subjects and other university departments that oversee human subjects research; and c) University and state auditors responsible for oversight of research.

Will I be reimbursed for any expenses or paid for my participation in this research?

You will be offered a \$25 gift card after the interview.

Can I withdraw or be removed from the study?

If you decide to participate, you are free to withdraw your consent and discontinue participation at any time. The researchers also have the right to stop your participation in this study without your consent if they believe it is in your best interests, you were to object to any future changes that may be made in the study plan, or the study has concluded.

Will data collected from me be used for any other research?

Your information will not be used or distributed for future use, even if identifiers are removed.

Who should I contact if I have questions?

Contact the researchers Maggie Phan, Ph.D. candidate, at 217-898-3822 or mphan2@illinois.edu, or Monika Stodolska, Professor, at 217-244-5644 or stoldolsk@illinois.edu, if you have any questions about this study or your part in it, or if you have concerns or complaints about the research.

What are my rights as a research subject?

If you have any questions about your rights as a participant in this study, please contact the University of Illinois at Urbana-Champaign Office for the Protection of Research Subjects at 217-333-2670 or irb@illinois.edu.

I have read the above information. I have been given an opportunity to ask questions and my questions have been answered to my satisfaction. I agree to participate in this research. I will be given a copy of this signed and dated form.

Signature

Date

Printed Name

Signature of Person Obtaining Consent

Date (must be same as subject's)

Printed Name of Person Obtaining Consent

APPENDIX D: CONSENT FORM IN SPANISH

Diseño de un cuestionario para examinar las prácticas alimentarias, los patrones dietéticos y los comportamientos de ocio entre los inmigrantes mexicanos en el medio oeste de los Estados Unidos

Usted está siendo invitado a participar voluntariamente en una investigación de estudio. El propósito del estudio es diseñar un cuestionario para examinar el proceso de cambio en las prácticas alimentarias y los patrones dietéticos y el papel de ocio en estos cambios entre los inmigrantes mexicanos en los Estados Unidos. La participación en este estudio implicará proporcionar retroalimentación a un cuestionario sobre la alimentación y la dieta y las actividades de ocio entre los inmigrantes mexicanos.

Su participación durará aproximadamente de 60 a 90 minutos durante una entrevista. Los riesgos relacionados con esta investigación incluyen preguntas sobre salud, dieta y nutrición que pueden ser sensibles para usted; los beneficios relacionados con esta investigación incluyen su contribución a la mejora de un cuestionario para ayudar a los investigadores a comprender las prácticas alimentarias, las prácticas dietéticas y los comportamientos de ocio entre los inmigrantes mexicanos. La alternativa a participar en este estudio es rechazar la participación.

Investigadora Principal: Monika Stodolska, Profesora
Departamento: Recreación, Deporte, y Turismo
Correo Electrónico: stodolsk@illinois.edu
Teléfono: (217) 244-5644

¿Por qué me preguntan?

Usted ha sido invitado a ser un participante en un estudio de investigación acerca de la comida y de ocio comportamientos entre los inmigrantes Mexicanos. El propósito de esta investigación es delinear el proceso de cambio en las prácticas alimentarias y los patrones dietéticos y el papel de ocio en estos cambios entre los inmigrantes mexicanos en el medio oeste de los Estados Unidos. Usted ha sido invitado a participar en esta investigación debido a que usted es un residente de la región medio oeste de los estados UNIDOS y había inmigrado a los Estados Unidos de México como un adulto (de 18 años o más). Aproximadamente 20 personas participarán en esta investigación en la Universidad de Illinois en Urbana-Champaign.

Su participación en esta investigación es voluntaria. Su decisión de participar, rechazar, o retirarse del estudio no afectará sus tratos actuales o futuros con la Universidad de Illinois en Urbana-Champaign. Si usted decide participar, puede retirarse en cualquier momento sin afectar esa relación.

¿Qué procedimientos están involucrados?

Los procedimientos del estudio son responder preguntas y brindar retroalimentación para un borrador de un cuestionario sobre los comportamientos de alimentación y ocio entre los inmigrantes mexicanos.

Esta investigación se realizará en un laboratorio de la Universidad de Illinois en Urbana-Champaign, una oficina, un centro comunitario o una caf . Usted tendr  que venir al sitio de estudio. La visita tendr  una duraci n aproximada de 60 a 90 minutos. Adem s, usted tiene la opci n de ser entrevistado por tel fono despu s de devolver este formulario de consentimiento a los investigadores.

 Cu les son los posibles riesgos y molestias?

No hay riesgos o molestias previsibles por su participaci n en el estudio, sin embargo, las preguntas sobre salud, dieta y nutrici n pueden ser sensibles para usted.

 Cu les son los beneficios de participar en la investigaci n?

Su participaci n contribuir  a la mejora de un cuestionario para ayudar a los investigadores a comprender las pr cticas alimentarias, los patrones diet ticos y los comportamientos de ocio entre los inmigrantes mexicanos.

 Qu  otras opciones hay?

Usted tiene la opci n de no participar en este estudio.

 Se mantendr  confidencial mi informaci n relacionada con el estudio?

Haremos todos los esfuerzos razonables para mantener su informaci n personal confidencial, pero no podemos garantizar la confidencialidad absoluta. Cuando se discuta o publique esta investigaci n, nadie sabr  que usted estuvo en el estudio. Sin embargo, cuando sea requerido por ley o la pol tica de la universidad, la informaci n de identificaci n (incluyendo su formulario de consentimiento firmado) puede ser visto o copiado por: (A) La Junta de Revisi n Institucional que aprueba estudios de investigaci n; (B) La Oficina de Protecci n de los Sujetos de Investigaci n y otros departamentos universitarios que supervisan la investigaci n de sujetos humanos; y (C) auditores universitarios y estatales responsables de la supervisi n de la investigaci n.

 Se me reembolsar n los gastos o se me pagar  por mi participaci n en esta investigaci n?

Se le ofrecer  una tarjeta de regalo de \$25 al finalizar la entrevista.

 Puedo retirarme o ser retirado del estudio?

Si usted decide participar, puede retirar su consentimiento y suspender su participaci n en cualquier momento. Los investigadores tambi n tienen el derecho de detener su participaci n en este estudio sin su consentimiento si creen que es lo mejor para usted, si se opondr a a cualquier cambio futuro que pueda realizarse en el plan de estudio, o el estudio haya concluido .

 Los datos recopilados de m  se utilizar n para cualquier otra investigaci n?

Su informaci n no ser  utilizada o distribuida para uso futuro, incluso si se eliminan los identificadores.

 A qu n debo contactar si tengo preguntas?

P ngase en contacto con las investigadoras Maggie Phan, candidata a doctorado, al 217-898-3822 o mphan2@illinois.edu, o Monika Stodolska, profesora, al 217-244-5644 o stoldolsk@illinois.edu, si usted tiene alguna pregunta sobre este estudio o su parte en  l, o si tiene inquietudes o quejas sobre la investigaci n.

¿Cuáles son mis derechos como sujeto de investigación?

Si tiene alguna pregunta sobre sus derechos como participante en este estudio, comuníquese con la Junta de Revisión Institucional de la Universidad de Illinois al 217-333-2670 o por correo electrónico a irb@illinois.edu.

He leído la información anterior. Se me ha dado la oportunidad de hacer preguntas y mis preguntas han sido respondidas a mi entera satisfacción. Acepto participar en esta investigación. Me darán una copia de este formulario firmado y fechado.

Firma

Fecha

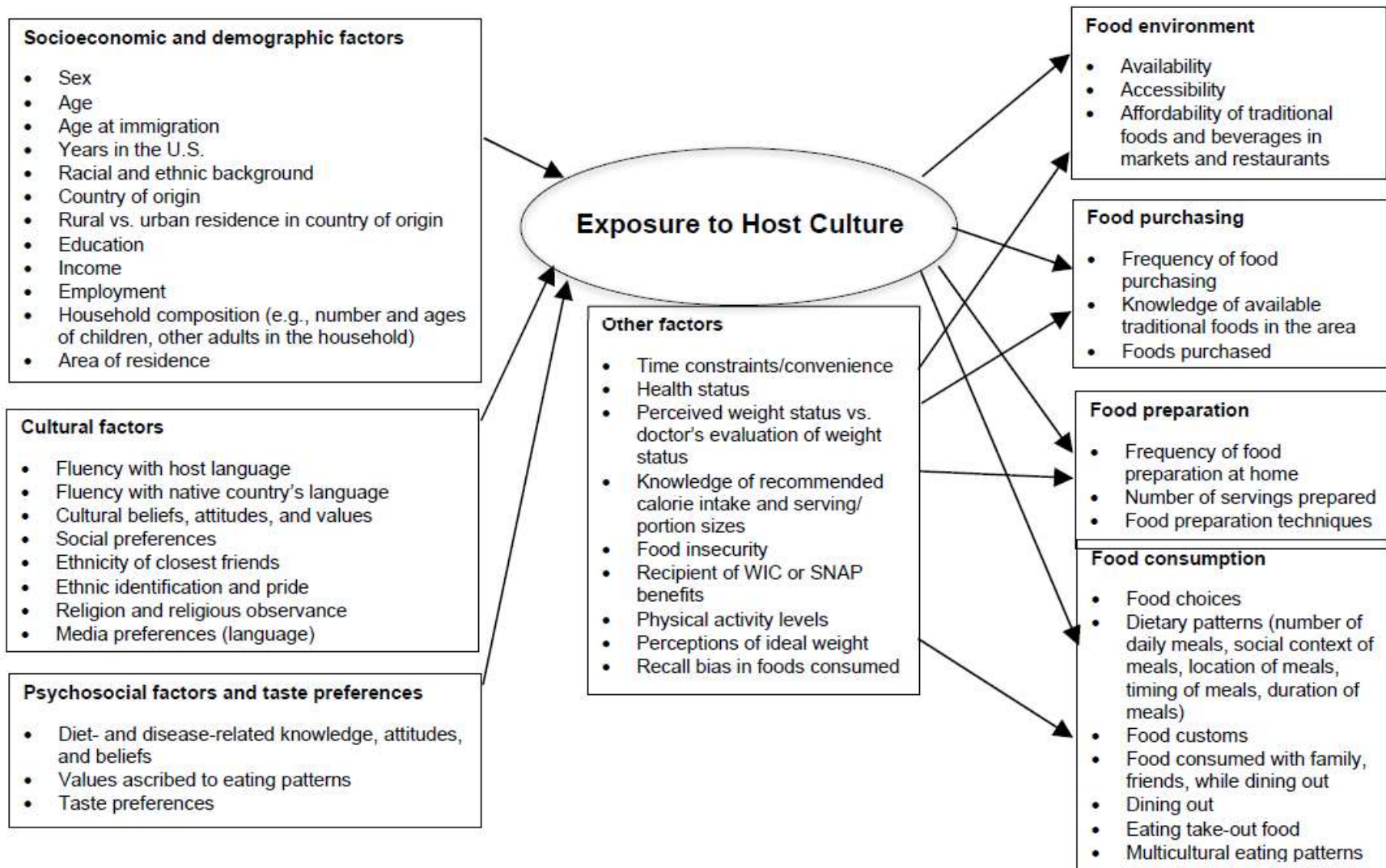
Nombre en letra de molde

Firma de la persona que obtiene el consentimiento

Fecha

Nombre en letra de molde de la persona que
obtiene el consentimiento

APPENDIX E: MODEL OF THE PROCESS OF DIETARY ACCULTURATION



Source: Adapted from Satia, J. (2010). Dietary acculturation and the nutrition transition: An overview. *Applied Physiology, Nutrition, and Metabolism*, 35(2), 219-223.

