

**SOCIOPOLITICAL CONTEXT AND DEPRESSIVE  
SYMPTOMS IN AN OLDER MEXICAN-ORIGIN POPULATION**

**by**

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A dissertation submitted in partial fulfillment  
of the requirements for the degree of  
Doctor of Philosophy  
(Health Behavior and Health Education)  
in The University of Michigan  
2008

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## **DEDICATION**

For Mom, Dad, Belen (1909-2008), and Chema (1905-1995)

## **ACKNOWLEDGEMENTS**

There are a number of people without whom various stages of this dissertation would not have been possible, and to whom I could not give enough thanks. I can offer only this acknowledgement (that I hope others will see through the years to come). Truly, I have been honored to learn from and with you all, and hope our paths continue to intertwine in the future.

The members of my dissertation committee offered a great amount of guidance through this process. Both Barbara Israel and Amy Schulz have served as mentors through the duration of my graduate education, opening up numerous opportunities that would not have been possible otherwise, and for that I will be forever grateful. I thank Hector Gonzalez, who also served as a mentor, and introduced me to a number of Latino health scholars, and constantly encouraged me along the way as a fellow Mexican American scholar. Sandro Galea was also most helpful, supporting me with his methodological insights as I continued to reconceptualize my research methods, and supporting my confidence along the process.

I would also like to acknowledge several funders that made my graduate education and research possible. Most recently, a dissertation grant from the Department of Health Behavior and Health Education has supported the completion of my research. Additionally, a National Institute of Mental Health training grant provided two years of funding (T32-MH16806), as did the support from the Healthy Environments Partnership

and its minority supplement grant, both from the National Institute of Environmental Health Sciences (#RO1 ES10936, #RO1 ES014234).

I would especially like to acknowledge the HEP staff and affiliates, to whom I credit my most beneficial learning experiences during the past seven years: the HEP Steering Committee for sharing the Detroit community with me; Sheryl Weir, Sue Anderson, Shirley Hatto and Robert McGranaghan for all their coordination efforts; Cassandra Parks for always checking in with a smile; Chris Coombe for being a colleague and office mate; Graciela Mentz who endured countless taps on her door with "just one more" data question; Sharon Sand for being a coworker and friend; Shannon Zenk, who allowed me to follow her footsteps, and had the patience to explain most of them along the way; Barbara Israel for the amazing example she sets through her relationship with the community; and Amy Schulz, who was gracious enough to extend the original invitation to be a part of HEP, and to share her knowledge and process with me.

Across campus, two centers provided valuable assistance for my dissertation. Many instructors at Sweetland Writing Center provided constructive feedback on drafts. At CSCAR, Doug Fuller, Brady West, and Kathy Welch all provided statistical consultations.

While some support for this endeavor primarily existed at SPH or the UM campus, others blurred or crossed the line, and were equally essential to this dissertation process and to my sanity. To Rashid Njai for his constructive encouragement through our masters and doctoral programs together; to Maggie Hicken and Maia, who were always willing to discuss work or go play; and to the Ann Arbor Rowing Club, which

became my community outside academia, and introduced me to truly wonderful people, especially Michelle Nemshak, one of my most thoughtful friends, and David Crouse, both of whom endured editing parts of my dissertation.

To all four Hartsuff boys: Liam, Zander and Bram, whose smiles invited me to play like a child with them; and to Gregg, for sharing his life and family with me and for all of their support through this process.

And finally, to my family, who "let" me move to Michigan in 2001 at the adventurous young age of twenty-two for a short two-year masters program – seven years later, and with one more degree than originally planned, I'm finally coming home.

## **PREFACE**

Part of a lifelong examination, this research stems from a personal background where I am fourth and fifth generation in the United States from a family who was crossed over by the U.S.-Mexican border, yet first generation to go to college; where due to the pro-assimilation practices during the 1950s while my parents were in school, my brother and I were not taught to speak Spanish for fear we would also be punished for its use in school; where I was ridiculed as a “coconut” (brown on the outside, white on the inside) by other Latino youth because to them, participation in honors classes and sports teams was something “only whites” participated in; and where as a young academic, I have met a large number of Latino health scholars and see that the literature largely reflects their demographics: male, immigrant, and not of Mexican-origin.

How sociopolitical context drives fundamental causes of health, such as unfair treatment and access to educational and economic opportunities, is central to the major thesis of this dissertation. I feel that I am a product of the contexts both my family and I have lived through, and the many opportunities that were critical to my intellectual development. It is my hope that readers are able to understand how sociopolitical context affects our lived experience, and how that in turn can influence health.

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## **ABSTRACT**

A large proportion of older adult Latinos have at least one chronic physical health condition; those same individuals who also exhibit depressive symptoms experience higher mortality rates. Given their projected population growth of 500% by 2050, it is important to disentangle the factors influencing the health status of Latinos aged 65 and older, specifically those who also experience depressive symptoms.

Prior studies of depressive symptoms among Latino populations have often failed to consider the role of sociopolitical context—that is, the social, economic, political and historical circumstances that shape an individual's lived experience—and its contribution to understanding within-group differences for health outcomes. This study explores the relationships between sociopolitical context and number of depressive symptoms among an older Mexican-origin population in the U.S., and seeks to disentangle the importance of sociopolitical context from other widely used group stratifications for capturing U.S.-Mexican experiences, including nativity status, length of residence in the U.S., and place of residence during formative years.

Study findings do not support rejecting the null hypothesis that there were differences in number of depressive symptoms by nativity status, length of residence in the U.S., or place of residence during formative years. Rather, findings suggest that the interaction of sociopolitical context and the age at which individuals arrive in the U.S. has a significant association with number of depressive symptoms among immigrants.

This study takes a novel approach to examine the relationships between sociopolitical context at time of entry in the U.S. and symptoms of depression in later life. The implications of its findings for immigration as well as other social policies are

discussed. The significant relationship between the interaction of sociopolitical context during time of entry into the U.S. and age of arrival into the U.S. suggests that contextual differences are related to a disparate number of depressive symptoms for this population. Thus, it is critical for researchers to understand contextual differences more broadly, and how past and future social policies influence health.

# **CHAPTER 1**

## **INTRODUCTION AND OVERVIEW**

A large proportion of older adult Latinos have at least one chronic physical health condition (Wallace and Villa 2003); those same individuals who exhibit depressive symptoms also experience higher mortality rates (Black and Markides 1999; Black, Markides et al. 2003; Schneider 2004; Schneider and Chiriboga 2005). Given the projected growth of this population of 500% by 2050, it is important to disentangle the factors that influence the health status of adult Latinos aged 65 and older (Wallace and Villa 2003), specifically among those who also experience depressive symptoms.

Prior health studies among Latino populations have provided mixed results regarding prevalence of depressive symptoms, in part due to inconsistencies in classification such as examining Latino populations together in one aggregated group (Vega and Amaro 1994; Zambrana and Carter-Pokras 2001) and are in part due to differences in approaches to analyzing within-group differences (Vega and Amaro 1994; Zambrana and Carter-Pokras 2001; Hunt, Schneider et al. 2004; Markides and Eschbach 2005). Prior studies of depressive symptoms have also failed to consider the role of sociopolitical context, that is, the social, economic, political and historical circumstances

that shape an individual's lived experience, and its contribution to understanding within-group differences for health outcomes.

In this study, I examine the relationship between sociopolitical context—the social, economic, and political and historical circumstances—and symptoms of depression in an older Mexican-origin population in the U.S. Specifically, I describe five eras of sociopolitical context for Mexican-origin populations, and how each context is defined by social policies, such as the Bracero era, defined by a guest-worker program initiated to fill labor shortages triggered by World War II. Furthermore, I disentangle the importance of sociopolitical context from other widely used group stratifications for capturing U.S.-Mexican experiences, including nativity status, length of residence in the U.S., and place of residence during formative years.

In Chapter 2, I describe relevant literature to past examinations of depressive symptoms and related mental health outcomes in Latino populations by three domains of U.S.-Mexican experiences: nativity status, length of residence in the U.S., and place of residence during formative years. Then, I discuss the missing literature regarding the contribution of sociopolitical context on the discussion of within-group differences, and how context relates to the immigration process and symptoms of depression.

In Chapter 3, I present the theoretical and conceptual frameworks guiding the current study. I then present the study questions and hypotheses, as well as research methods in Chapter 4.

This dissertation has three primary research questions: (1) do symptoms of depression among Mexican Americans vary systematically by domains of U.S.-Mexican experiences; (2) do symptoms of depression among Mexican Americans vary



systematically by sociopolitical context above and beyond domains of U.S.-Mexican experiences; and (3) does sociopolitical context modify the relationship between domains of experience and symptoms of depression? For all study questions I controlled for commonly applied sociodemographics for depressive symptoms, including age, gender, socioeconomic position, and marital status, and used a generalized least-squares estimation model.

Finally, in Chapter 5, I present the results from all analyses. In Chapter 6, I conclude with a discussion of the study findings and implications for research and policy.

## **CHAPTER 2**

### **BACKGROUND AND SIGNIFICANCE**

#### **The Research Problem**

While the current demographic profile of Latinos in the U.S. describes the population as young, between the years 2000 and 2050 the Latino population aged 65 and older is projected to grow by 592%, compared to the non-Hispanic white population, which is projected to grow by only 81% (Wallace and Villa 2003). Nearly 85% of older adult Latinos have at least one chronic physical health condition (Wallace and Villa 2003). Among those who experience chronic health conditions, such as cancer (Black, Markides et al. 1998; Black 1999; Black and Markides 1999; Schneider 2004; Schneider and Chiriboga 2005), cardiovascular disease (Black 1999; Black and Markides 1999; Schneider 2004) and diabetes (Black 1999; Black and Markides 1999), those who have depressive symptoms experience higher mortality rates. Given the projected growth of the older adult Latino population, it is important to disentangle the factors that influence their health status, specifically among those who experience depressive symptoms. Prior health studies have provided mixed results regarding prevalence of depressive symptoms, in part due to inconsistencies in classification, such as examining Latino populations together in one aggregated group (Vega and Amaro 1994; Zambrana and

Carter-Pokras 2001), and in part due to differences in approaches to analyzing within-group differences (Vega and Amaro 1994; Zambrana and Carter-Pokras 2001; Hunt, Schneider et al. 2004; Markides and Eschbach 2005). Most importantly, prior studies of depressive symptoms have failed to consider the role of sociopolitical context, that is, the social, economic, political and historical circumstances that shape an individual's lived experience, and its contribution to understanding within-group differences for depressive symptoms. How policies can be linked to depressive symptoms has been illustrated in studies of depressive symptoms in youth who have access to more educational resources in their schools. Allocation of resources is determined by city policy, and often related to housing values, resulting in an unequal share of economic and educational resources, leading to a greater disparity in number of depressive symptoms (Fortenberry 2003).

In this dissertation I seek to understand how past and current social, economic and political decisions influence depressive symptoms among Mexican-origin populations in the U.S. Additionally, I seek to separate the importance of sociopolitical context from other widely used group stratifications for capturing U.S.-Mexican experiences, including nativity status, length of residence in the U.S., and place of residence during formative years.

While the outcome of interest in this dissertation is depressive symptoms, issues of sociopolitical context and group stratifications will be explored in the literature review through an examination of studies of depressive symptoms as well as related mental health outcomes. Because a summary count of CES-D scores, such as the one used for this study, has been found to be an appropriate screening instrument for depression, studies examining depression are also included in the literature review presented below

(Radloff 1977). Additionally, while this study focuses on the outcome of symptoms of depression, there are a limited number of studies directly examining the relationship between the U.S.-Mexican experiences evaluated in this study and depressive symptoms. Therefore, findings from measures of mental health outcomes related to symptoms of depression that have been evaluated within Latino populations are also presented. These outcomes include depressive disorders dysthymia, major depressive episodes, psychological well-being, and psychosocial stress.

Though examining multiple measures of mental health may hinder understanding the expected main effects of symptoms of depression, the identification of cultural, social, economic, and political influences are integral to understanding racial and ethnic differences in mental health (Williams and Harris-Reid 1999). Therefore, an examination of these multiple mental health outcomes is key to distilling the findings for the domains of U.S.-Mexican experiences examined in this study. Through this approach, we may further understand how both sociopolitical context and domains of U.S.-Mexican experiences influence inequities in health across different racial and ethnic groups, and plausible pathways from these experiences to disparate numbers of depressive symptoms, and ultimately increased mortality risk.

To address the aging trend of the Latino population, and to prevent future health disparities across older adult populations and within the Latino population, policies that may differentially affect life experiences must be recognized and reconsidered. Each social policy change creates a different lived experience and therefore potentially different health trajectory. For example, the Bracero guest-worker program created economic opportunities for Mexican immigrants, but not for U.S. citizens of Mexican-

origin. For these reasons, it is imperative that we have a more complete understanding of the impact of policy changes on aging Latino populations. If subpopulations differentially experience depressive symptoms, we must understand the role of sociopolitical context, and how such context affects individuals across multiple lived experiences.

## **Approaches to Examining Mental Health among Latino Populations**

### Introduction

A major critique of the literature examining mental health among Latino populations is that inconsistent use, categorization, and description of groups for comparison make clarifying the characteristics of the population difficult. There are two primary sources of inconsistency—one has to do with terminology and ethnic group categories (e.g. Latino, Mexican American); the other reflects classification of ethnic group experiences (e.g. nativity status). The following review explores studies that examine symptoms of depression in Latino populations by the major group categories describing U.S.-Mexican experiences (i.e. nativity status, place of residence during formative years, length of residence in the U.S.), and includes additional mental health outcomes related to depressive symptoms, whose relationship to these domains of U.S.-Mexican experiences have also been evaluated. Previous study findings are reported in the language that the original authors used for ethnic categorization (e.g. “Hispanic,”

“Mexican American,” and “Latino”), and for mental health outcomes (e.g. “depressive symptoms,” “depression,” “dysthymia”).

## Overview of Research to Date

### **Racial & Ethnic Categorizations**

Some large-scale studies of mental health have made an effort to include Latino populations. However, many of these are described as being limited by inadequate understanding or sampling strategies to account for the heterogeneity of the Latino population (Vega and Amaro 1994; Zambrana and Carter-Pokras 2001; Borak, Fiellin et al. 2004; Paniagua 2005). Outside of some shared cultural experiences, there is not something inherent in a Latino group characteristic that can be ascribed to individuals by others (Bean 1987; Borak, Fiellin et al. 2004; Hunt, Schneider et al. 2004). Bean (1987) describes Hispanic ethnicity as a dynamic and interactive social phenomenon; group membership is shaped by the social context of different life trajectories. In other words, different experiences based on the interactions of life circumstances, specifically sociopolitical context and socioeconomic position, drive the health of populations. For this reason, we need to further explore health differences within the Latino population, and apply what is learned from the heterogeneity of subpopulations. Further understanding intra-group differences will lead to a greater understanding of inter-group racial/ethnic differences in health by allowing researchers to begin to reinterpret previous findings comparing large, heterogeneous, aggregated groups to each other.

Prior research has established relationships between physical health outcomes and depressive symptoms (Cohen and Herbert 1996; Pettit, Grover et al. 2007; Prince, Patel et

al. 2007; Resnick, Orwig et al. 2007). These patterns between physical health outcomes and depressive symptoms are evident in research on Hispanic/Latino populations as well, and have been found both for aggregated Hispanic groups and for specific subgroups encompassed within that overarching term (e.g., Mexican Americans). For example, in adulthood, Hispanics in the U.S. were found to have higher median levels of depressive symptoms (CES-D scores) than non-Hispanics (Escalante, del Rincon et al. 2000). This same relationship was discovered within older Mexican-origin populations as well (Swenson, Baxter et al. 2000; Schneider 2004). Additionally, in the older Mexican-origin population, the combination of cancer (Black and Markides 1999; Schneider and Chiriboga 2005), cardiovascular disease (Black and Markides 1999), and diabetes (Black 1999; Black and Markides 1999) with depressive symptoms has shown a higher association with mortality.

However, our understanding of the distribution of and correlates of depression among Latino populations is complicated by differences in comparison groups analyzed in studies. Ortega and colleagues found that for psychiatric and medical comorbidities, different patterns emerged when examining specific ethnic groups, compared to examining one aggregate group (Ortega, Feldman et al. 2006). Without considering the composition of aggregated groups in each study, researchers cannot accurately draw population-specific conclusions. However, researchers continue to use aggregated groups to increase study power and to make inter-group comparisons (Vega and Amaro 1994; Zambrana and Carter-Pokras 2001; Hunt, Schneider et al. 2004; Markides and Eschbach 2005).

In trying to further understand the health of Latino populations, comparisons have been made to other racial/ethnic groups, mainly non-Hispanic whites and blacks born in the U.S. (Vega and Amaro 1994; Zambrana and Carter-Pokras 2001; Hunt, Schneider et al. 2004; Markides and Eschbach 2005). Within studies examining disparities in depressive symptoms, racial/ethnic groups have also largely been evaluated as aggregated groups. To further extend research investigating within-group differences, this dissertation examines differences within a Mexican-origin population. These differences stem from three major approaches examined below that researchers have used to categorize experiences of Mexican-origin populations in the U.S.

### **Approaches to Categorizing U.S.-Mexican Experiences**

Three major approaches to categorizing U.S.-Mexican experiences for evaluating groups with differential health outcomes include nativity status, place of residence during formative years, and length of residence in the U.S. Below I review the literature with respect to depressive symptoms and related mental health outcomes among U.S. Latinos, organized according to each of these domains of U.S.-Mexican experiences. Terms for study populations and mental health outcomes continue to be reported in the original authors' language.

#### *Nativity Status*

An examination of the literature related to depressive symptoms by nativity status shows mixed results, with differences by age group and by indicator of depressive



symptoms. A study with an older Mexican American population found that foreign-born individuals had a higher prevalence of depression when compared to those who were native-born (Gonzalez, Haan et al. 2001). Similarly, a study examining an aggregated Hispanic group showed Hispanics who were foreign-born scored higher median CES-D scores than U.S.-born Hispanics (Escalante, del Rincon et al. 2000). In contrast, a nationally representative study of adolescent immigrants found those who were first generation immigrants (foreign-born) experienced less depression than second-generation immigrants (U.S.-born), who had profiles of psychological well-being similar to native-born adolescents (Harker 2001).

In a population-based sample of Latinos aged 18 and older, U.S.-born Latinos were shown to have a significantly higher prevalence of any depressive disorder, in addition to dysthymia and major depressive episodes than immigrant Latino study participants (Alegría, Canino et al. 2008). However, when stratified by gender, no significant associations remained between nativity status and diagnosed depressive disorders in the past year (Alegría, Mulvaney-Day et al. 2007).

When stratified into subpopulations based on country of origin, U.S.-born respondents of Mexican-origin had the highest lifetime prevalence rate of any DSM-IV diagnosed mental disorder when compared to Puerto Rican, Cuban, and other Latino subgroups (Alegría, Canino et al. 2008). In addition, immigrant respondents of Mexican-origin had the lowest lifetime prevalence rates when compared to the same subgroups (Alegría, Canino et al. 2008).

In summary, when stratified by nativity status, there is evidence that adolescent U.S.-born Latinos have a poorer psychological well-being than foreign-born Latinos, but

that the opposite pattern emerges for older adult Mexican Americans with depression. It is difficult to know if these conclusions are the result of one study using an aggregated group of “Latinos” and the other a group of “Mexican Americans.” These mixed findings may also be due to the comparison of different measures of mental health (e.g. depressive symptoms, major depressive episode, dysthymia). Current findings suggest that the relationship between nativity status and mental health may change over the lifecourse. Alternatively, findings may reflect cohort effects with the adolescents described in the earlier study encountering different sociopolitical contexts compared to some of the adults in the other study sample.