APPENDIX F: INTERVIEW QUESTIONS FOR FIRST TWO PHASES OF STUDY

RQ1 = Research Question 1: How do the food practices and dietary patterns among Mexican immigrants change after their arrival to the U.S.?

RQ2 = Research Question 2: Why have the Mexican immigrants' food procurement, food preparation, and food consumption changed after moving to the U.S.?

1. [*Food Consumption, RQ1*]
Tell me what your favorite meal is.
 - a. What makes it your favorite?
 - b. Is that something you make for yourself, someone else makes for you, or something you get at a restaurant?

2. [*Food Consumption, Food Environment, RQ1 & RQ2*]
Thinking back to the time when you lived in Mexico, what were some of your favorite foods or meals?
 - a. Which of these do you get to have now, if at all, and how often?

3. [*Food Consumption, RQ2*]
What was the biggest change, if any, in the foods you ate when you first came to the U.S?
 - a. What caused this change?
 - b. What didn't changed much at all?

4. [*Food Consumption, Psychosocial Factors & Taste Preferences, RQ1*]
Are there any foods that you try not to eat too many of or avoid all together?
 - a. What foods do you generally consider to be healthy versus unhealthy?
 - b. Would you say you eat "unhealthy" foods often?
 - c. Do you think that if you wanted to you could eat healthy foods, or would you find it difficult?
 - d. How many times per day do you snack (eat in-between meals)?
 - e. How important or unimportant is it for you to eat healthy foods?

5. [*Food Consumption, Cultural Factors, RQ1 & RQ2*]
Tell me a little bit about your typical meal pattern. What I mean by meal pattern is that some people eat 3 main meals a day while others eat a lot of small meals during the day. I know some people skip breakfast or just have coffee while others want a big breakfast. What does your typical day look like for meals and snacks?
 - a. For breakfast / lunch / dinner [depending on what the interviewee mentions], what do you typically eat?
 - b. Do you typically eat it at home or in some other place?
 - c. Do you eat alone, with family, or co-workers?
 - d. Does this differ on a weekday vs. a weekend?
 - e. What do you typically have to drink with each meal?

6. [*Food Consumption, Cultural Factors, RQ1 & RQ2*]
Could you describe to me a typical dinner time at your house?

- a. Is your family eating it together?
 - b. Does each person have his/her own plate setting or does everyone share food from a large plate on the dining table?
7. *[Food Consumption, Cultural Factors, RQ1 & RQ2]*
Do you have any special mealtime traditions in your family?
 - a. Something that you always do before, during, or after a meal?
 - b. Have those traditions changed after you came to the U.S.? [If so, why you no longer practice them?]
 - c. What kind of food do you eat when celebrating different holidays (please provide examples)?
8. *[Food Consumption, Food Environment, RQ1 & RQ2]*
How often do you eat out at restaurants?
 - a. Do you eat at any Mexican restaurants in town?
 - b. If so, how do you choose which ones to go to?
 - c. How about fast foods?
9. *[Food Purchasing, Food Environment, RQ1 & RQ2]*
If you were to run out after today's interview to buy a load of groceries, which store would you go to?
 - a. What made you chose that store as the place to buy groceries?
 - b. Are there other stores that you go to at least sometimes for groceries?
 - c. How far away from your house or work is the first store that you mentioned?
 - d. Do you typically drive your own car, catch a ride, walk or take the bus to that store?
 - e. Can you buy traditional Mexican foods and drinks in that store or do you need to go to other stores to buy those items? [If to other stores – how far are they from the place where you live? Are they in the same neighborhood?]
 - f. Are those traditional Mexican foods and drinks expensive?
 - g. How often do you do grocery shopping in general?
10. *[Food Purchasing, Food Environment, Psychosocial Factors & Taste Preferences, RQ1 & RQ2]*
Thinking back to your last major grocery store trip, can you remember the items that you bought? I will write them down them down as you tell them to me.
 - a. Now going I'll read back the items, and you can tell me whether you consider them to be more "American foods", "Mexican foods", "Both American and Mexican foods," "or not really either."
 - b. In general, how do you choose the foods that you buy at the store? (By the taste, cost, availability, health reasons, etc.?)
11. *[Food Preparation, RQ1]*
Would you describe yourself as a 1) master chef, 2) not a master chef but able to get good meals on the table, 3) a reluctant chef (cooks but doesn't really like it), or a kitchen disaster?
 - a. Who does most of the cooking at your home?

- b. How often do you prepare meals at home (e.g., cook dinner)?
12. [*Food Preparation, RQ1 & RQ2*]
When you cook, do you do it in a more traditional way / the way you learned back in Mexico, or did you learn some new ways of cooking after coming to the US?
13. [*Cultural Factors, Psychosocial Factors & Taste Preferences, Other Factors, RQ1*]
Do you have any specific beliefs about food and diet? [Such as only eating hot foods or cold foods based on the season or illness? Or that certain types of foods cannot be eaten with another type of food?]
14. [*Other Factors, RQ2*]
If there is one thing that you wanted to be tell me about... (changes in your diet since moving to the U.S. or whatever big questions you want to close with), what would that be?

[Socioeconomic and Demographic Factors]

And now, I just need to ask you some background questions about yourself.

15. How old are you, approximately?
16. What is your gender / sex? [Interviewee can complete it himself/herself]
1 = Male 2 = Female
17. Which state in Mexico were you born in?
 - a. Is this the state where your parents were from? Or did they move there for work or other reasons?
 - b. Would you describe the place where you grew up in Mexico a major city, a small city, a rural town, or not in a town at all? [*keeping in mind they could have spent time in multiple places, lived with different family members*]
18. How old were you when you came to the U.S.?
19. Did you come alone or with family members?
20. In which U.S. state did you first live in? How long did you stay there? What eventually brought you to Illinois?

The Bidirectional Acculturation Scale for Hispanics (BAS): English Version

1 = Very poorly; 2 = Poorly; 3 = Well; 4 = Very well

Linguistic Proficiency Subscale

21. How well do you speak English?
22. How well do you read in English?
23. How well do you understand TV programs in English?
24. How well do you understand radio programs in English?
25. How well do you write in English?
26. How well do you understand music in English?
27. How well do you speak Spanish?
28. How well do you read in Spanish?
29. How well do you understand TV programs in Spanish?
30. How well do you understand radio programs in Spanish?
31. How well do you write in Spanish?
32. How well do you understand music in Spanish?
33. Are most of your friends in the U.S. Latino or from other groups? [Probes: How many of your friends are Latino? Less than half? A few?]
34. Which best describes your marital status?
 - 1 = Single (Never married)
 - 2 = Live with partner (e.g., civil union)
 - 3 = Married

- 4 = Separated
- 5 = Divorced
- 6 = Other (_____)

35. Where did you complete your highest degree?
1 = U.S.
2 = Mexico
3 = Another country (_____)
36. What is the highest educational degree that you completed in Mexico?
1 = Primaria
2 = Secundaria
3 = Preparatoria
4 = Carrera técnica (2 years)
5 = Licenciatura/Carrera (4 years of university)
6 = Maestría
7 = Doctorado (or equivalent)
37. What is the highest educational degree you completed (U.S.)?
1 = Middle school or equivalent
2 = High School Diploma/GED
3 = Associate's Degree
4 = BA/BS (4-year college)
5 = MA/MS (master's degree)
6 = Ph.D./J.D./M.D. (graduate degree)
7 = I did not complete any degrees in the U.S.
38. What did you do for a living back in Mexico?
39. What about now [What do you do for a living]?
a. Is your work part-time or full-time?
b. How many hours do you work per week?
40. Do you live in a city, town, suburb, or rural area in the U.S.?
1 = City
2 = Town
3 = Suburb
4 = Rural area
41. How many children under the age of 18 live in your home?
a. How old are they?
42. How many adults live in your home?
a. Who are they?

43. Please select the number that corresponds to the category which best describes your family's average annual income from all sources (before taxes). [Interviewer: Show card; circle one]
- 1 = Less than \$10,000
 - 2 = \$10,000 - \$19,999
 - 3 = \$20,000 - \$29,999
 - 4 = \$30,000 - \$39,999
 - 5 = \$40,000 - \$49,999
 - 6 = \$50,000 - \$59,999
 - 7 = \$60,000 - \$69,999
 - 8 = Over \$70,000
44. Would you say that your neighborhood has: [READ ANSWERS, circle one]
- 1 = Few Latino/Hispanic residents?
 - 2 = Some Latino/Hispanic residents?
 - 3 = Mostly Latino/Hispanic residents?
 - 4 = All Hispanic/Latino residents?

APPENDIX G: QUESTIONNAIRE IN ENGLISH—FINAL VERSION

We are conducting a survey to learn about the food consumption, meal preparation, and mealtimes among Mexican immigrants. Please answer each question as best as you can thinking about what you did and how you felt in the last 12 months.

1. How satisfied are you with the options of **fruits** (such as bananas, oranges, and apples) available for purchase in your community?
 - ☐ Very dissatisfied
 - ☐ Dissatisfied
 - ☐ Neutral
 - ☐ Satisfied
 - ☐ Very satisfied
2. How satisfied are you with the options of **vegetables** (such as spinach, onions, and bell peppers) available for purchase in your community?
 - ☐ Very dissatisfied
 - ☐ Dissatisfied
 - ☐ Neutral
 - ☐ Satisfied
 - ☐ Very satisfied
3. How satisfied are you with the options of **meats** (such as chicken, beef, pork, and fish) available for purchase in your community?
 - ☐ Very dissatisfied
 - ☐ Dissatisfied
 - ☐ Neutral
 - ☐ Satisfied
 - ☐ Very satisfied
 - ☐ I don't eat meat
4. How satisfied are you with the options of **grains/starches** (such as rice, tortillas, and bread) available for purchase in your community?
 - ☐ Very dissatisfied
 - ☐ Dissatisfied
 - ☐ Neutral
 - ☐ Satisfied
 - ☐ Very satisfied
5. Do you buy food items from supermarkets/grocery stores (*e.g.*, Jewel Osco, Aldi, Kroger)? Do not include prepared meals purchased for take-out or eaten at restaurants.
 - ☐ Yes: Often
 - ☐ Yes: Sometimes
 - ☐ Yes: Rarely
 - ☐ No: Never

A. [If “Yes” selected] Which of the following are reasons you shop at supermarkets/ grocery stores, such as Jewel Osco, Aldi, and Kroger? (Select all that apply.)

- ☐ Price
- ☐ Location
- ☐ Quality of products
- ☐ Variety of products
- ☐ Customer service
- ☐ Spanish is spoken there
- ☐ EBT/WIC is accepted for payment
- ☐ An app available for easier shopping
- ☐ Delivery or store pick-up is available
- ☐ Free parking/parking lot is available
- ☐ Other (please specify) _____

6. Do you buy food items from supercenters, such as Walmart, Target, and Meijer? Do not include prepared meals purchased for take-out or eaten at restaurants.

- ☐ Yes: Often
- ☐ Yes: Sometimes
- ☐ Yes: Rarely
- ☐ No: Never

A. [If “Yes” selected] Which of the following are reasons you shop at supercenters, such as Walmart, Target, and Meijer? (Select all that apply.)