#### *Length of residence in the US*

Length of residence in the U.S. has been studied among Latino populations for such health outcomes as obesity (Singh and Siahpush 2002; Chakraborty, Mueller et al. 2003; Lynch, Smith et al. 2004; Steffen, Smith et al. 2006; Barcenas, Wilkinson et al. 2007), and psychosocial stress (Jasinskaja-Lahti, Liebkind et al. 2006). This review of literature found that no published studies have examined the direct effect of length of residence in the U.S. on number of depressive symptoms among Latino populations. However, a study on diagnosed depressive disorders found Latino women who have been in the U.S. for five years or less were significantly more likely to be diagnosed with a depressive disorder compared to women who have been in the U.S. for longer than five years; this group of immigrant women were also significantly more likely to be diagnosed with a depressive disorder compared to women who were born in the U.S. or

to comparable subsamples of men (Alegría, Canino et al. 2008). How sociopolitical context may have influenced the experiences of these women was not examined.

### *Place of Residence during Formative Years*

There are very few studies of depressive symptoms using this method of group comparison which involves examining groups who spent their more formative years, before the age of twelve, in the U.S., compared to groups who did not. The sole study located in a search of the literature on depressive symptoms and related mental health outcomes was a study of adult Mexican-origin women conducted by Heilemann and colleagues (2002). They found fewer depressive symptoms in a sample of women who spent all of their childhood years in Mexico prior to immigrating to the U.S. (Heilemann, Lee et al. 2002), compared to women who had spent formative years in the U.S. Whether this association holds for men, older adults or adolescents is unknown and needs further investigation.

### Summary of Approaches to Categorizing U.S.-Mexican Experiences

Thus far, in this chapter, I presented a review of literature related to Latino inter- and intra-group differences, and approaches to investigating underlying mechanisms of mental health. From this review, we see that there is mixed evidence of multiple mental health outcomes in Latino populations when examining direct relationships with domains

of U.S.-Mexican experiences. Additionally, we see the complexity of interpreting prior research findings for comparison, as studies have multiple differences, including terminology and ethnic categories, classification of ethnic group experience, the age group of participants (e.g. adolescent, adult, older adult), gender, and the mental health outcome chosen for analysis. What becomes clear from the review of approaches employed in studies examining mental health among Latino populations is that it is important to disentangle findings based on measures of mental health used and use of domains of U.S.-Mexican experiences.

Prior research also suggests the need to understand what else may modify the relationship between these domains of U.S.-Mexican experiences and number of depressive symptoms, as well as what domains have in common. The following section examines the importance and role of sociopolitical context—the social, economic, political and historical circumstances that shape an individual’s lived experience—in influencing the patterns observed, and how sociopolitical context may differentially influence the pathway to health.

## **The Importance of Sociopolitical Context**

### **Introduction**

Large immigrant flows from multiple Latin American countries of varying political climates and geographically distinct migratory settlement patterns “undermine the possibility of an overarching cohesion” among immigrants from different countries (Bean p. 9). In turn, this diversity of countries of origins signals the necessity of a critical

evaluation of health studies by creating a challenging, diverse sociopolitical context of exit—the context of the individual’s country of origin at the time of emigrating from it—for each individual (Portes, Escobar et al. 2007). To further evaluate health, beyond context of exit from countries of origin, we must consider each country’s relationship with the United States, the context at time of entry into the U.S., or the sociopolitical context during the time of immigration into the U.S., and how context varies over time. Furthermore, it is important to understand the relationship between context of exit and context of entry, and their independent and additive implications for health.

For example, Mexico has a complex history with the U.S., reflected in multiple distinct eras of sociopolitical context that affect populations of Mexican-origin. Bean describes:

The social antecedents of this heterogeneity are rooted in the history of U.S. westward expansion, the geographic proximity and poverty of Mexico that has facilitated continued immigration, and the historical labor functions of Mexican workers in the U.S. economy. These factors, along with changes in immigration policies and the resurgence of Mexican ethnicity that accompanied the Chicano movement of the 1960s, were decisive in molding the contemporary socioeconomic position of people of Mexican origin. (p. 17)

Therefore, contextualized group stratification becomes necessary to disentangle how an individual from one country of origin and nativity status may experience different health outcomes than another individual from the same country of origin and nativity status depending on the context of exit the individual experienced. To further expand the concept, context of entry must also be explored, as this is the context that will encompass an individual in each receiving country, and influence their life experiences. My focus in this dissertation is specifically on the context of entry into the U.S.

To illustrate the within-group variation that exists beyond a common country of origin, in this dissertation I examine the case of the Mexican-origin population. In this analysis, the use of the label of Mexican-origin refers to persons who self-identify as being of Mexican ancestry, whether foreign- or U.S.-born. All other ethnic terms related to persons of Mexican origin (e.g. Chicano, Mexican Americans) are treated as subsets of the Mexican-origin categorization.

### Overview of Research to Date

While current studies examining group stratifications of Latino populations have found relationships with depressive symptoms, as described above, they are often limited by their failure to explicate connections to sociopolitical context. Individuals across sociopolitical contexts may live different experiences; these experiences in turn may lead to multiple trajectories of health status. Failure to consider sociopolitical context risks the misinterpretation of findings and implications for health.

This may be the case when trying to disentangle current mixed findings regarding three domains of U.S.-Mexican experiences examined in this study. Only by understanding how the experiences of Latino subgroups vary across sociopolitical context can we accurately observe contemporary Latino health. Understanding sociopolitical context will provide a greater understanding of structural influences on depressive symptoms, and how subgroups of populations may experience different numbers of depressive symptoms, even when immigrating from the same country of origin. For these reasons, this dissertation focuses on the variability that can be found among

individuals from a single country of origin, Mexico, and the relationship between sociopolitical context and symptoms of depression.

#### Five Eras of Sociopolitical Context between the U.S. and Mexico

Sociopolitical context includes the social, economic, political and historical circumstances that encompass an individual's lived experience. It is expected that sociopolitical context affects individuals and their health by influencing socioeconomic position, and how people of Mexican-origin experience the U.S. through access to opportunities such as higher education. Below, I describe five eras of sociopolitical context between the U.S. and Mexico, specifically major policies that are defining for each era and the context that may be experienced by individuals of Mexican-origin.

The sociopolitical contexts that Mexican-origin populations have experienced in the U.S. since the beginning of the Twentieth Century included in this analysis have been described in five broad periods defined by major shifts in social, economic and/or historical contexts, also described by Durand and colleagues (Durand, Massey et al. 2000): Pre-Mexican Revolution (prior to 1917); Post-Mexican Revolution (1918-1928); Era of Variable Deportations (1929-1941); the Bracero Era (1942-1964); and the Era of Undocumented Immigration and Post-Immigration Reform and Control Act (1965-1994). These categorizations of sociopolitical context are an essential framework to this dissertation, and are discussed herein.

The southwestern U.S. was claimed from Mexico in 1845 (Texas annex) and in 1848 after the U.S.-Mexico War with the signing of the Treaty of Guadalupe Hidalgo

(Spickard 2007). As part of the Treaty, Mexicans were guaranteed U.S. citizenship.

Spickard explains,

...however, many if not most of the 80,000 to 100,000 people who were entitled to American citizenship by this provision never received it. Whites assumed them to be noncitizens, as Whites have treated people of Mexican descent as foreigners ever since, whatever their parentage and wherever their birth. Thus, the border crossed them: America moved onto the lands and lives of Mexicans in the Southwest, and they became foreigners in the land of their birth. So arose a strange anomaly in the American racial system. (Spickard 2007, p. 150)

Thus, a major sociopolitical context experienced by Mexican-origin populations began with a repatriation of Mexican citizens into the United States. In what became a land of immigrants, for these individuals, the immigration process was unnecessary. As Texas land was annexed into the United States, so were the Mexicans residing in that land. However, as described by Spickard (2007), the provisions of the Treaty of Guadalupe Hidalgo were not uniformly adhered to, and Mexicans who were entitled to citizenship received none. In this example, the lack of enforcement of a policy—provisions of the Treaty of Guadalupe Hidalgo—drove the context experienced by Mexican-origin individuals, a context where they were treated “as foreigners in the land of their birth” (Spickard 2007, p. 150).

Individuals immigrating to the U.S. between the annexation of Texas and before the Mexican Revolution, in modern-day Mexico, had the luxury of migrating through choice and with resources. This was not the case for the subsequent eras examined in this study.



### **Post-Mexican Revolution (1918-1928)**

After the Mexican Revolution, as the Mexican economy worsened, Mexico saw large-scale emigration of agricultural, artisan and industrial laborers to the U.S. (de la Garza and Szekely 1997). After the signing of the Mexican Constitution in 1917, and into the 1930s, Mexico saw widespread violence in response to the Mexican Revolution and political turmoil, increasing the number of Mexican immigrants to the U.S. (de la Garza and Szekely 1997), and creating a unique population of Mexican political refugees. Thus, both the characteristics of the immigrants, and the sociopolitical context they navigated, was distinctly different for immigrants who arrived in this era post-Mexican Revolution, compared to the preceding era. This group was increasingly diverse in terms of Mexican political experience, social class and labor skills. In contrast to the context experienced prior to the Mexican Revolution, Mexican-origin immigrants at this juncture benefitted from the relaxed enforcement of immigration policies. The sociopolitical context they experienced was characterized by the context of exit in their sending communities, primarily political disruption, and the lenient immigration policies in the receiving country which defined the context of entry for this cohort of immigrants into the United States. However, the leniency experienced by the political refugees of this era was not the same for individuals in the subsequent era.

### **Era of Variable Deportations (1929-1941)**

From the late Nineteenth Century through 1930, there were over 120,000 deportations of illegal immigrants deemed so-called undesirable for up to twenty-six different reasons from the U.S., though these deportations were largely groups from Asia and Europe. Because the number of Mexican immigrants at that time was low, Mexican-origin immigrants were generally exempt from these restrictions (Nevins 2005). Prior to the Great Depression, this relaxed enforcement created a more neutral social climate for Mexican-origin populations. However, the timing of the Great Depression and U.S. labor concerns influenced the enforcement of these existing policies on immigration that weren't previously directly targeted at Mexican-origin populations. Mass deportations of up to 415,000 Mexicans continued from 1929 through the mid-1930s, where immigration policies continued to be variably enforced. Fear of deportations triggered an uneasy social climate for Mexican-origin populations. These variable deportations continued until a growing recognition of labor shortages triggered by World War II, and a guest worker program was initiated.

### **The Bracero Era (1942-1964)**

In an effort to authorize Mexican immigrant workers to fill labor shortages, in 1942 the Bracero program was introduced to help with farm work and the expansion of the U.S. railroad (Martinez 2005; Nevins 2005; Acuna 2006). During this era, this policy stratified the social contexts experienced by Mexican-origin populations. Tens of thousands of Mexican immigrants entered the U.S. labor force, welcoming the economic opportunities not afforded to existing U.S. citizens of Mexican-origin. This influx of

Mexican immigrants also opened a stereotyping sentiment about the types of labor that was “appropriate” for Mexican-origin individuals (Acuna 2006), and further stratified the experience of U.S.-born and non U.S.-born Mexican-origin individuals. As Mexican immigrants were greeted into the U.S. with economic opportunities, such economic guarantees were not in place for U.S. citizens of Mexican-origin. The Bracero Program came to an official close in 1964, leading to an era similar to the time before the Bracero Program began, where the existing negative sentiment toward undocumented immigrants became more prevalent in the U.S. (Martinez 2005; Nevins 2005; Acuna 2006).

### **Era of Undocumented Immigration and Post-Immigration Reform and Control Act (IRCA; 1965-1994)**

Under growing pressure from organized laborers and persons who held anti-communistic sentiment suspecting spies entering the U.S. illegally from Mexico, in June of 1954 a deportation effort that became known as “Operation Wetback” ensued. This resulted in the deportation of up to one million undocumented Mexican immigrants, with the number of deportations variably mirroring the number of immigrants (Martinez 2005; Nevins 2005). Many U.S. citizens of Mexican descent experienced violations of their civil rights, again including deportation. Other mass deportations occurred in the 1970s (up to one million in response to high levels of unemployment) and city-wide concentrated deportations of thousands in San Diego in 1986 and in Los Angeles in 1992 (Nevins 2005). The Immigration Reform and Control Act, which granted amnesty and U.S. citizenship to a large number of Mexican immigrants who had remained in the U.S. illegally after the end of the Bracero program, also occurred during this time period.

Thus, social policies ranged from creating a sentiment of fear among Mexican-origin populations, to presenting opportunities for citizenship.

### Summary of Sociopolitical Context

Upon examining historical U.S. policies directly influencing Mexican-origin populations, it is reasonable to identify potential and variable insults to mental health. Through the duration of sociopolitical contexts described above, policies created conflicting push/pull factors and different health trajectories. Now older, the mental health implications of these variable policies, which at times prevented individuals from crossing the U.S.-Mexico border for extended periods of time, and lead to fear of deportations and unequal treatment from imposed language requirements and border regulations on anyone of Mexican origin, become clearer (Massey 2004; Acuna 2006; Fernandez-Kelly and Massey 2007; Wilson 2007). Further influences from sociopolitical context experienced by individuals have been shown. For example, discrimination experienced by refugees in the United States has shown association with mental health and social adaptation problems (Montgomery and Foldspang 2008). Within these insults are potential lifetime implications upon, for example, socioeconomic position due to the disruptions in educational and economic opportunities. As socioeconomic position is an established predictor of depressive symptoms (Gallo and Matthews 1999; Turner and Lloyd 1999; Turner, Lloyd et al. 1999; Muntaner, Eaton et al. 2004), it is reasonable to suggest that these experiences are implications for a higher number of depressive symptoms.

In this chapter I reviewed current literature on three domains of U.S.-Mexican experiences, their associations with mental health outcomes, and the limitations of this research. This discussion was followed by a description of the sociopolitical context for Mexican-origin populations in the U.S. in the Twentieth Century, and how these lived experiences could influence differential numbers of depressive symptoms within and across domains of U.S.-Mexican experiences.

In summary, individuals of Mexican-origin share lived experiences across multiple sociopolitical contexts. Understanding these contexts provides a foundation for understanding how social, economic, political and historical circumstances influence population health.

## **CHAPTER 3**

### **THEORETICAL AND CONCEPTUAL FRAMEWORKS**

#### Introduction

Social ecological theory and the concept of fundamental causes are the guiding frameworks for this analysis. As stated through ecological theory, an individual is influenced through reciprocal interaction with a multidimensional environment (Stokols 1992; King, Stokols et al. 2002). Each iteration of reciprocal interactions with the environment, such as sociopolitical context, changes over the lifecourse of each individual, in conjunction with population demographics such as socioeconomic position, which is associated with access to health-sustaining resources. For individuals of Mexican-origin, their place in domains of U.S.-Mexican experiences (nativity status, place of residence during formative years, and length of residence in the U.S.) is also integral to how individuals interact with their environment.

#### Social Ecological Theory

Social ecological theory considers the interaction of the individual with their community and multidimensional environments, be that a neighborhood or a historical context. The key principles of social ecological theory incorporated into the present framework include community and public policy factors that, through interactions in the

social environment, influence conditions and opportunities in ways that structure opportunities for health (McLeroy, Bibeau et al. 1988; Stokols 1992; Stokols 1996; Stokols, Allen et al. 1996; Stokols 2000; King, Stokols et al. 2002; Best, Stokols et al. 2003; Stokols, Grzywacz et al. 2003).

Use of social ecological theory encompasses the following assumptions: (1) the individual is influenced by both the social and physical environment, in addition to personal, individual-level attributes; (2) analyses should consider this dynamic and multifaceted interaction between the individual and the environment; (3) multiple methodologies to examine beyond the individual need to be used in analyses; and (4) research needs to consider the iterative relationship between individuals and their environment (Stokols 1992). Because of the ecological nature of human lives, in research, moving beyond examining an individual's lifestyle and behavioral characteristics is essential to further understanding differential health findings when studying populations. The assumptions described above should be incorporated in research by examining characteristics besides individual-level attributes, and how those attributes change over time and are associated with environments.

For Mexican-origin populations, migration is an example of a process influenced by structures such as binational social ties that can influence health. In addition to economic growth in Mexico, Douglas Massey describes migration between Mexico and the United States as being driven largely by the binational social ties that exist (2007). Seventy-five percent of Mexican households have been shown to know someone who lives in the U.S; additionally, Mexican workers bring human capital with them to the U.S.

(Alba, Massey et al. 1999). Both of these pull factors from the United States to Mexico exemplify the ecological relationship between overlapping human lives and larger social processes, such as migration. We must also consider larger processes occurring at the population level that can drive processes like migration, such as sociopolitical context. For example, post-WWI, an increasing anti-immigrant, pro-American sentiment of Americans pressed the presidential administration of that time to enforce immigration policies against Mexican populations not previously enforced (Acuna 2006). As a result, Mexican Americans who entered the U.S. during this period were faced with a negative sociopolitical climate that was different from individuals who entered the U.S. during other climates.

While different individuals may experience the same public policy and related social reception (sociopolitical context), this experience interacts with the personal characteristics of the individual, such as nativity status, place of residence during formative years, and length of residence in the U.S.; thus, each individual has a unique ecological profile and subsequently potentially different health outcome. Research that does not consider the ecological nature of human lives detracts the research agenda from inequalities in the distribution of power in society that exists, because it does not account for the interactive, iterative nature of human populations as described in social ecological theory (McLeroy, Bibeau et al. 1988; Stokols 1996; Stokols 2000). The examination of sociopolitical context at the time of entry into the U.S., in conjunction with the domains of U.S.-Mexican experiences, in this theoretical and conceptual framework incorporates this interactive nature characteristic of ecological relationships.



## Fundamental Causes

In 1995, Link and Phelan argued that to understand disease, we must look beyond individually-based risk factors, and consider the context of such risk factors in addition to “fundamental causes” of disease, such as socioeconomic position, that affect access to resources that influence multiple disease outcomes and pathways to those diseases (Link and Phelan 1995). Country- and region-specific historical factors, including civic and cultural factors, the role of political institutions, and political-economic traditions, are all conditions that have prevented access to the necessary resources for promoting and maintaining health (Link and Phelan 1995; Link and Phelan 1996; Link and Phelan 2002). Additionally, some populations have historically and systematically been subjected to institutional and environmental exposures that lead to inequalities in health (Williams and Collins 2001). Due to the historical lack of access to higher educational opportunities for Hispanics in the U.S. (Person and Rosenbaum 2006), the concept of fundamental causes of disease is also an integral part of the theoretical framework of this study. The low rates of educational attainment in Mexican-origin individuals suggest an underlying population-level determinant (Manton 2008). Because education has been linked to mortality (Manton 2008), and affects access to resources that influence multiple diseases, factors that influence educational attainment have profound implications for health and illness through the lifecourse (Link and Phelan 1995; Link and Phelan 1996).