- ☐ Price
- ☐ Location
- ☐ Quality of products
- ☐ Variety of products
- ☐ Customer service
- ☐ Spanish is spoken there
- ☐ EBT/WIC is accepted for payment
- ☐ An app available for easier shopping
- ☐ Delivery or store pick-up is available
- ☐ Free parking/parking lot is available
- ☐ Other (please specify) _____

7. Do you buy food items from membership/warehouse club stores, such as Costco and Sam’s Club? Do not include prepared meals purchased for take-out or eaten at restaurants.

- ☐ Yes: Often
- ☐ Yes: Sometimes
- ☐ Yes: Rarely
- ☐ No: Never

A. [If “Yes” selected] Which of the following are reasons you shop at membership/warehouse club stores, such as Costco and Sam’s Club? (Select all that apply.)

- ☐ Price
- ☐ Location

- ☐ Quality of products
- ☐ Variety of products
- ☐ Customer service
- ☐ Spanish is spoken there
- ☐ EBT/WIC is accepted for payment
- ☐ An app available for easier shopping
- ☐ Delivery or store pick-up is available
- ☐ Free parking/parking lot is available
- ☐ Other (please specify) _____

8. Do you buy food items from specialty stores, such as ethnic stores, Whole Foods, Mariano's, and Trader Joe's? Do not include prepared meals purchased for take-out or eaten at restaurants.

- ☐ Yes: Often
- ☐ Yes: Sometimes
- ☐ Yes: Rarely
- ☐ No: Never

A. [If "Yes" selected] Which of the following are reasons you shop at specialty stores, such as ethnic stores, Whole Foods, Mariano's, and Trader Joe's? (Select all that apply.)

- ☐ Price
- ☐ Location
- ☐ Quality of products
- ☐ Variety of products
- ☐ Customer service
- ☐ Spanish is spoken there
- ☐ EBT/WIC is accepted for payment
- ☐ An app available for easier shopping
- ☐ Delivery or store pick-up is available
- ☐ Free parking/parking lot is available
- ☐ Other (please specify) _____

9. Do you buy food items from convenience stores or corner stores, such as Seven Eleven? Do not include prepared meals purchased for take-out or eaten at restaurants.

- ☐ Yes: Often
- ☐ Yes: Sometimes
- ☐ Yes: Rarely
- ☐ No: Never

A. [If "Yes" selected] Which of the following are reasons you shop at convenience stores or corner stores, such as Seven Eleven? (Select all that apply.)

- ☐ Price
- ☐ Location
- ☐ Quality of products
- ☐ Variety of products
- ☐ Customer service

- ☐ Spanish is spoken there
- ☐ EBT/WIC is accepted for payment
- ☐ An app available for easier shopping
- ☐ Delivery or store pick-up is available
- ☐ Free parking/parking lot is available
- ☐ Other (please specify) _____

10. Do you buy food items from outdoor food stands? Do not include prepared meals purchased for take-out or eaten at restaurants.

- ☐ Yes: Often
- ☐ Yes: Sometimes
- ☐ Yes: Rarely
- ☐ No: Never

A. [If “Yes” selected] Which of the following are reasons you shop at outdoor food stands? (Select all that apply.)

- ☐ Price
- ☐ Location
- ☐ Quality of products
- ☐ Variety of products
- ☐ Customer service
- ☐ Spanish is spoken there
- ☐ EBT/WIC is accepted for payment
- ☐ An app available for easier shopping
- ☐ Delivery or store pick-up is available
- ☐ Free parking/parking lot is available
- ☐ Other (please specify) _____

11. Do you buy food items from farmers markets? Do not include prepared meals purchased for take-out or eaten at restaurants.

- ☐ Yes: Often
- ☐ Yes: Sometimes
- ☐ Yes: Rarely
- ☐ No: Never

A. [If “Yes” selected] Which of the following are reasons you shop at farmers markets? (Select all that apply.)

- ☐ Price
- ☐ Location
- ☐ Quality of products
- ☐ Variety of products
- ☐ Customer service
- ☐ Spanish is spoken there
- ☐ EBT/WIC is accepted for payment
- ☐ An app available for easier shopping
- ☐ Delivery or store pick-up is available

- ☐ Free parking/parking lot is available
- ☐ Other (please specify) _____

12. How do you usually get to the store where you buy food?

- ☐ Driving my own vehicle
- ☐ A family member or friend drives me
- ☐ Using public transportation (*e.g.*, bus, train)
- ☐ Walking
- ☐ Using a taxi, cab, uber, or other car service
- ☐ Riding a bicycle
- ☐ I don't go to the store because another family member buys my food (and groceries) and brings them to my home
- ☐ I don't go to the store because I have my food (and groceries) delivered to my home
- ☐ Other (please specify) _____

13. On average, how long does it take for you (or the primary shopper in your household) to get to the store where you buy the majority of your food items (whether by driving, walking, taking public transportation, etc.)?

- ☐ 10 minutes or less
- ☐ 11—20 minutes
- ☐ 21—30 minutes
- ☐ 31—40 minutes
- ☐ More than 40 minutes

14. How often do you buy food at farmers markets?

- ☐ 2 or more times per week
- ☐ Once per week
- ☐ 1—3 times per month
- ☐ A few times per year
- ☐ Never or almost never

15. How often do you shop at ethnic stores (*e.g.*, Mexican or Hispanic stores) to buy food and/or ingredients?

- ☐ 2 or more times per week
- ☐ Once per week
- ☐ 1—3 times per month
- ☐ A few times per year
- ☐ Never or almost never

16. How often do you eat breakfast, lunch, or dinner prepared at either restaurants or fast food places? **Include only meals eaten at the restaurant.** (Such as McDonald's, Burger King, Taco Bell)

- ☐ Every day or almost every day
- ☐ 3—4 times per week
- ☐ 1—2 times per week
- ☐ 1—3 times per month

- ☐ A few times per year
- ☐ Never or almost never

17. How often do you eat **take-out food** prepared at either restaurants or fast food places for breakfast, lunch or dinner? (Such as McDonald's, Burger King, Taco Bell)

- ☐ Every day or almost every day
- ☐ 3—4 times per week
- ☐ 1—2 times per week
- ☐ 1—3 times per month
- ☐ A few times per year
- ☐ Never or almost never

18. How important is it to you that you follow family beliefs regarding food and diet while in the U.S.? These beliefs may include which foods you consider to be nutritious and healthy, and the kinds of foods to be eaten during illness, pregnancy, or specific holidays.

- ☐ Completely unimportant
- ☐ Not very important
- ☐ Neutral
- ☐ Somewhat important
- ☐ Very important

19. If you (or another member in your household) prepares traditional Mexican dishes, how important are the following reasons that you (or another member in your household) prepare them?

	Completely unimportant	Not important	Neutral	Somewhat important	Very important
A. They are my favorite dishes.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
B. I think that Mexican dishes are healthy.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
C. They are my family's favorite dishes.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D. They remind me of my home in Mexico.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
E. I am not used to eating non-Mexican foods.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
F. I feel a sense of pride for my culture when I cook traditional Mexican dishes.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
G. Preparing traditional Mexican dishes is a way to show affection and hospitality.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

20. If you or someone in your household prepares traditional Mexican dishes, how satisfied are you with their flavors?

- ☐ Very dissatisfied
 - ☐ Dissatisfied
 - ☐ Neutral
 - ☐ Satisfied
 - ☐ Very satisfied
 - ☐ No one in my household prepares Mexican meals at home
21. How satisfied are you with the flavors of **non-Mexican** meals that you or a family member **prepare at home?**
- ☐ Very dissatisfied
 - ☐ Dissatisfied
 - ☐ Neutral
 - ☐ Satisfied
 - ☐ Very satisfied
 - ☐ No one in my household prepares non-Mexican meals at home
22. How satisfied are you with the flavors of meals that you buy at the **Mexican restaurant that you go to most often?**
- ☐ Very dissatisfied
 - ☐ Dissatisfied
 - ☐ Neutral
 - ☐ Satisfied
 - ☐ Very satisfied
 - ☐ I do not eat meals from Mexican restaurants
23. How satisfied are you with the flavors of meals that you buy at the **non-Mexican restaurant that you go to most often?**
- ☐ Very dissatisfied
 - ☐ Dissatisfied
 - ☐ Neutral
 - ☐ Satisfied
 - ☐ Very satisfied
 - ☐ I do not eat meals at non-Mexican restaurants
24. How often do you prepare meals that have both ingredients that you consider “Mexican” and ingredients that you consider “American”? Please think of main ingredients, such as specific types of rice, meat, and vegetables.
- ☐ Every day or almost every day
 - ☐ 3—4 times per week
 - ☐ 1—2 times per week
 - ☐ 1—3 times per month
 - ☐ A few times per year
 - ☐ Never or almost never
25. How important is it for the meals that you eat to taste “fresh,” as in recently cooked, recently harvested (fruits and vegetables) or slaughtered (meat), or not canned or frozen?

- ☐ Completely unimportant
- ☐ Not important
- ☐ Neutral
- ☐ Somewhat important
- ☐ Very important

26. How many hours on average per day do you spend preparing food, cooking, and cleaning up from meals on a **weekday** (Mondays to Fridays)? Do not include heating up leftovers.

- ☐ Less than 1 hour per day
- ☐ 1—2 hours per day
- ☐ 2—3 hours per day
- ☐ More than 3 hours per day
- ☐ I do not prepare food, cook, or clean up from meals on weekdays

27. How many hours on average per day do you spend preparing food, cooking, and cleaning up from meals on a **weekend** (Sundays and Saturdays)? Do not include heating up leftovers.

- ☐ Less than 1 hour per day
- ☐ 1—2 hours per day
- ☐ 2—3 hours per day
- ☐ More than 3 hours per day
- ☐ I do not prepare food, cook, or clean up from meals on weekends

28. How often do all members in your household eat **breakfast** together at your home?

- ☐ Every day or almost every day
- ☐ 3—4 times per week
- ☐ 1—2 times per week
- ☐ Never or rarely
- ☐ I am the only person living in my household

29. How often do all members in your household eat **lunch** together at your home?

- ☐ Every day or almost every day
- ☐ 3—4 times per week
- ☐ 1—2 times per week
- ☐ Never or rarely
- ☐ I am the only person living in my household

30. How often do all members in your household eat **dinner** together at your home?

- ☐ Every day or almost every day
- ☐ 3—4 times per week
- ☐ 1—2 times per week
- ☐ Never or rarely
- ☐ I am the only person living in my household.

31. How often do you attend social events that involve home-prepared food (whether it be Mexican food, American food, or any other kind of food)? These social events may include potlucks, cookouts, barbecues, dinner parties, and picnics.

- ☐ More than once per week
- ☐ Every week or almost every week
- ☐ 1—2 times per month
- ☐ A few times per year
- ☐ Never or almost never

32. Do you consider food preparation to be a leisure activity (*i.e.*, something that you do for fun or because you enjoy it) or a chore? (A leisure activity is something that feels enjoyable or fun while a chore is something that feels like a job.)

- ☐ A leisure activity
- ☐ A chore
- ☐ Sometimes a leisure activity and sometimes a chore
- ☐ Neither a leisure activity nor a chore (please explain) _____
- ☐ I do not do any food preparation in my household

Demographic Questions

33. What year were you born? _____
☐ Prefer not to answer
[Dropdown in online version]
34. What is your sex?
☐ Male
☐ Female
☐ Other (please specify) _____
35. Which state in Mexico were you born in? _____
[Dropdown in online version]
36. How would you describe the place where you grew up in Mexico?
☐ A major city
☐ A small city
☐ A rural town
☐ Other (please specify) _____
37. How old were you when you came to the U.S.? _____ years old
[Dropdown in online version]
38. Did you come to the U.S. alone or with family members?
☐ Alone
☐ With family members
☐ With friends
39. How many members of your family live in the town/city in Illinois where you currently live?
Include all family members regardless of their country of birth.
_____ family members in my town/city
[Dropdown in online version]
40. Which U.S. state did you first live in?
☐ Illinois
☐ Other (please specify) _____
[Dropdown if survey is online]
41. Do you live in a city, town, suburb, or rural area in the U.S.?
☐ City
☐ Town
☐ Suburb
☐ Rural area
42. Would you say that your neighborhood has...?
☐ Few Latino/Hispanic residents?

- ☐ Some Latino/Hispanic residents?
- ☐ Mostly Latino/Hispanic residents?
- ☐ All Hispanic/Latino residents?

43. Linguistic Proficiency Scale

A. How well do you speak English?

- ☐ Very poorly
- ☐ Poorly
- ☐ Well
- ☐ Very well

B. How well do you read in English?

- ☐ Very poorly
- ☐ Poorly
- ☐ Well
- ☐ Very well

C. How well do you understand TV programs, including online programs, in English?

- ☐ Very poorly
- ☐ Poorly
- ☐ Well
- ☐ Very well

D. How well do you understand radio programs or podcasts in English?

- ☐ Very poorly
- ☐ Poorly
- ☐ Well
- ☐ Very well

E. How well do you write in English?

- ☐ Very poorly
- ☐ Poorly
- ☐ Well
- ☐ Very well

F. How well do you understand lyrics in songs in English?

- ☐ Very poorly
- ☐ Poorly
- ☐ Well
- ☐ Very well

G. How well do you speak Spanish?

- ☐ Very poorly
- ☐ Poorly
- ☐ Well

☐ Very well

H. How well do you read in Spanish?

- ☐ Very poorly
- ☐ Poorly
- ☐ Well
- ☐ Very well

I. How well do you understand TV programs, including online programs, in Spanish?

- ☐ Very poorly
- ☐ Poorly
- ☐ Well
- ☐ Very well

J. How well do you understand radio programs or podcasts in Spanish?

- ☐ Very poorly
- ☐ Poorly
- ☐ Well
- ☐ Very well

K. How well do you write in Spanish?

- ☐ Very poorly
- ☐ Poorly
- ☐ Well
- ☐ Very well

L. How well do you understand lyrics in songs in Spanish?

- ☐ Very poorly
- ☐ Poorly
- ☐ Well
- ☐ Very well

44. Which best describes your marital status?

- ☐ Single (Never married)
- ☐ Live with partner
- ☐ Married
- ☐ Separated
- ☐ Divorced
- ☐ Widowed
- ☐ Other (please specify) _____

45. Where did you complete your highest degree?

- ☐ U.S.
- ☐ Mexico
- ☐ Another country (please specify) _____

46. What is the highest educational degree that you completed in Mexico?

- ☐ Primaria
- ☐ Secundaria
- ☐ Preparatoria
- ☐ Carrera técnica (2 years)
- ☐ Licenciatura/Carrera (4 years of university)
- ☐ Maestría
- ☐ Doctorado (or equivalent)
- ☐ I did not complete any education in Mexico.

47. What is the highest educational degree you completed in the U.S.?

- ☐ Middle school or equivalent
- ☐ High School Diploma/GED
- ☐ Associate's Degree (2-year college)
- ☐ BA/BS (4-year college)
- ☐ MA/MS (master's degree)
- ☐ Ph.D./J.D./M.D. (graduate degree)
- ☐ I did not complete any education in the U.S.

48. What type of work did you do in Mexico? _____

49. What type of work do you do now in the U.S.? _____

50. How many children under the age of 18 live in your home?

- ☐ 0
- ☐ 1
- ☐ 2
- ☐ 3
- ☐ 4 or more

51. How many young adults of ages 18 to 24 live in your home including yourself?

- ☐ 0
- ☐ 1
- ☐ 2
- ☐ 3
- ☐ 4 or more

52. How many adults of ages 25 and above live in your home including yourself?

- ☐ 0
- ☐ 1
- ☐ 2
- ☐ 3
- ☐ 4 or more

53. Please select the range of numbers that corresponds to your family's average annual income from all sources (before taxes).

- ☐ Less than \$20,000
- ☐ \$20,000 - \$39,999
- ☐ \$40,000 - \$59,999
- ☐ \$60,000 - \$79,999
- ☐ \$80,000 or more
- ☐ Prefer not to answer

APPENDIX H: QUESTIONNAIRE IN SPANISH—FINAL VERSION

Estamos llevando a cabo una encuesta para aprender sobre el consumo de alimentos, la preparación de comidas y las comidas entre los inmigrantes mexicanos. Responda a cada pregunta de la mejor manera posible pensando en lo que hizo y cómo se sintió en los últimos 12 meses.

1. ¿Qué tan satisfecho/a está usted con las opciones de **fruta** (como plátanos, naranjas y manzanas) disponibles para comprar en su comunidad?
 - ☐ Muy insatisfecho/a
 - ☐ Insatisfecho/a
 - ☐ Neutral
 - ☐ Satisfecho/a
 - ☐ Muy satisfecho/a
2. ¿Qué tan satisfecho/a está con las opciones de **verduras** (como espinacas, aguacates y pimientos) disponibles para comprar en su comunidad?
 - ☐ Muy insatisfecho/a
 - ☐ Insatisfecho/a
 - ☐ Neutral
 - ☐ Satisfecho/a
 - ☐ Muy satisfecho/a
3. ¿Qué tan satisfecho/a está con las opciones de **carnes** (como el pollo, res, puerco y pescado) disponibles para comprar en su comunidad?
 - ☐ Muy insatisfecho/a
 - ☐ Insatisfecho/a
 - ☐ Neutral
 - ☐ Satisfecho/a
 - ☐ Muy satisfecho/a
4. ¿Qué tan satisfecho/a está con las opciones de **cereales/granos** (como arroz, pan, y tortillas) disponibles para comprar en su comunidad?
 - ☐ Muy insatisfecho/a
 - ☐ Insatisfecho/a
 - ☐ Neutral
 - ☐ Satisfecho/a
 - ☐ Muy satisfecho/a
5. ¿Usted compra alimentos de los supermercados (p. ej., Jewel Osco, Aldi, Kroger)? No incluya la comida preparada que se compra para cenar en restaurante o para llevar.
 - ☐ Sí: Seguido
 - ☐ Sí: A veces
 - ☐ Sí: Rara vez
 - ☐ No: Nunca

A. [Si eligió «Sí»] ¿De las siguientes, cuáles son razones por las que usted va de compras en los supermercados? *(Elija todas las opciones pertinentes)*

- ☐ Precio
- ☐ Ubicación
- ☐ Calidad en productos
- ☐ Variedad en productos
- ☐ Atención al cliente
- ☐ Se habla español
- ☐ Aceptan pagos de EBT/WIC
- ☐ Otra (por favor, especifique) _____

6. ¿Usted compra alimentos de los hipermercados (p. ej., Walmart, Target, Meijer)? No incluya la comida preparada que se compra para cenar en restaurante o para llevar.

- ☐ Sí: Seguido
- ☐ Sí: A veces
- ☐ Sí: Rara vez
- ☐ No: Nunca

A. [Si eligió «Sí»] ¿De las siguientes, cuáles son razones por las que usted va de compras en los hipermercados? *(Elija todas las opciones pertinentes.)*

- ☐ Precio
- ☐ Ubicación
- ☐ Calidad en productos
- ☐ Variedad en productos
- ☐ Atención al cliente
- ☐ Se habla español
- ☐ Aceptan pagos de EBT/WIC
- ☐ Otra (por favor, especifique) _____

7. ¿Usted compra alimentos de las tiendas de membresía (p. ej., Costco, Sam's Club)? No incluya la comida preparada que se compra para cenar en restaurante o para llevar.

- ☐ Sí: Seguido
- ☐ Sí: A veces
- ☐ Sí: Rara vez
- ☐ No: Nunca

A. [Si eligió «Sí»] ¿De las siguientes, cuáles son razones por las que usted va de compras en las tiendas de membresía? *(Elija todas las opciones pertinentes.)*

- ☐ Precio
- ☐ Ubicación
- ☐ Calidad en productos
- ☐ Variedad en productos
- ☐ Atención al cliente
- ☐ Se habla español
- ☐ Aceptan pagos de EBT/WIC
- ☐ Otra (por favor, especifique) _____

8. ¿Usted compra alimentos de las tiendas de especialidades (p. ej., de comida étnica, Whole Foods, Mariano's, Trader Joe's)? No incluya la comida preparada que se compra para cenar en restaurante o para llevar.

- ☐ Sí: Seguido
- ☐ Sí: A veces
- ☐ Sí: Rara vez
- ☐ No: Nunca

A. [Si eligió «Sí»] ¿De las siguientes, cuáles son razones por las que usted va de compras en las tiendas de especialidades? *(Elija todas las opciones pertinentes.)*

- ☐ Precio
- ☐ Ubicación
- ☐ Calidad en productos
- ☐ Variedad en productos
- ☐ Atención al cliente
- ☐ Se habla español
- ☐ Aceptan pagos de EBT/WIC
- ☐ Otra (por favor, especifique) _____

9. ¿Usted compra alimentos de las tiendas de abarrotes (p. ej, Seven Eleven)? No incluya la comida preparada que se compra para cenar en restaurante o para llevar.

- ☐ Sí: Seguido
- ☐ Sí: A veces
- ☐ Sí: Rara vez
- ☐ No: Nunca

A. [Si eligió «Sí»] ¿De las siguientes, cuáles son razones por las que usted va de compras en las tiendas de abarrotes? *(Elija todas las opciones pertinentes.)*

- ☐ Precio
- ☐ Ubicación
- ☐ Calidad en productos
- ☐ Variedad en productos
- ☐ Atención al cliente
- ☐ Se habla español
- ☐ Aceptan pagos de EBT/WIC
- ☐ Otra (por favor, especifique) _____

10. ¿Usted compra alimentos de los puestos al aire libre? No incluya la comida preparada que se compra para cenar en restaurante o para llevar.

- ☐ Sí: Seguido
- ☐ Sí: A veces
- ☐ Sí: Rara vez
- ☐ No: Nunca

A. [Si eligió «Sí»] ¿De las siguientes, cuáles son razones por las que usted va de compras en los puestos al aire libre? *(Elija todas las opciones pertinentes.)*

- ☐ Precio
- ☐ Ubicación
- ☐ Calidad en productos
- ☐ Variedad en productos
- ☐ Atención al cliente
- ☐ Se habla español
- ☐ Aceptan pagos de EBT/WIC
- ☐ Otra (por favor, especifique) _____

11. ¿Usted compra alimentos de los mercados de agricultores? No incluya la comida preparada que se compra para cenar en restaurante o para llevar.

- ☐ Sí: Seguido
- ☐ Sí: A veces
- ☐ Sí: Rara vez
- ☐ No: Nunca

A. [Si eligió «Sí»] ¿De las siguientes, cuáles son razones por las que usted va de compras en los mercados de agricultores? (*Elija todas las opciones pertinentes.*)

- ☐ Precio
- ☐ Ubicación
- ☐ Calidad en productos
- ☐ Variedad en productos
- ☐ Atención al cliente
- ☐ Se habla español
- ☐ Aceptan pagos de EBT/WIC
- ☐ Otra (por favor, especifique) _____

12. ¿Cómo suele llegar a la tienda donde compra sus alimentos?