As sociopolitical context permeates through the social structure and individuals’ lived experience, access to opportunity can change. Lived experiences that decrease

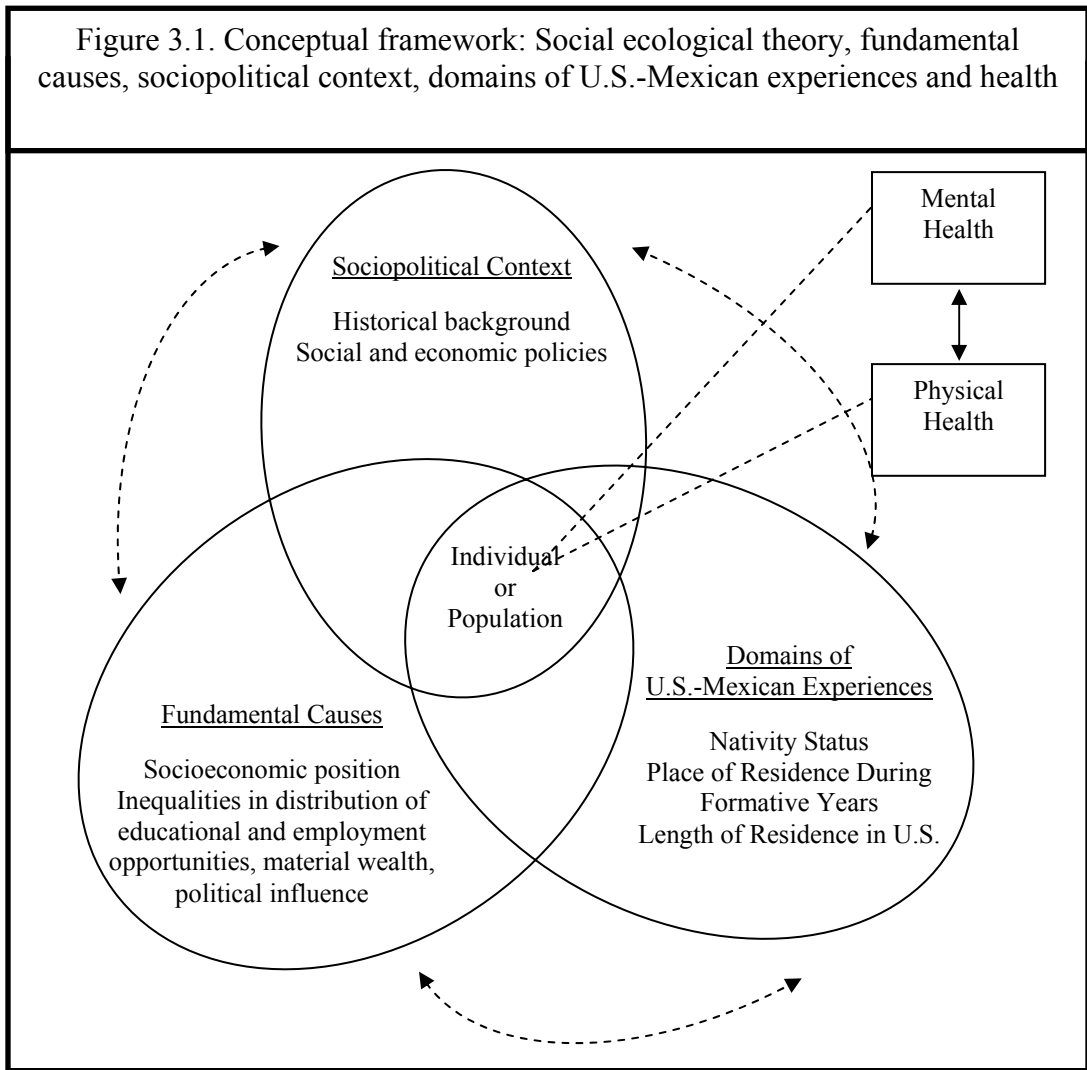
access to opportunity, such as structural barriers to higher education are expected to increase number of depressive symptoms for a person of Mexican origin. Individuals of Mexican-origin that are not born in the U.S. are likely to have known someone in the U.S. also from Mexico, prior to their arrival (Alba, Massey et al. 1999). While these social networks can facilitate larger social processes such as migration, they may also be beneficial for health if they contain knowledge or power in navigating through existing social structures in the U.S.; fundamental resources such as knowledge, power, and money are influential drivers of health (Link and Phelan 1995; Link and Phelan 1996; Phelan, Link et al. 2004; Phelan and Link 2005). For Mexican-origin populations, social networks likely provide essential assistance in navigating U.S. social structures. However, as described within social ecological theory, the communities and networks are iteratively influenced, and shaped by the sociopolitical context in which they exist; thus it is important to take steps to further understand sociopolitical context.

### Conceptual Model

Figure 3.1 below illustrates how social ecological theory and the concept of fundamental causes overlap in the theoretical framework of this examination of sociopolitical context and its relationship to three domains of U.S.-Mexican experiences and depressive symptoms. This illustrates how characteristics of the individual or a population exist within a sociopolitical context, and that their experience is at the same time influenced by such fundamental causes as socioeconomic position and inequalities

in educational or economic opportunities, as well as the interaction with domains of U.S.-Mexican experiences. Altogether, the interactions of these experiences influence health.

As presented in Figure 3.1, major assumptions of both social ecological theory and the concept of fundamental causes are satisfied in this conceptual model. Social ecological theory is incorporated through the use of a Venn diagram, which illustrates the dynamic and iterative intersection of the individual, sociopolitical context, fundamental causes, and domains of U.S.-Mexican experiences. The individual is influenced by the social and physical environment; these environments are driven by structural inequalities which drive fundamental causes to health, such as educational and economic opportunities, and access to political influence. Most importantly, the conceptual framework allows simultaneous consideration of concepts that are common to the theoretical influences on the study (social ecological theory and fundamental causes), the individual, and sociopolitical context.



**U.S.-Mexican Experiences Across Sociopolitical Context**

Figure 3.2 depicts a heuristic view of how domains of U.S.-Mexican experiences may relate to each other across sociopolitical context. As discussed earlier, these

approaches have been found to be independently related to symptoms of depression among Latino populations.

Not all individuals who share the same nativity status experience the same sociopolitical context when they live in the U.S., nor do individuals who have lived in the U.S. for the same number of years, but across different eras. For example, during the era post-Mexican Revolution, individuals who were not born in the U.S. likely arrived as political refugees, fleeing the violence in Mexico during that time, described earlier; during the Bracero era, migrant workers from Mexico were encouraged through the Bracero guest worker program. It is not known if U.S.-born individuals of Mexican origin experienced these contexts in the same way, nor what is the role of age during arrival into the U.S. When these eras act in conjunction with domains of U.S.-Mexican experiences, it is expected that number of depressive symptoms will be variable, depending on the unique profile of each individual's lived experience.

Due to historical factors and migratory patterns, not all individuals that are of the same nativity status will experience the same sociopolitical context. By extension, prior findings that attributed differences in health outcomes to differences in nativity status may instead reflect differences that arise due to the particular sociopolitical context.

Length of residence in the U.S. is also depicted in Figure 3.2, with longer lengths of residence noted by a darker shade of gray. Upon examining this particular domain of U.S.-Mexican experiences, one can see the variable contexts that the same individual can experience.

In other words, what is interpreted historically as an effect of nativity status, place of residence during formative years, or length of residence effect may actually reflect sociopolitical contexts experienced by those individuals at that particular historical moment. Because these are temporally dependent, cross sectional analyses may not accurately capture the full effect. Thus, across popular group stratifications for evaluating Latino health, a researcher is capturing the lived experience of a heterogeneous group of people living out multiple trajectories based on the current and lived sociopolitical context. If a researcher is unable to conduct a longitudinal analysis following a cohort across sociopolitical contexts, then sociopolitical context must be considered in some other way.

### **Nativity Status**

As discussed earlier, mixed results have been found regarding the association between nativity status and mental health outcomes. Findings remain mixed for other physical health outcomes as well (Li 2006). What is unknown are the underlying mechanisms for the relationship between nativity status and depressive symptoms, or if prior relationships have been spurious findings. Also left to be understood is its relationship to sociopolitical context. To understand the underlying mechanism for statistically significant associations between nativity status and health, we must compare the two levels of nativity: being born in the U.S. and being born in Mexico.

Being born in the U.S. brings the benefit of citizenship. Beyond participation in the political process, having or attaining citizenship increases likelihood of routine healthcare for Hispanics (Durden and Hummer 2006). Furthermore, individuals of

Mexican-origin who are not born in the U.S. are of lower socioeconomic position, and therefore fundamentally more likely to have poorer health. This may also stem from the relationship of health to economic and educational opportunities not afforded to individuals of lower socioeconomic position, and individuals who are not U.S. citizens.

Though they are 30% of the foreign-born population of the U.S., only 15% of naturalized U.S. citizens are of Mexican origin, leaving nearly nine million reported Mexican-origin individuals in the U.S. that do not have citizenship (Census 2006). Naturalized citizens are also more likely to be more socially networked to individuals of higher socioeconomic position or have access to greater knowledge or power (Cho, Frisbie et al. 2004).

Access to citizenship by individuals is influenced by the social, economic, and political climates of the era in which they live (Durden and Hummer 2006). Thus, the results of applications for citizenship depend largely on immigration policies. In Chapter 2, Era 3 described where there was variable enforcement in immigration policies that deported Mexican-origin individuals, yet Era 5 described an era where mass amnesty was granted to a large number of individuals. These examples build evidence toward the necessity to consider sociopolitical context. While nativity status may have remained the same, we now see multiple strata from within the group of Mexican-born individuals. Therefore, cross-sectional studies examining only nativity status, or aggregated groups of Latino populations, may in fact be measuring something other than nativity status.

Figure 3.2. A heuristic diagram illustrating U.S.-Mexican experiences across sociopolitical contexts

| 1 <sup>st</sup> generation         | 2 <sup>nd</sup> generation                                       | 3 <sup>rd</sup> generation  | 4 <sup>th</sup> generation  | 5 <sup>th</sup> generation          |
|------------------------------------|--|---|---|-------------------------------------|
| x                                  | x  | x   | x   | x                                   |
|                                    | 1 <sup>st</sup> generation<br>x                                  | 2 <sup>nd</sup> generation<br>x   | 3 <sup>rd</sup> generation<br>x   | 4 <sup>th</sup> generation<br>x     |
|                                    |  | 1 <sup>st</sup> generation<br>x   | 2 <sup>nd</sup> generation<br>x   | 3 <sup>rd</sup> generation<br>x     |
|                                    |  |   | 1 <sup>st</sup> generation<br>x   | 2 <sup>nd</sup> generation<br>x     |
|                                    |  |   |   | 1 <sup>st</sup> generation<br>x     |
| <i>Era Post-Mexican Revolution</i> | <i>Era of Variable Deportations</i>                              | <i>Bracero Era</i>  | <i>Era of Undocumented Immigration and Post-IRCA</i>                                    | <i>Present</i>                      |
| Immigration Act of 1917            | Social Security Act (1935)<br><br>Bracero contract begins (1942) | INS variably opens and closes borders<br><br>Bracero contract ends (1964) | Prop 187 (1994)<br><br>Medicare (1965)<br><br>Immigration Reform and Control Act (1986) | Current proposed immigration reform |



### **Place of Residence during Formative Years**

Similar to the discussion of nativity and generational status, the issues of citizenship and access to routine health care remain in respect to place of residence during formative years. Immigrants who spend their formative years outside of the U.S. are less likely to be U.S. citizens, and therefore are more likely not to have access to preventive health care (Cho, Frisbie et al. 2004).