- ☐ Manejando mi propio coche
- ☐ Un familiar o amigo me lleva
- ☐ Viajo en transporte público (p. ej., autobús, metro)
- ☐ Caminando
- ☐ Voy en taxi, uber, u otro viaje compartido
- ☐ En bicicleta
- ☐ Otra (por favor, especifique) _____

13. En promedio, ¿cuánto tiempo le toma a usted (o a la persona principal que hace el mandado en su hogar) llegar a la tienda donde compra la mayoría de sus alimentos (ya sea manejando, caminando, viajando en transporte público, etc.)?

- ☐ Menos de 10 minutos
- ☐ 10—20 minutos
- ☐ Más de 20 minutos

14. ¿Qué tan seguido compra los alimentos de los mercados agricultores?

- ☐ 4 o más veces al mes
- ☐ 1—3 veces al mes

- ☐ Unas veces al año
 - ☐ Nunca o casi nunca
15. ¿Qué tan seguido va a las tiendas de comida étnica (p. ej., especialidades mexicanas o hispanas) para comprar alimentos y/o ingredientes para cocinar?
- ☐ 4 o más veces a la semana
 - ☐ 2—3 veces a la semana
 - ☐ 1—4 veces al mes
 - ☐ Unas veces al año
 - ☐ Nunca o casi nunca
16. ¿Qué tan seguido desayuna, almuerza o cena en restaurantes o en restaurantes de comida rápida? **Incluya solamente las comidas que consume en el restaurante** (Como McDonald's, Burger King, Taco Bell)
- ☐ 5 o más veces a la semana
 - ☐ 3—4 veces a la semana
 - ☐ 1—2 veces a la semana
 - ☐ 1—3 veces al mes
 - ☐ Unas veces al año
 - ☐ Nunca o casi nunca
17. ¿Qué tan seguido desayuna, come o cena comida para llevar preparada en restaurantes o en restaurantes de comida rápida? (Como McDonald's, Burger King, Taco Bell)
- ☐ 5 o más veces a la semana
 - ☐ 3—4 veces a la semana
 - ☐ 1—2 veces a la semana
 - ☐ 1—3 veces al mes
 - ☐ Unas veces al año
 - ☐ Nunca o casi nunca
18. Para usted, ¿Qué tan importante le parece seguir sus creencias familiares en cuanto a comida y dieta en los EE.UU? Estas creencias pueden incluir por ejemplo aquellas comidas que usted considere nutritivas y saludables, los tipos de comidas que se deben comer durante una enfermedad, embarazo o durante días festivos específicos.
- ☐ Nada importante
 - ☐ No muy importante
 - ☐ Neutral
 - ☐ Algo importante
 - ☐ Muy importante

19. Si usted (u otro miembro de su familia) prepara platillos mexicanos tradicionales, ¿qué tan importantes le parecen las siguientes razones?

	Nada importante	Poco importante	Neutral	Algo importante	Muy importante
A. Son mis platillos favoritos.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
B. Creo que los platillos mexicanos son saludables.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
C. Son los platillos favoritos de mis familiares.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D. Me recuerdan a mi hogar en México.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
E. No estoy acostumbrado/a comer platillos no mexicanos.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
F. Siento orgullo de mi cultura cuando cocino platillos mexicanos tradicionales.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
G. Preparar platillos tradicionales mexicanos es una forma de mostrar cariño y hospitalidad.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

20. Si usted o alguien de su familia prepara platillos tradicionales mexicanos, ¿qué tan satisfecho/a está usted con el sabor?

- ☐ Muy insatisfecho/a
- ☐ Insatisfecho/a
- ☐ Neutral
- ☐ Satisfecho/a
- ☐ Muy satisfecho/a
- ☐ Nadie de mi hogar prepara comida mexicana en casa.

21. ¿Qué tan satisfecho/a está usted con el sabor de los platillos **no mexicanos** que usted o alguno de sus familiares **preparan en casa**?

- ☐ Muy insatisfecho/a
- ☐ Insatisfecho/a
- ☐ Neutral
- ☐ Satisfecho/a
- ☐ Muy satisfecho/a
- ☐ Nadie de mi hogar prepara comida no mexicana en casa.

22. ¿Qué tan satisfecho/a está usted con el sazón de los platillos que compra en el restaurante mexicano al que va más seguido?

- ☐ Muy insatisfecho/a
- ☐ Insatisfecho/a
- ☐ Neutral
- ☐ Satisfecho/a
- ☐ Muy satisfecho/a

- ☐ No como en restaurantes mexicanos.
23. ¿Qué tan satisfecho/a está usted con el sabor de los platillos que compra en el **restaurante no mexicano al que va más seguido**?
- ☐ Muy insatisfecho/a
☐ Insatisfecho/a
☐ Neutral
☐ Satisfecho/a
☐ Muy satisfecho/a
☐ No como en restaurantes no mexicanos.
24. ¿Qué tan seguido prepara usted platillos que tengan ingredientes que usted considere «mexicanos» e ingredientes que considera «norteamericanos»? Favor de pensar en ingredientes principales, como tipos específicos de arroz, carne y verduras.
- ☐ 5 o más veces a la semana
☐ 3—4 veces a la semana
☐ 1—2 veces a la semana
☐ 1—3 veces al mes
☐ Unas veces al año
☐ Nunca o casi nunca
25. ¿Qué tan importante es para usted que su comida le sepa «fresca», es decir recién cocinada, recién producida (verduras y carne), y no de lata o congelada?
- ☐ Nada importante
☐ No importante
☐ Neutral
☐ Algo importante
☐ Muy importante
26. ¿Cuántas horas pasa usted preparando comida, cocinando y limpiando después de comer, en promedio, por día **entre semana** (de lunes a viernes)? No incluya el tiempo que toma cosas como recalentar sobras.
- ☐ Menos de 1 hora al día
☐ 1—2 horas al día
☐ Más de 2 horas al día
27. ¿Cuántas horas al día pasa usted preparando comida, cocinando y limpiando después de comer, en promedio, por día en fin de **semana** (domingo y sábado)? No incluya el tiempo que toma cosas como recalentar sobras.
- ☐ Menos de 1 hora al día
☐ 1—2 horas al día
☐ Más de 2 horas al día
28. ¿Cuántas veces a la semana **desayunan** los miembros de su familia todos juntos en casa?
- ☐ 5—7 veces a la semana
☐ 3—4 veces a la semana

- ☐ 1—2 veces a la semana
- ☐ Nunca o rara vez
- ☐ Soy la única persona que vive en mi hogar.

29. ¿Cuántas veces por semana almuerzan los miembros de su familia todos juntos en casa?

- ☐ 5—7 veces a la semana
- ☐ 3—4 veces a la semana
- ☐ 1—2 veces a la semana
- ☐ Nunca o rara vez
- ☐ Soy la única persona que vive en mi hogar.

30. ¿Cuántas veces por semana cenan los miembros de su familia todos juntos en casa?

- ☐ 5—7 veces a la semana
- ☐ 3—4 veces a la semana
- ☐ 1—2 veces a la semana
- ☐ Nunca o rara vez
- ☐ Soy la única persona que vive en mi hogar.

31. ¿Qué tan seguido va a eventos sociales donde se sirvan platos caseros? Se puede incluir parrilladas, comidas al aire libre, barbacoas, cenas y picnics.

- ☐ 4 o más veces al mes
- ☐ 2—3 veces al mes
- ☐ Una vez al mes
- ☐ Unas veces al año
- ☐ Nunca o casi nunca

32. ¿A usted cocinar le parece una actividad de ocio (es decir algo que le divierte), o es una tarea?

- ☐ Actividad de ocio
- ☐ Una tarea
- ☐ A veces es actividad de ocio y otras veces es tarea
- ☐ No es ni actividad de ocio ni tarea (favor de explicar) _____
- ☐ No preparo la comida en casa

Preguntas demográficas

33. ¿En qué año nació? _____
☐ Prefiero no contestar
[El menú se despliega si lleva a cabo la encuesta en línea]
34. ¿Cual es su sexo?
☐ Hombre
☐ Mujer
☐ Otro (por favor, especifica) _____
35. ¿En qué estado de México nació usted? _____
[El menú se despliega si lleva a cabo la encuesta en línea]
36. ¿Cómo describiría usted el lugar donde se crió?
☐ Ciudad grande
☐ Ciudad chica
☐ Pueblo en zona rural
☐ Otro (por favor, especifica) _____
37. ¿Cuántos años tenía usted cuando se vino a los EE.UU.? _____ años
[El menú se despliega si lleva a cabo la encuesta en línea]
38. ¿Se vino a los EE.UU. solo/a o con familiares?
☐ Solo/a
☐ Con familiares
39. ¿Cuántos de sus familiares viven en su ciudad/pueblo actualmente? Incluya todos sus familiares sin importar su país de origen.
_____ número de familiares que viven en mi ciudad/pueblo
[El menú se despliega si lleva a cabo la encuesta en línea]
40. ¿En qué estado de los EE.UU. vivió primero?
☐ Illinois
☐ Otro (por favor, especifique) _____
[El menú se despliega si lleva a cabo la encuesta en línea]
41. ¿Usted vive en una ciudad, pueblo, suburbio o zona rural en los EE.UU.?
☐ Ciudad
☐ Pueblo
☐ Suburbio
☐ Zona rural
42. ¿Diría que su vecindario tiene...?
☐ Pocos residentes latinos/hispanos?
☐ Algunos cuantos residentes latinos/hispanos?

- ☐ Mayoría de residentes son latinos/hispanos?
- ☐ Completamente residentes latinos/hispanos?

43. Escala de Competencia Lingüística

A. ¿Qué tan bien habla usted inglés?

- ☐ Muy mal
- ☐ Mal
- ☐ Bien
- ☐ Muy bien

B. ¿Qué tan bien lee usted inglés?

- ☐ Muy mal
- ☐ Mal
- ☐ Bien
- ☐ Muy bien

C. ¿Qué tanto les entiende usted a los programas de tele en inglés (incluyendo programas en línea)?

- ☐ Casi nada
- ☐ Muy poco
- ☐ Bien
- ☐ Muy bien

D. ¿Qué tanto les entiende usted a los programas de radio o podcasts en inglés?

- ☐ Casi nada
- ☐ Muy poco
- ☐ Bien
- ☐ Muy bien

E. ¿Qué tanto puede escribir usted en inglés?

- ☐ Casi nada
- ☐ Poco
- ☐ Bien
- ☐ Muy bien

F. ¿Qué tanto le entiende usted a la letra de canciones en inglés?

- ☐ Casi nada
- ☐ Poco
- ☐ Bien
- ☐ Muy bien

G. ¿Qué tanto puede usted hablar el español (es decir en comunicación verbal)?

- ☐ Casi nada
- ☐ Poco
- ☐ Bien

☐ Muy bien

H. ¿Qué tanto puede leer usted el español?

- ☐ Casi nada
- ☐ Poco
- ☐ Bien
- ☐ Muy bien

I. ¿Qué tanto les entiende usted a los programas de tele, en español (incluyendo programas en línea)?

- ☐ Casi nada
- ☐ Poco
- ☐ Bien
- ☐ Muy bien

J. ¿Qué tanto les entiende usted a los programas de radio o podcasts en español?

- ☐ Casi nada
- ☐ Poco
- ☐ Bien
- ☐ Muy bien

K. ¿Qué tanto puede escribir usted en español?

- ☐ Casi nada
- ☐ Poco
- ☐ Bien
- ☐ Muy bien

L. ¿Qué tanto le entiende usted a la letra de canciones en español?

- ☐ Casi nada
- ☐ Poco
- ☐ Bien
- ☐ Muy bien

44. ¿Cuál es su estado civil?

- ☐ Soltero/a (nunca me he casado)
- ☐ Vivo con una pareja
- ☐ Casado/a
- ☐ Separado/a
- ☐ Divorciado/a
- ☐ Viudo/a
- ☐ Otro (por favor, especifique) _____

45. ¿Dónde completó su nivel de educación más alto?

- ☐ EE.UU.
- ☐ México
- ☐ En otro país (por favor, especifique) _____

46. ¿Cuál es su nivel de educación más alto completado en México?

- ☐ Primaria
- ☐ Secundaria
- ☐ Preparatoria
- ☐ Carrera técnica (2 años)
- ☐ Licenciatura (4 años de universidad)
- ☐ Maestría/Posgrado
- ☐ Doctorado (o equivalente)
- ☐ No completé ninguna educación en México.

47. ¿Cuál es su nivel de educación más alto completado en los EE.UU.?

- ☐ Secundaria o equivalente
- ☐ Diploma de High School/GED
- ☐ Título de Asociado (2 años de universidad) o Carrera Técnica (2 años)
- ☐ BA/BS (4 años de universidad)
- ☐ MA/MS (Maestría/posgrado)
- ☐ Ph.D./J.D./M.D. (doctorado)
- ☐ No completé ninguna educación en los EE.UU.

48. ¿Qué clase de trabajo hacía en México? Si no ha trabajado en México, por favor escriba "N/A." _____

49. ¿Qué clase de trabajo tiene actualmente en los EE.UU.? Si no ha trabajado en los EE.UU, por favor escriba "N/A." _____

50. ¿Cuántos niños menores de 18 años viven en su hogar?

- ☐ 0
- ☐ 1
- ☐ 2
- ☐ 3
- ☐ 4 o más

51. ¿Cuántos adultos entre 18 y 24 años viven en su hogar, sin incluirse a usted mismo/a?

- ☐ 0
- ☐ 1
- ☐ 2
- ☐ 3
- ☐ 4 o más

52. ¿Cuántos adultos de 25 años o más viven en su hogar, incluyéndose a usted mismo/a?

- ☐ 0
- ☐ 1
- ☐ 2
- ☐ 3
- ☐ 4 o más

53. Por favor, elija el rango de cifras que mejor corresponde a los ingresos anuales de su familia, sumando todas las fuentes, antes de impuestos.

- ☐ Menos de \$20,000
- ☐ \$20,000 - \$39,999
- ☐ \$40,000 - \$59,999
- ☐ \$60,000 - \$79,999
- ☐ \$80,000 o más
- ☐ Prefiero no decir

APPENDIX I: EVALUATION TOOL FOR QUESTIONNAIRE

1. How satisfied are you with the options of **fruits** (such as bananas, oranges, and apples) available for purchase in your community?

- ☐ Very dissatisfied
- ☐ Dissatisfied
- ☐ Neutral
- ☐ Satisfied
- ☐ Very satisfied

Please rate the importance of item #1.

- ☐ Completely unimportant
- ☐ Not very important
- ☐ Neutral
- ☐ Somewhat important
- ☐ Very important

Please provide comments on item #1, such as its clarity, phrasing, and connotation.

2. How satisfied are you with the options of **vegetables** (such as spinach, onions, and bell peppers) available for purchase in your community?

- ☐ Very dissatisfied
- ☐ Dissatisfied
- ☐ Neutral
- ☐ Satisfied
- ☐ Very satisfied

Please rate the importance of item #2.

- ☐ Completely unimportant
- ☐ Not very important
- ☐ Neutral
- ☐ Somewhat important
- ☐ Very important

Please provide comments on item #2, such as its clarity, phrasing, and connotation.

3. How satisfied are you with the options of **meats** (such as chicken, beef, pork, and fish) available for purchase in your community?

- ☐ Very dissatisfied
- ☐ Dissatisfied
- ☐ Neutral
- ☐ Satisfied
- ☐ Very satisfied
- ☐ I don't eat meat

Please rate the importance of item #3.

- ☐ Completely unimportant
- ☐ Not very important
- ☐ Neutral
- ☐ Somewhat important
- ☐ Very important

Please provide comments on item #3, such as its clarity, phrasing, and connotation.

4. How satisfied are you with the options of **grains/starches** (such as rice, tortillas, and bread) available for purchase in your community?

- ☐ Very dissatisfied
- ☐ Dissatisfied
- ☐ Neutral
- ☐ Satisfied
- ☐ Very satisfied

Please rate the importance of item #4.

- ☐ Completely unimportant
- ☐ Not very important
- ☐ Neutral
- ☐ Somewhat important
- ☐ Very important

Please provide comments on item #4, such as its clarity, phrasing, and connotation.

5. Do you buy food items from supermarkets/grocery stores (*e.g.*, Jewel Osco, Aldi, Kroger)? Do not include prepared meals purchased for take-out or eaten at restaurants.
- ☐ Yes: Often
 - ☐ Yes: Sometimes
 - ☐ Yes: Rarely
 - ☐ No: Never

Please rate the importance of item #5.

- ☐ Completely unimportant
- ☐ Not very important
- ☐ Neutral
- ☐ Somewhat important
- ☐ Very important

Please provide comments on item #5, such as its clarity, phrasing, and connotation.

6. Do you buy food items from supercenters, such as Walmart, Target, and Meijer? Do not include prepared meals purchased for take-out or eaten at restaurants.
- ☐ Yes: Often
 - ☐ Yes: Sometimes
 - ☐ Yes: Rarely
 - ☐ No: Never

Please rate the importance of item #6.

- ☐ Completely unimportant
- ☐ Not very important
- ☐ Neutral
- ☐ Somewhat important
- ☐ Very important

Please provide comments on item #6, such as its clarity, phrasing, and connotation.

7. Do you buy food items from membership/warehouse club stores, such as Costco and Sam's Club? Do not include prepared meals purchased for take-out or eaten at restaurants.

- ☐ Yes: Often
- ☐ Yes: Sometimes
- ☐ Yes: Rarely
- ☐ No: Never

Please rate the importance of item #7.

- ☐ Completely unimportant
- ☐ Not very important
- ☐ Neutral
- ☐ Somewhat important
- ☐ Very important

Please provide comments on item #7, such as its clarity, phrasing, and connotation.

8. Do you buy food items from specialty stores, such as ethnic stores, Whole Foods, Mariano's, and Trader Joe's? Do not include prepared meals purchased for take-out or eaten at restaurants.

- ☐ Yes: Often
- ☐ Yes: Sometimes
- ☐ Yes: Rarely
- ☐ No: Never

Please rate the importance of item #8.

- ☐ Completely unimportant
- ☐ Not very important
- ☐ Neutral
- ☐ Somewhat important
- ☐ Very important

Please provide comments on item #8, such as its clarity, phrasing, and connotation.

9. Do you buy food items from convenience stores or corner stores, such as Seven Eleven? Do not include prepared meals purchased for take-out or eaten at restaurants.

- ☐ Yes: Often
- ☐ Yes: Sometimes
- ☐ Yes: Rarely
- ☐ No: Never

Please rate the importance of item #9.

- ☐ Completely unimportant
- ☐ Not very important
- ☐ Neutral
- ☐ Somewhat important
- ☐ Very important

Please provide comments on item #9, such as its clarity, phrasing, and connotation.

10. Do you buy food items from outdoor food stands? Do not include prepared meals purchased for take-out or eaten at restaurants.

- ☐ Yes: Often
- ☐ Yes: Sometimes
- ☐ Yes: Rarely
- ☐ No: Never

Please rate the importance of item #10.

- ☐ Completely unimportant
- ☐ Not very important
- ☐ Neutral
- ☐ Somewhat important
- ☐ Very important

Please provide comments on item #10, such as its clarity, phrasing, and connotation.

11. Do you buy food items from farmers markets? Do not include prepared meals purchased for take-out or eaten at restaurants.

- ☐ Yes: Often
- ☐ Yes: Sometimes
- ☐ Yes: Rarely
- ☐ No: Never

Please rate the importance of item #11.

- ☐ Completely unimportant
- ☐ Not very important
- ☐ Neutral
- ☐ Somewhat important
- ☐ Very important

Please provide comments on item #11, such as its clarity, phrasing, and connotation.

5A/6A/7A/8A/9A/10A/11A. [If “Yes” selected] Which of the following are reasons you shop at [food vendor]? (Select all that apply.)

- ☐ Price
- ☐ Location
- ☐ Quality of products
- ☐ Variety of products
- ☐ Customer service
- ☐ Spanish is spoken there
- ☐ EBT/WIC is accepted for payment
- ☐ An app available for easier shopping
- ☐ Delivery or store pick-up is available
- ☐ Free parking/parking lot is available
- ☐ Other (please specify) _____

Please rate the importance of item #5A/6A/7A/8A/9A/10A/11A.

- ☐ Completely unimportant
- ☐ Not very important
- ☐ Neutral
- ☐ Somewhat important
- ☐ Very important

Please provide comments on item #5A/6A/7A/8A/9A/10A/11A, such as its clarity, phrasing, and connotation.

12. How do you usually get to the store where you buy food?

- ☐ Driving my own vehicle
- ☐ A family member or friend drives me
- ☐ Using public transportation (*e.g.*, bus, train)
- ☐ Walking
- ☐ Using a taxi, cab, uber, or other car service
- ☐ Riding a bicycle
- ☐ I don't go to the store because another family member buys my food (and groceries) and brings them to my home
- ☐ I don't go to the store because I have my food (and groceries) delivered to my home
- ☐ Other (please specify) _____

Please rate the importance of item #12.

- ☐ Completely unimportant
- ☐ Not very important
- ☐ Neutral
- ☐ Somewhat important
- ☐ Very important

Please provide comments on item #12, such as its clarity, phrasing, and connotation.

13. On average, how long does it take for you (or the primary shopper in your household) to get to the store where you buy the majority of your food items (whether by driving, walking, taking public transportation, etc.)?

- ☐ 10 minutes or less
- ☐ 11—20 minutes
- ☐ 21—30 minutes
- ☐ 31—40 minutes
- ☐ More than 40 minutes

Please rate the importance of item #13.

- ☐ Completely unimportant
- ☐ Not very important
- ☐ Neutral
- ☐ Somewhat important
- ☐ Very important

Please provide comments on item #13, such as its clarity, phrasing, and connotation.

14. How often do you buy food at farmers markets?

- ☐ 2 or more times per week
- ☐ Once per week
- ☐ 1—3 times per month
- ☐ A few times per year
- ☐ Never or almost never

Please rate the importance of item #14.

- ☐ Completely unimportant
- ☐ Not very important
- ☐ Neutral
- ☐ Somewhat important
- ☐ Very important

Please provide comments on item #14, such as its clarity, phrasing, and connotation.

15. How often do you shop at ethnic stores (*e.g.*, Mexican or Hispanic stores) to buy food and/or ingredients?

- ☐ 2 or more times per week
- ☐ Once per week
- ☐ 1—3 times per month
- ☐ A few times per year
- ☐ Never or almost never

Please rate the importance of item #15.