Because they may integrate into the host U.S. society sooner (Massey 1986; Massey 1986; Massey and Denton 1987; Alba, Massey et al. 1999; Massey 2004), Mexican-born immigrants who spend their formative years in the U.S. may learn to navigate through the U.S. social structures and institutions in other ways more quickly than those who immigrate later in life. It is unknown how this would affect their health later in life as an older adult. However, from the health gradient literature, it might be expected that as they age, older adults born in the U.S., having the highest likelihood of health coverage would have the best health outcomes. Behind this group Mexican-born older adults who spent their formative years in the U.S. and have a higher knowledge of navigating health care in their host society would fare better; Mexican-born older adults who spent their formative years in Mexico might experience the worst outcomes. It is likely that these relationships are the result of access to economic opportunities, similar to those discussed for nativity status (Link and Phelan 1995).

### **Length of Residence in the U.S.**

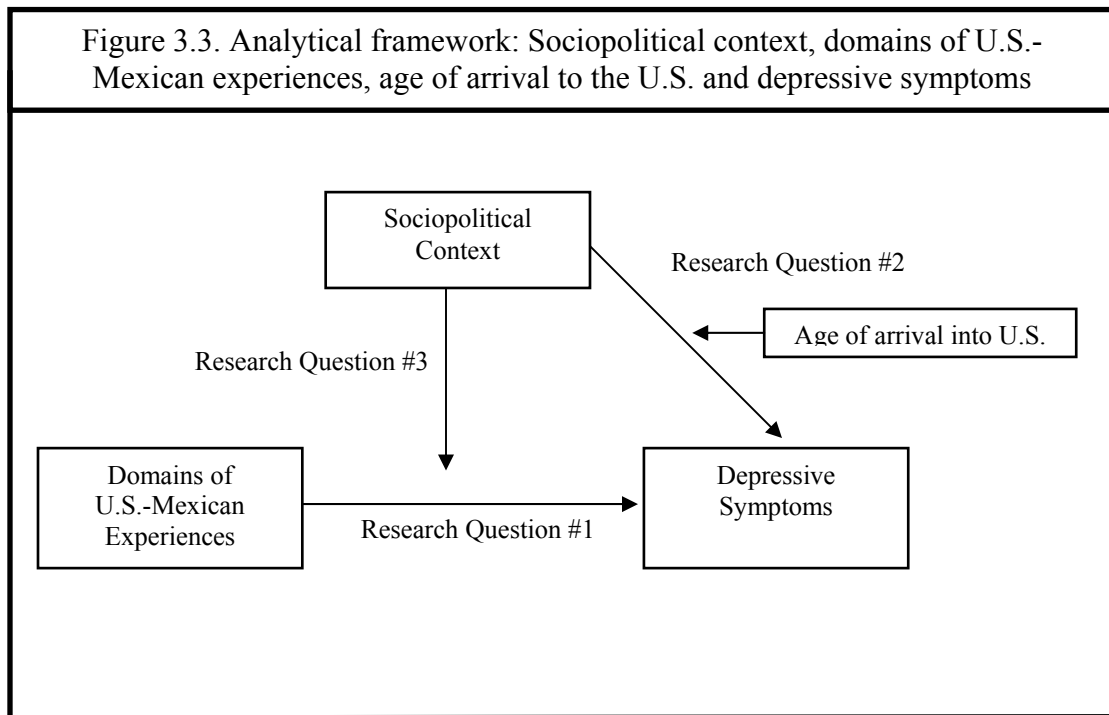
Regardless of nativity or generational status, longer length of residence in the U.S., for older adults, may be associated with increased navigational ability or access to resources that are beneficial to mental health (Gonzalez, West et al. Submitted). Thus, it

is expected that older Mexican-origin adults who have lived in the U.S. for longer periods of time would have fewer depressive symptoms than those who have lived in the U.S. for shorter time periods. In addition, it is expected that results from a bivariate comparison may in fact also reflect larger social issues such as access to health care or education, both discussed earlier as being influenced by sociopolitical context, as these are both fundamental factors of health.

### Analytical Framework

Figure 3.3 illustrates the analytical framework for this study. As discussed above, some studies have illustrated an association between domains of U.S.-Mexican experiences and mental health outcomes, while others found no significant effects. As illustrated below, the first research question is: do symptoms of depression vary systematically by domains of U.S.-Mexican experiences? In addition to examining the association between each of these three domains with depressive symptoms, in this study I also examine if sociopolitical context has relationship with depressive symptoms independent of each domain (the second research question).

Figure 3.3. Analytical framework: Sociopolitical context, domains of U.S.-Mexican experiences, age of arrival to the U.S. and depressive symptoms



Additionally, I examine a third research question, investigating if sociopolitical context modifies the relationship between each domain and symptoms of depression. Through these research questions, I seek to examine the interactive nature of individuals with their environments, incorporating social ecological theory and the concept of fundamental causes by considering the relationships of sociopolitical context with domains of U.S.-Mexican experiences, the age of arrival into the U.S., and symptoms of depression.

### Summary of Theoretical and Conceptual Frameworks

In summary, I have argued that the levels of each domain of U.S.-Mexican experiences have issues in common across domains. I expect that persons who are of

Mexican-origin who are not born in the U.S., or who spent their formative years of residence in the U.S. have similar limitations to access to educational and economic opportunities, which are fundamental causes that influence health. I have also argued that individuals who are born in the U.S., who spent formative years in the U.S., or who have had a longer length of residence in the U.S., are also associated with increased access to educational and economic opportunities, and the social connectedness, knowledge or power to access such resources. These opportunities are described below as dependent upon sociopolitical context.

The conceptual framework which guides this dissertation integrates how number of depressive symptoms may be associated with domains of U.S.-Mexican experiences, how sociopolitical context can independently associate with number of depressive symptoms, as well as how sociopolitical context may contribute to our understanding of within-group differences among Latino populations. To comprehensively integrate this approach with a health outcome, I propose that researchers consider the overarching sociopolitical context, and the theoretical rationale for considering a specific trajectory, as well as which lived experience is most appropriate for examining the desired health outcome. The aim of this study is to examine if different approaches to capturing U.S.-Mexican experiences are associated with number of depressive symptoms in an older Mexican-origin population, and, among immigrants, if the relationship between these group stratifications and depressive symptoms differs by sociopolitical context, or, by age of arrival into the U.S.

## **CHAPTER 4**

### **RESEARCH METHODS**

#### **Research Questions and Hypotheses**

As discussed in Chapters 2 and 3, inconsistent use, categorization, and description of groups for comparison, along with differences in indicators of mental health, have resulted in mixed findings in mental health outcomes for Latino populations. In order to gain a better understanding of mental health outcomes for Latino populations, I examine three primary research questions, limiting my sample to one Latino subgroup, older adults of Mexican-origin, in order to control for differences across Latino populations. These questions are: (1) Do symptoms of depression vary systematically by domains of U.S.-Mexican experiences; (2) Do symptoms of depression vary systematically by sociopolitical context above and beyond domains of U.S.-Mexican experiences; and (3) Does sociopolitical context modify the relationship between symptoms of depression and domains of U.S.-Mexican experiences?

To understand the relationship between categorization of ethnic group experience and symptoms of depression, an increasingly important mental health outcome for older age adults, in the same population, I examined the relationship between number of depressive symptoms and domains of U.S.-Mexican experiences. The domains of U.S.-Mexican experiences include nativity status, length of residence in the U.S., and place of residence

during formative years. The first research question I examined is: Do symptoms of depression vary systematically by domains of U.S.-Mexican experiences? The purpose of this question is to better understand how differences in the experiences of U.S. residents of Mexican-origin influence the distribution of depressive symptoms.

To examine this question, the following hypotheses were tested using the full study sample, controlling for age, gender, socioeconomic position and marital status:

Hypothesis 1a: Individuals born in the U.S. will have fewer depressive symptoms than those who are not born in the U.S.

Hypothesis 1b: Individuals who spent their formative years in the U.S. will have fewer depressive symptoms than those who did not spend their formative years in the U.S.

Because length of residence in the U.S. is only reasonably measured for individuals not born in the U.S., (for those born in the U.S., it is the same as age) I tested the third and fourth hypotheses (1c and 1d below) with the immigrant subsample. Analyses controlled for age, gender, socioeconomic position, and marital status.

Hypothesis 1c: Among immigrants, length of residence in the U.S. will be positively associated with symptoms of depression.

Hypothesis 1d: Among immigrants, individuals who spent their formative years in the U.S. will have fewer depressive symptoms than those who did not spend their formative years in the U.S.

Next, I tested the second research question: Do symptoms of depression vary systematically by sociopolitical context above and beyond U.S.-Mexican experiences? As described in Chapter 2, Mexican-origin individuals who arrived in the U.S. in the era post-Mexican Revolution (1918-1928) and during the era of variable deportations (1929-1941) may experience worse mental health outcomes than those who arrived during the Bracero era (1942-1964). This is expected because of the negative sociopolitical context experienced due to variably enforced immigration policies and lack of access to economic opportunities (1918-1941) compared to an era of greater economic opportunities (1942-1964) for this population.