- ☐ Completely unimportant
- ☐ Not very important
- ☐ Neutral
- ☐ Somewhat important
- ☐ Very important

Please provide comments on item #15, such as its clarity, phrasing, and connotation.

16. How often do you eat breakfast, lunch, or dinner prepared at either restaurants or fast food places? **Include only meals eaten at the restaurant.** (Such as McDonald's, Burger King, Taco Bell)

- ☐ Every day or almost every day
- ☐ 3—4 times per week
- ☐ 1—2 times per week
- ☐ 1—3 times per month
- ☐ A few times per year
- ☐ Never or almost never

Please rate the importance of item #16.

- ☐ Completely unimportant
- ☐ Not very important
- ☐ Neutral
- ☐ Somewhat important
- ☐ Very important

Please provide comments on item #16, such as its clarity, phrasing, and connotation.

17. How often do you eat **take-out food** prepared at either restaurants or fast food places for breakfast, lunch or dinner? (Such as McDonald's, Burger King, Taco Bell)

- ☐ Every day or almost every day
- ☐ 3—4 times per week
- ☐ 1—2 times per week
- ☐ 1—3 times per month
- ☐ A few times per year
- ☐ Never or almost never

Please rate the importance of item #17.

- ☐ Completely unimportant
- ☐ Not very important
- ☐ Neutral
- ☐ Somewhat important
- ☐ Very important

Please provide comments on item #17, such as its clarity, phrasing, and connotation.

18. How important is it to you that you follow family beliefs regarding food and diet while in the U.S.? These beliefs may include which foods you consider to be nutritious and healthy, and the kinds of foods to be eaten during illness, pregnancy, or specific holidays.

- ☐ Completely unimportant
- ☐ Not very important
- ☐ Neutral
- ☐ Somewhat important
- ☐ Very important

Please rate the importance of item #18.

- ☐ Completely unimportant
- ☐ Not very important
- ☐ Neutral
- ☐ Somewhat important
- ☐ Very important

Please provide comments on item #18, such as its clarity, phrasing, and connotation.

19. If you (or another member in your household) prepares traditional Mexican dishes, how important are the following reasons that you (or another member in your household) prepare them?

	Completely unimportant	Not important	Neutral	Somewhat important	Very important
A. They are my favorite dishes.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
B. I think that Mexican dishes are healthy.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
C. They are my family's favorite dishes.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D. They remind me of my home in Mexico.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
E. I am not used to eating non-Mexican foods.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
F. I feel a sense of pride for my culture when I cook traditional Mexican dishes.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
G. Preparing traditional Mexican dishes is a way to show affection and hospitality.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Please rate the importance of item #19.

- ☐ Completely unimportant
- ☐ Not very important
- ☐ Neutral
- ☐ Somewhat important
- ☐ Very important

Please provide comments on item #19, such as its clarity, phrasing, and connotation.

20. If you or someone in your household prepares traditional Mexican dishes, how satisfied are you with their flavors?

- ☐ Very dissatisfied
- ☐ Dissatisfied
- ☐ Neutral
- ☐ Satisfied
- ☐ Very satisfied
- ☐ No one in my household prepares Mexican meals at home

Please rate the importance of item #20.

- ☐ Completely unimportant
- ☐ Not very important
- ☐ Neutral
- ☐ Somewhat important
- ☐ Very important

Please provide comments on item #20, such as its clarity, phrasing, and connotation.

21. How satisfied are you with the flavors of **non-Mexican** meals that you or a family member **prepare at home?**

- ☐ Very dissatisfied
- ☐ Dissatisfied
- ☐ Neutral
- ☐ Satisfied
- ☐ Very satisfied
- ☐ No one in my household prepares non-Mexican meals at home

Please rate the importance of item #21.

- ☐ Completely unimportant
- ☐ Not very important
- ☐ Neutral
- ☐ Somewhat important
- ☐ Very important

Please provide comments on item #21, such as its clarity, phrasing, and connotation.

22. How satisfied are you with the flavors of meals that you buy at the **Mexican restaurant that you go to most often?**

- ☐ Very dissatisfied
- ☐ Dissatisfied
- ☐ Neutral
- ☐ Satisfied
- ☐ Very satisfied
- ☐ I do not eat meals from Mexican restaurants

Please rate the importance of item #22.

- ☐ Completely unimportant
- ☐ Not very important
- ☐ Neutral
- ☐ Somewhat important
- ☐ Very important

Please provide comments on item #22, such as its clarity, phrasing, and connotation.

23. How satisfied are you with the flavors of meals that you buy at the **non-Mexican restaurant that you go to most often?**

- ☐ Very dissatisfied
- ☐ Dissatisfied
- ☐ Neutral
- ☐ Satisfied
- ☐ Very satisfied
- ☐ I do not eat meals at non-Mexican restaurants

Please rate the importance of item #23.

- ☐ Completely unimportant
- ☐ Not very important
- ☐ Neutral
- ☐ Somewhat important
- ☐ Very important

Please provide comments on item #23, such as its clarity, phrasing, and connotation.

24. How often do you prepare meals that have both ingredients that you consider “Mexican” and ingredients that you consider “American”? Please think of main ingredients, such as specific types of rice, meat, and vegetables.

- ☐ Every day or almost every day
- ☐ 3—4 times per week
- ☐ 1—2 times per week
- ☐ 1—3 times per month
- ☐ A few times per year
- ☐ Never or almost never

Please rate the importance of item #24.

- ☐ Completely unimportant
- ☐ Not very important
- ☐ Neutral
- ☐ Somewhat important
- ☐ Very important

Please provide comments on item #24, such as its clarity, phrasing, and connotation.

25. How important is it for the meals that you eat to taste “fresh,” as in recently cooked, recently harvested (fruits and vegetables) or slaughtered (meat), or not canned or frozen?

- ☐ Completely unimportant
- ☐ Not important
- ☐ Neutral
- ☐ Somewhat important
- ☐ Very important

Please rate the importance of item #25.

- ☐ Completely unimportant
- ☐ Not very important
- ☐ Neutral
- ☐ Somewhat important
- ☐ Very important

Please provide comments on item #25, such as its clarity, phrasing, and connotation.

26. How many hours on average per day do you spend preparing food, cooking, and cleaning up from meals on a **weekday** (Mondays to Fridays)? Do not include heating up leftovers.

- ☐ Less than 1 hour per day
- ☐ 1—2 hours per day
- ☐ 2—3 hours per day
- ☐ More than 3 hours per day
- ☐ I do not prepare food, cook, or clean up from meals on weekdays

Please rate the importance of item #26.

- ☐ Completely unimportant
- ☐ Not very important
- ☐ Neutral
- ☐ Somewhat important
- ☐ Very important

Please provide comments on item #26, such as its clarity, phrasing, and connotation.

27. How many hours on average per day do you spend preparing food, cooking, and cleaning up from meals on a **weekend** (Sundays and Saturdays)? Do not include heating up leftovers.

- ☐ Less than 1 hour per day
- ☐ 1—2 hours per day
- ☐ 2—3 hours per day
- ☐ More than 3 hours per day
- ☐ I do not prepare food, cook, or clean up from meals on weekends

Please rate the importance of item #27.

- ☐ Completely unimportant
- ☐ Not very important
- ☐ Neutral
- ☐ Somewhat important
- ☐ Very important

Please provide comments on item #27, such as its clarity, phrasing, and connotation.

28. How often do all members in your household eat **breakfast** together at your home?

- ☐ Every day or almost every day
- ☐ 3—4 times per week
- ☐ 1—2 times per week
- ☐ Never or rarely
- ☐ I am the only person living in my household

Please rate the importance of item #28.

- ☐ Completely unimportant
- ☐ Not very important
- ☐ Neutral
- ☐ Somewhat important
- ☐ Very important

Please provide comments on item #28, such as its clarity, phrasing, and connotation.

29. How often do all members in your household eat **lunch** together at your home?

- ☐ Every day or almost every day
- ☐ 3—4 times per week
- ☐ 1—2 times per week
- ☐ Never or rarely
- ☐ I am the only person living in my household

Please rate the importance of item #29.

- ☐ Completely unimportant
- ☐ Not very important
- ☐ Neutral
- ☐ Somewhat important
- ☐ Very important

Please provide comments on item #29, such as its clarity, phrasing, and connotation.

30. How often do all members in your household eat **dinner** together at your home?

- ☐ Every day or almost every day
- ☐ 3—4 times per week
- ☐ 1—2 times per week
- ☐ Never or rarely
- ☐ I am the only person living in my household.

Please rate the importance of item #30.

- ☐ Completely unimportant
- ☐ Not very important
- ☐ Neutral
- ☐ Somewhat important
- ☐ Very important

Please provide comments on item #30, such as its clarity, phrasing, and connotation.

31. How often do you attend social events that involve home-prepared food (whether it be Mexican food, American food, or any other kind of food)? These social events may include potlucks, cookouts, barbecues, dinner parties, and picnics.

- ☐ More than once per week
- ☐ Every week or almost every week
- ☐ 1—2 times per month
- ☐ A few times per year
- ☐ Never or almost never

Please rate the importance of item #31.

- ☐ Completely unimportant
- ☐ Not very important
- ☐ Neutral
- ☐ Somewhat important
- ☐ Very important

Please provide comments on item #31, such as its clarity, phrasing, and connotation.

32. Do you consider food preparation to be a leisure activity (*i.e.*, something that you do for fun or because you enjoy it) or a chore? (A leisure activity is something that feels enjoyable or fun while a chore is something that feels like a job.)

- ☐ A leisure activity
- ☐ A chore
- ☐ Sometimes a leisure activity and sometimes a chore
- ☐ Neither a leisure activity nor a chore (please explain) _____
- ☐ I do not do any food preparation in my household

Please rate the importance of item #32.

- ☐ Completely unimportant
- ☐ Not very important
- ☐ Neutral
- ☐ Somewhat important
- ☐ Very important

Please provide comments on item #32, such as its clarity, phrasing, and connotation.

APPENDIX J: INITIAL DRAFT OF QUESTIONNAIRE

1. What is your level of satisfaction with the options of **fruits** available for purchase in your community?
 - ☐ Very dissatisfied
 - ☐ Dissatisfied
 - ☐ Neutral
 - ☐ Satisfied
 - ☐ Very satisfied
2. What is your level of satisfaction with the options of **vegetables** available for purchase in your community?
 - ☐ Very dissatisfied
 - ☐ Dissatisfied
 - ☐ Neutral
 - ☐ Satisfied
 - ☐ Very satisfied
3. What is your level of satisfaction with the options of **meats** available for purchase in your community?
 - ☐ Very dissatisfied
 - ☐ Dissatisfied
 - ☐ Neutral
 - ☐ Satisfied
 - ☐ Very satisfied
4. Where do you purchase your food items? Do not include prepared meals purchased for take-out or eat at restaurants. Select all that apply.
 - ☐ Supermarkets/grocery stores (e.g., Kroger)
 - ☐ Supercenters (e.g., Walmart, Meijer)
 - ☐ Specialty stores (e.g., Ethnic stores, Whole Foods)
 - ☐ Convenience stores (e.g., Seven Eleven)
 - ☐ Other (please specify) _____
5. Which of the following are reasons you shop at the location(s) you selected above? Select all that apply.
 - ☐ Price
 - ☐ Location
 - ☐ Quality of products
 - ☐ Variety of products
 - ☐ Customer service
 - ☐ Other (please specify) _____
6. What is your usual mode of transportation for food shopping?
 - ☐ Driving my own vehicle
 - ☐ Someone else drives me

- ☐ Using public transportation (e.g., bus, train)
 - ☐ Walking
 - ☐ Using a taxi, cab, uber, or other car service
 - ☐ Other (please specify) _____
7. On average, how long does it take for you (or the primary shopper in your household) to commute to the store where you purchase the majority of your food items (whether by driving, walking, taking public transportation, etc.)?
- ☐ Less than 10 minutes
 - ☐ 10—20 minutes
 - ☐ More than 20 minutes
8. How many times a month do you buy food at farmers markets?
- ☐ More than 3 times per month
 - ☐ 2—3 times per month
 - ☐ 1 time per month
 - ☐ Almost never or less than 1 time per month
9. How many times a month do you shop at ethnic stores (e.g., Mexican or Hispanic stores) to purchase food and/or ingredients?
- ☐ More than 3 times per month
 - ☐ 2—3 times per month
 - ☐ 1 time per month
 - ☐ Almost never or less than 1 time per month
10. How often do you eat breakfast, lunch, or dinner prepared at either restaurants or fast food places? Include only meals eaten at the restaurant. (Such as McDonald's, Burger King, Taco Bell; Do NOT include take-out food or meals-on wheels)
- ☐ 5 or more times per week
 - ☐ 3—4 times per week
 - ☐ 1—2 times per week
 - ☐ 1—3 times per month
 - ☐ Almost never or less than 1 time per month
11. How often do you eat **take-out food** prepared at either restaurants or fast food places for breakfast, lunch or dinner? (Such as McDonald's, Burger King, Taco Bell; Do NOT include meals-on wheels)
- ☐ 5 or more times per week
 - ☐ 3—4 times per week
 - ☐ 1—2 times per week
 - ☐ 1—3 times per month
 - ☐ Almost never or less than 1 time per month
12. If you or someone in your household prepares traditional Mexican dishes, which of the following are reasons that you prepare traditional Mexican dishes in the U.S.? Select all that apply.

- ☐ They are my favorite dishes.
 - ☐ They are my family members' favorite dishes.
 - ☐ I think that Mexican dishes are healthy.
 - ☐ They give me a feeling of my home in Mexico.
 - ☐ Preparing traditional Mexican dishes is a way to show affection and hospitality.
 - ☐ Mexican dishes at local Mexican restaurants are not satisfying to me so I prepare my own.
 - ☐ Other (please explain) _____
 - ☐ No one in my household prepares traditional Mexican dishes.
13. How important is it to you that you follow family or cultural beliefs regarding food and diet while in the U.S.? These beliefs may include which foods you consider to be nutritious and healthy, and the kinds of foods to be eaten during illness, pregnancy, or specific holidays.
- ☐ Completely unimportant
 - ☐ Not very important
 - ☐ Neutral
 - ☐ Somewhat important
 - ☐ Very important
14. If you or someone in your household prepares traditional Mexican dishes, what is your level of satisfaction with the flavors of these Mexican dishes prepared at home?
- ☐ Very dissatisfied
 - ☐ Dissatisfied
 - ☐ Neutral
 - ☐ Satisfied
 - ☐ Very satisfied
 - ☐ No one in my household prepares Mexican meals at home
15. What is your level of satisfaction with the flavors of **non-Mexican** meals that you or a family member **prepare at home**?
- ☐ Very dissatisfied
 - ☐ Dissatisfied
 - ☐ Neutral
 - ☐ Satisfied
 - ☐ Very satisfied
 - ☐ No one in my household prepares Mexican meals at home
16. What is your level of satisfaction with the flavors of meals that you purchase at the **Mexican restaurant that you go to most frequently**?
- ☐ Very dissatisfied
 - ☐ Dissatisfied
 - ☐ Neutral
 - ☐ Satisfied
 - ☐ Very satisfied
 - ☐ I do not purchase meals from Mexican restaurants

17. What is your level of satisfaction with the flavors of meals that you purchase at a **non-Mexican restaurant that you go to most frequently**?
- ☐ Very dissatisfied
 - ☐ Dissatisfied
 - ☐ Neutral
 - ☐ Satisfied
 - ☐ Very satisfied
 - ☐ I do not purchase meals at non-Mexican restaurants
18. How often do you prepare meals that have both ingredients that you consider “Mexican” and ingredients that you consider “American”?
- ☐ More than 5 times per week
 - ☐ 3—5 times per week
 - ☐ 1—2 times per week
 - ☐ Never or rarely
19. How important is it for the meals that you consume to taste “fresh”?
- ☐ Unimportant
 - ☐ Of little importance
 - ☐ Moderately important
 - ☐ Important
 - ☐ Very important
20. How many hours on average do you spend preparing, cooking, and cleaning up from meals on a **weekday** (Mondays to Fridays)? Do not include heating up leftovers.
- ☐ Less than 1 hour per day
 - ☐ 1—2 hours per day
 - ☐ More than 2 hours per day
21. How many hours on average do you spend preparing, cooking, and cleaning up from meals on a **weekend** (Sundays and Saturdays)? Do not include heating up leftovers.
- ☐ Less than 1 hour per day
 - ☐ 1—2 hours per day
 - ☐ More than 2 hours per day
22. To what extent do you enjoy cooking, baking, grilling, and other forms of meal preparation? Do not include shopping or cleaning up.
- ☐ Not enjoyable
 - ☐ Of little enjoyment
 - ☐ Moderately enjoyable
 - ☐ Enjoyable
 - ☐ Very enjoyable
23. How many times per week do all members of your household eat **breakfast** together at your home?
- ☐ 5—7 times per week

- ☐ 3—4 times per week
- ☐ 1—2 times per week
- ☐ Never or rarely
- ☐ I am the only person living in my household

24. How many times per week do all members of your household eat **lunch** together at your home?

- ☐ 5—7 times per week
- ☐ 3—4 times per week
- ☐ 1—2 times per week
- ☐ Never or rarely
- ☐ I am the only person living in my household

25. How many times per week do all members of your household eat **dinner** together at your home?

- ☐ 5—7 times per week
- ☐ 3—4 times per week
- ☐ 1—2 times per week
- ☐ Never or rarely
- ☐ I am the only person living in my household.

26. Do you consider food preparation to be a leisure activity or a chore?

- ☐ A leisure activity
- ☐ A chore
- ☐ Sometimes a leisure activity and sometimes a chore
- ☐ Neither a leisure activity or a chore (please explain) _____
- ☐ I do not do any food preparation in my household

27. How many times a month do you attend social events that involve home-prepared foods? These may include potlucks, cookouts, barbecues, dinner parties, and picnics.

- ☐ More than 3 times per month
- ☐ 2—3 times per month
- ☐ 1 time per month
- ☐ Almost never or less than 1 time per month

28. What is your level of satisfaction of how often you engage in leisure activities?

- ☐ Very dissatisfied
- ☐ Dissatisfied
- ☐ Neutral
- ☐ Satisfied
- ☐ Very satisfied

Demographic Questions

29. What year were you born? _____

30. What is your gender / sex?

☐ Male

☐ Female

☐ Other (please specify) _____

31. Which state in Mexico were you born in? _____

32. How would you describe the place where you grew up in Mexico?

☐ A major city

☐ A small city

☐ A rural town

☐ Other (please specify) _____

33. How old were you when you came to the U.S.? _____ years old

34. Did you come alone or with family members?

☐ Alone

☐ With family members

35. Which U.S. state did you first live in?

☐ Illinois

☐ Other (please specify) _____

36. The Bidirectional Acculturation Scale for Hispanics (BAS): English Version

1 = Very poorly; 2 = Poorly; 3 = Well; 4 = Very well

Linguistic Proficiency Subscale

M. How well do you speak English?

☐ Very poorly

☐ Poorly

☐ Well

☐ Very well

N. How well do you read in English?

☐ Very poorly

☐ Poorly

☐ Well

☐ Very well

O. How well do you understand TV programs in English?

☐ Very poorly

☐ Poorly

- ☐ Well
- ☐ Very well

P. How well do you understand radio programs in English?

- ☐ Very poorly
- ☐ Poorly
- ☐ Well
- ☐ Very well

Q. How well do you write in English?

- ☐ Very poorly
- ☐ Poorly
- ☐ Well
- ☐ Very well

R. How well do you understand music in English?

- ☐ Very poorly
- ☐ Poorly
- ☐ Well
- ☐ Very well

S. How well do you speak Spanish?

- ☐ Very poorly
- ☐ Poorly
- ☐ Well
- ☐ Very well

T. How well do you read in Spanish?

- ☐ Very poorly
- ☐ Poorly
- ☐ Well
- ☐ Very well

U. How well do you understand TV programs in Spanish?

- ☐ Very poorly
- ☐ Poorly
- ☐ Well
- ☐ Very well

V. How well do you understand radio programs in Spanish?

- ☐ Very poorly
- ☐ Poorly
- ☐ Well
- ☐ Very well

W. How well do you write in Spanish?

- ☐ Very poorly
- ☐ Poorly
- ☐ Well
- ☐ Very well

X. How well do you understand music in Spanish?

- ☐ Very poorly
- ☐ Poorly
- ☐ Well
- ☐ Very well

37. Which best describes your marital status?

- ☐ Single (Never married)
- ☐ Live with partner
- ☐ Married
- ☐ Separated
- ☐ Divorced
- ☐ Widowed
- ☐ Other (please specify) _____

38. Where did you complete your highest degree?

- ☐ U.S.
- ☐ Mexico
- ☐ Another country (please specify) _____

39. What is the highest educational degree that you completed in Mexico?

- ☐ Primaria
- ☐ Secundaria
- ☐ Preparatoria
- ☐ Carrera técnica (2 years)
- ☐ Licenciatura/Carrera (4 years of university)
- ☐ Maestría
- ☐ Doctorado (or equivalent)
- ☐ I did not complete any education in Mexico.

40. What is the highest educational degree you completed (U.S.)?

- ☐ Middle school or equivalent
- ☐ High School Diploma/GED
- ☐ Associate's Degree
- ☐ BA/BS (4-year college)
- ☐ MA/MS (master's degree)
- ☐ Ph.D./J.D./M.D. (graduate degree)
- ☐ I did not complete any education in the U.S.

41. What did you do for a living back in Mexico? _____

42. What do you do for a living now in the U.S.? _____

43. Do you live in a city, town, suburb, or rural area in the U.S.?

- ☐ City
- ☐ Town
- ☐ Suburb
- ☐ Rural area

44. How many children under the age of 18 live in your home?

- ☐ 0
- ☐ 1
- ☐ 2
- ☐ 3
- ☐ 4 or more

45. How many adults live in your home including yourself?

- ☐ 0
- ☐ 1
- ☐ 2
- ☐ 3
- ☐ 4 or more

46. Please select the range of numbers that corresponds to your family's average annual income from all sources (before taxes).

- ☐ Less than \$10,000
- ☐ \$10,000 - \$19,999
- ☐ \$20,000 - \$29,999
- ☐ \$30,000 - \$39,999
- ☐ \$40,000 - \$49,999
- ☐ \$50,000 - \$59,999
- ☐ \$60,000 - \$69,999
- ☐ Over \$70,000

47. Would you say that your neighborhood has...?

- ☐ Few Latino/Hispanic residents?
- ☐ Some Latino/Hispanic residents?
- ☐ Mostly Latino/Hispanic residents?
- ☐ All Hispanic/Latino residents?