I was particularly interested in the effects of these sociopolitical contexts on immigrants who encountered them as they entered the U.S., to explore further differences within the immigrant subsample. Therefore, for this series of analyses, I focused on the subset of the population who were not born in the U.S. The specific hypotheses tested, controlling for age, gender, socioeconomic position, and marital status were:

Hypothesis 2a: Individuals who immigrated to the U.S. during the era post-Mexican Revolution (1918-1928) and during the era of variable deportations (1929-1941) will have a greater number of depressive symptoms than those who immigrated to the U.S. during the Bracero era (1942-1964), independent of length of residence in the US.

Hypothesis 2b: Individuals who immigrated to the U.S. during the era post-Mexican Revolution (1918-1928) and during the era of variable deportations (1929-1941) will have a greater number of depressive symptoms than individuals who immigrated to the U.S. during the Bracero era (1942-1964), independent of whether they immigrated before or after the age of 12.

As described earlier, individuals are influenced through reciprocal interactions with a multidimensional environment and sociopolitical context. I hypothesized that if sociopolitical context shapes lived experience and risk of depressive symptoms, there may be a systematic difference in number of depressive symptoms for members of the same strata (e.g., immigrant) across eras of sociopolitical context. I also hypothesized that individuals who experience the U.S. during different eras of sociopolitical context and under different domains of U.S.-Mexican experiences, which are influenced by fundamental access and opportunities beneficial to health, will have different numbers of depressive symptoms.

Finally, I examine the extent to which relationships between domains of U.S.-Mexican experiences and symptoms of depression are modified by sociopolitical context. This will help to further disentangle the complexity of group comparisons that have been oversimplified, and to further understand the intersectional nature of sociopolitical context. For this research question, again, I test these relationships within the immigrant subsample to further understand within-group differences. To examine this final question, the following hypotheses were tested controlling for age, gender, socioeconomic position and marital status:

Hypothesis 3a: Individuals who immigrated to the U.S. during the era post-Mexican Revolution (1918-1928) and during the era of variable deportations (1929-1941) that also have a longer length of residence in the U.S. will have fewer depressive symptoms than those who have a shorter length of residence in the U.S., compared to individuals who immigrated to the U.S. during the Bracero era (1942-1964).



Hypothesis 3b: Individuals who immigrated to the U.S. during the era post-Mexican Revolution (1918-1928) and during the era of variable deportations (1929-1941) that also spent their formative years in the U.S. will have fewer depressive symptoms than those who did not spend their formative years in the U.S., compared to individuals who immigrated to the U.S. during the Bracero era (1942-1964).

To gain a clearer understanding of the main effect of sociopolitical context and number of depressive symptoms, I examined the direct relationship between sociopolitical context and number of depressive symptoms. Furthermore, because I hypothesized that sociopolitical context can shape the lived experiences of individuals, I tested if age of arrival to the U.S. further modifies the relationship of sociopolitical context at time of entry into the U.S. And finally, I tested if the relationship between sociopolitical context and depressive symptoms, modified by age, holds above and beyond that of domains of U.S.-Mexican experiences (place of residence during formative years). The final hypotheses were tested within the immigrant subsample, controlling for age, gender, socioeconomic position and marital status:

Hypothesis 3c: Individuals who immigrated to the U.S. during the era post-Mexican Revolution (1918-1928) and during the era of variable deportations (1929-1941) will have a greater number of depressive symptoms than individuals who immigrated to the U.S. during the Bracero era (1942-1964).

Due to the correlation between age of arrival to the U.S., used as an interactive term in this analysis, and length of residence in the U.S. being stronger than the correlation between the dependent variable of interest ( $r=-.94$  and  $r=.05$  respectively), an

analysis examining the domain length of residence in the U.S. was found to have multicollinearity. Therefore, the only remaining domain to test the final research question was place of residence during formative years. The final study hypotheses, tested within the immigrant subsample, controlling for age, gender, socioeconomic position and marital status were:

Hypothesis 3d: Individuals who immigrated to the U.S. during the era post-Mexican Revolution (1918-1928) and during the era of variable deportations (1929-1941) that were also of older age when they immigrated to the U.S. will have a greater number of depressive symptoms than those who immigrated at a younger age, compared to those who immigrated to the U.S. during the Bracero era (1942-1964).

Hypothesis 3e: Individuals who immigrated to the U.S. during the era post-Mexican Revolution (1918-1928) and during the era of variable deportations (1929-1941) that were also of older age when they immigrated to the U.S. will have a greater number of depressive symptoms than individuals who immigrated at a younger age, compared to those who immigrated to the U.S. during the Bracero era (1942-1964), independent of place of residence during formative years.

## **Research Design and Methods**

### Overview

To examine these three research questions, I used the baseline wave of the Hispanic Established Populations for the Epidemiologic Studies of the Elderly, a prospective cohort study. For the first two research questions, I used generalized least-

squares estimation to estimate each model for number of depressive symptoms, controlling for the sociodemographics of age, gender, socioeconomic position, and marital status.

For the third research question, I first compared least-squares means of depressive symptoms across sociopolitical context by each domain of U.S.-Mexican experience, using a Bonferonni adjustment (Neter, Kutner et al. 1996), population-level weights, and controlling for age, gender, socioeconomic position and marital status. I then returned to generalized least-squares estimation to examine the interaction model within an approach that considered the complex study design. Diagnostics of all regression model residuals were performed and are discussed after the full description of regression analyses.

### Sample

Data from this study come from the Hispanic Established Populations for the Epidemiologic Studies of the Elderly (n=3050), a population-based study of community-dwelling Mexican-origin individuals that were 65 years of age and older. H-EPESE is a prospective cohort study of a multistage, stratified, probability sample across the states of Arizona, California, Colorado, New Mexico, and Texas, designed to measure the physical and mental health status of older Mexican American populations in the United States for inter-group comparisons. Data were accessed through the Inter-university Consortium for Political and Social Research, Ann Arbor, MI (Markides 1993-1994). The overall H-EPESE study is longitudinal and respondents were re-interviewed two, five, seven, ten and twelve years after the initial interview. Baseline observations occurred between 1993/1994, and are used for this analysis.

## Power Analysis

Table 4.1 shows the calculated sample sizes needed for the multivariate regression analyses proposed for this study using methods described by Cohen (Cohen 1988). Table 1.1 illustrates the results of this analysis and confirm projected adequate power for this population with a baseline sample of 3,050 respondents to exhibit either small ( $f^2=.02$ ) or medium ( $f^2=.15$ ) sized effect sizes for all independent variables under investigation using two-tailed tests ( $\alpha=.05$ ) (Cohen 1988).

Table 4.1. Estimated power for multivariate regression models for small and medium effect sizes, eleven and twelve independent variables, alpha level of .05, and sample size of 3,050

| Required Sample Size | Effect Size ( $f^2$ ) | Number of Independent Variables | Alpha | Power |
|----------------------|-----------------------|---------------------------------|-------|-------|
| 1070                 | .02                   | 11                              | .05   | .90   |
| 1103                 | .02                   | 12                              | .05   | .90   |
| 152                  | .15                   | 11                              | .05   | .90   |
| 157                  | .15                   | 12                              | .05   | .90   |

## Measures

### **Dependent Variable**

#### *Depressive Symptoms*

The dependent variable for this analysis is number of depressive symptoms, measured as a summary score by the Center for Epidemiologic Studies Depressive

Symptoms scale (CES-D 20), with a Cronbach's alpha of .83 at baseline (Radloff 1977). A summary count of CES-D scores has been found to be an appropriate screening instrument for depression associated with both mental and physical health indicators (Cho, Moscicki et al. 1993).

Due to the skewed distribution of the variable, I transformed the measure, taking the natural log of the summary score, thereby normalizing the variable (Neter, Kutner et al. 1996). To interpret this transformation, I multiplied the coefficient by 100; the end result indicates the percent change for a one unit increase in each predictor variable, holding all other covariates in the model constant (Neter, Kutner et al. 1996).

### **Independent Variables**

As independent variables, I included sociopolitical context, age of arrival to the U.S. and three domains for capturing U.S.-Mexican experiences for evaluating intra-group differences in number of depressive symptoms. The domains include nativity status, place of residence during formative years, and length of residence in the U.S. Each is described in detail below.

#### *Sociopolitical Context*

Sociopolitical context is operationalized for the immigrant population as the era during which immigrants came to the U.S. to stay. Sociopolitical era is defined by describing four sociopolitical contexts defined by major shifts in social, economic and/or historical contexts (Durand, Massey et al. 2000) at the time the respondent came to the U.S. to stay. The first era, 1918-1928, incorporates the large influx of Mexican

immigration post-Mexican Revolution, while the second era is the era of variable deportations and includes the time period triggered by the Great Depression where U.S. immigration policy were variably enforced, from 1929-1941. The third era, from 1942-1964, describes the Bracero era of U.S. immigration policy targeting increasing the number of Mexican laborers; and the fourth and most recent era to the study population, from 1965-1994, incorporates the remaining variable periods of U.S. social and economic policies affecting the context of the U.S.-Mexican experience, described as the era of undocumented migration and the time period post-Immigration Reform and Control Act. Because individuals who arrived in the U.S. to stay during the Bracero era are hypothesized to have the fewest symptoms of depression, these individuals are the referent group.

#### *Age of Arrival to the U.S.*

Age at which an individual came to the U.S. to stay is a continuous measure. The variable was self-reported by the respondent, and only measured for individuals born outside the U.S.

#### *Domains of U.S.-Mexican Experiences*

Nativity status is a dichotomous variable measuring if the respondent was born in the U.S. or if the respondent was foreign born (Gonzalez, Haan et al. 2001; Alegría, Canino et al. 2008). U.S.-born respondents are the referent group and are coded with a 1; foreign-born respondents are coded with a 0.

Place of residence during formative years is a dichotomous variable whereby respondents who were born in the U.S. and respondents who were foreign-born but

arrived in the U.S. before the age of 12 are identified as having grown up in the U.S. (coded with a 1). They are contrasted with individuals who were foreign-born and arrived in the U.S. at the age of 12 or older (coded with a 0) (Heilemann, Lee et al. 2002).

Length of residence in the U.S. is calculated by subtracting the age when the respondent came to the U.S. from the respondent's reported age. Length of residence in the U.S. is only calculated for immigrant respondents.

### *Sociodemographic Control Variables*

Sociodemographic control variables for these analyses include age, gender, socioeconomic position, and marital status. Age is measured as age in years, reported by the respondent. Self-reported gender is also included. Socioeconomic position is assessed with indicators of education and income. Education is measured by the self-reported highest year of school completed; income is measured from self-reported yearly household income from the past year (1992) and has eight categories, ranging from \$0-\$4,999 to \$50,000 and over. Both are treated as continuous variables. The final sociodemographic control variable is self-reported marital status, which has been dichotomized to married or not (married=1, not married=0).

## Data Analysis

### **Research Question 1**

For all regression analyses I used generalized-least squares estimation, which is appropriate for analyzing sample survey data, and assumes similar regression coefficients across sample strata (Neter, Kutner et al. 1996). Generalized-least squares estimation

differs from the procedure described above for preliminary analyses in that in addition to conducting analyses using population weights, the procedure also accounts for clustering. As a result, the standard errors are larger, and estimates are more conservative. When controlling for socioeconomic position, education and income were simultaneously added into the model

For the first research question examining the relationship of each domain with number of depressive symptoms, I regressed depressive symptoms on the covariates of age, gender, socioeconomic position, marital status, and domains of U.S.-Mexican experiences including nativity status and place of residence during formative years for the full study population. I analyzed the domains length of residence in the U.S. and place of residence during formative years for the immigrant subsample.

## **Research Question 2**

As this study is a new approach to examining within-group differences in a Latino population, for the second research question examining the relationship between sociopolitical context and number of depressive symptoms independent of each domain, I began with exploratory analyses, comparing depressive symptoms across each domain of U.S.-Mexican experiences by sociopolitical context. To make this comparison, I used SAS version 9.1.3 for Windows to compute least-squares means of depressive symptoms across eras of sociopolitical context for the domains place of residence during formative years, controlling for age, gender, socioeconomic position and marital status. I completed these analyses for the immigrant subsample; analyses were conducted using



population-level weights, allowing generalizability to the Mexican-origin population in the southwestern United States.

After preliminary results suggested statistically significant mean differences in number of depressive symptoms across eras of sociopolitical context by domain of U.S.-Mexican experience (the interaction term of interest in research question 2; see Table 5.6), I returned to generalized least-squares estimation, which in addition to adjusting to population-level weights, also considers the clustering created by the study's complex sample design. Furthermore, regression models use only one referent group, the Bracero era. This final consideration widens the standard errors, making estimates from the generalized least-squares regression estimations more conservative than the preliminary comparison of means procedure.

I then regressed depressive symptoms on the covariates of age, gender, socioeconomic position, marital status, domains of U.S.-Mexican experiences, and sociopolitical context. Because this analysis was limited to the immigrant subsample, the domains of U.S.-Mexican experienced used in these models are length of residence in the U.S. and place of residence during formative years on the immigrant subsample (nativity status was not included in these models).

### **Research Question 3**

The third research question examining the relationship between depressive symptoms and domains of U.S.-Mexican experiences depending on sociopolitical context, was also examined among the immigrant subsample. I first regressed depressive

symptoms on age, gender, socioeconomic position, marital status, domain of U.S.-Mexican experiences, sociopolitical context, and the interaction of the domain with sociopolitical context. I then used a stepwise procedure to regress depressive symptoms on age, gender, socioeconomic position, marital status, age of arrival to the U.S., sociopolitical context, the interaction of age of arrival to the U.S. and sociopolitical context, and domain of U.S.-Mexican experiences.

### **Diagnostics of Regression Model Residuals**

I performed diagnostics on all residual models analyzed for this study. Regression model residuals were evaluated for violation of assumptions, including normality, and homogeneity of variances (Neter, Kutner et al. 1996). To check for normality, I examined QQ plots of residuals for each regression model tested, and found no violations of normality. The same was discovered for homogeneity of variances.

## **CHAPTER 5**

### **RESULTS**

#### **Univariate Statistics**

Population estimates for study variables are shown on Table 5.1, for the full study sample, immigrant subsample, and U.S.-born subsample. Overall, 44% of the study sample was born in the U.S.; 65% of the population resided in the U.S. during their formative years; and immigrants had a mean length of residence in the U.S. of 34 years. Immigrants were also significantly older ( $p < .001$ ), less educated ( $p < .001$ ), and had a lower yearly household income ( $p < .001$ ) compared to U.S.-born groups.

#### **Multivariate Statistics**

Regression results provided below address the three research questions examined in this study, and are adjusted for the sociodemographic control variables of age, gender, socioeconomic position and marital status. First, I examined the independent relationships of three domains of U.S.-Mexican experiences, nativity status, length of residence in the U.S., and place of residence during formative years, to number of depressive symptoms.

Secondly, I examined if sociopolitical context further explained number of depressive symptoms, above and beyond domain of U.S.-Mexican experience. Next, I

Table 5.1. Weighted descriptive statistics for study variables, H-EPESE, 1993-94

| Dependent Variable                            | Full Sample |         |            | Immigrant Subsample |         |           | U.S.-Born Subsample |         |           |
|---|-------------|---------|------------|---------------------|---------|-----------|---------------------|---------|-----------|
|   | n           | Percent | Mean S. D. | n                   | Percent | Mean S.D. | n                   | Percent | Mean S.D. |
| CES-D summary score                           | 2,377       | -       | 12.44 9.34 | 1,051               | -       | 13.3 9.60 | 1,327               | -       | 11.7 9.1  |
| Natural log of CES-D summary score            | 2,377       | -       | 2.16 11.9  | 1,051               | -       | 2.2 0.9   | 1,327               | -       | 2.1 0.9   |
| <b>Independent Variables</b>                  |             |         |            |                     |         |           |                     |         |           |
| Nativity status                               |             |         |            |                     |         |           |                     |         |           |
| U.S.-born                                     | 1,704       | 44.1    | -          | -                   | -       | -         | -                   | -       | -         |
| Foreign-born                                  | 1,344       | 55.9    | -          | -                   | -       | -         | -                   | -       | -         |
| Place of residence during formative years     |             |         |            |                     |         |           |                     |         |           |
| U.S.  | 1,918       | 64.7    | -          | 1,047               | 83.0    | -         | -                   | -       | -         |
| Mexico  | 1,047       | 35.3    | -          | 214                 | 17.0    | -         | -                   | -       | -         |
| Length of residence in U.S.                   | -           | -       | -          | 1,261               | -       | 41.6 21.2 | -                   | -       | -         |
| Sociopolitical context                        |             |         |            |                     |         |           |                     |         |           |
| Era post-Mexican Revolution                   | -           | -       | -          | 167                 | 14.0    | -         | -                   | -       | -         |
| Era of variable deportations                  | -           | -       | -          | 132                 | 11.0    | -         | -                   | -       | -         |
| The Bracero era                               | -           | -       | -          | 530                 | 44.3    | -         | -                   | -       | -         |
| Era of undocumented immigration and post-IRCA | -           | -       | -          | 367                 | 30.7    | -         | -                   | -       | -         |

Table 5.1. Weighted descriptive statistics for study variables, H-EPESE, 1993-94 (Continued)

| <b><u>Sociodemographic Control Variables</u></b> | Full Sample |         |                       | Immigrant Subsample |         |                       | U.S.-Born Subsample |         |                       |     |
|--|-------------|---------|-----------------------|---------------------|---------|-----------------------|---------------------|---------|-----------------------|-----|
|  | n           | Percent | S.D.                  | n                   | Percent | S.D.                  | n                   | Percent | S.D.                  |     |
| Age  | 3,050       | -       | 72.9                  | 1,346               | -       | 73.9                  | 1,706               | -       | 72.1                  | 6.1 |
| Gender   |             |         |                       |                     |         |                       |                     |         |                       |     |
| Male   | 1,292       | 42.4    | -                     | 580                 | 43.1    | -                     | 714                 | 41.85   | -                     | -   |
| Female   | 1,758       | 57.6    | -                     | 766                 | 57.0    | -                     | 992                 | 58.15   | -                     | -   |
| Socioeconomic position                           |             |         |                       |                     |         |                       |                     |         |                       |     |
| Highest year of school completed                 | 3,002       | -       | 5 <sup>th</sup> grade | 1,173               | -       | 4 <sup>th</sup> grade | 1,566               | -       | 6 <sup>th</sup> grade | 3.3 |
| Yearly household income                          | 2,720       | -       | \$5k-\$9,999 K        | 1,16                | -       | \$5k-\$9,999 9K       | 1,560               | -       | \$10K-\$14,999 9K     | 1.3 |
| Marital Status                                   |             |         |                       |                     |         |                       |                     |         |                       |     |
| Married  | 1,357       | 55.5    | -                     | 715                 | 53.1    | -                     | 980                 | 57.4    | -                     | -   |
| Not married                                      | 1,693       | 44.5    | -                     | 631                 | 46.9    | -                     | 726                 | 42.6    | -                     | -   |

examined if the relationship between depressive symptoms and domains of U.S.-Mexican experiences differed by sociopolitical context among the immigrant subsample. For the subsample who were immigrants, I further investigated the main effects of sociopolitical context on number of depressive symptoms, and if that relationship to symptoms of depression was modified by age of arrival into the U.S. Finally, I examined if this relationship held, above and beyond that of the domain of U.S.-Mexican experiences. Results are discussed in detail below.

### Research Question 1

As shown below in Table 5.2, there were no significant differences in symptoms of depression between those born in the U.S. and those who immigrated, after accounting for age, gender, socioeconomic position, and marital status.

Table 5.2. Full sample: Depressive symptoms regressed on age, gender, socioeconomic position, marital status, and nativity status, n=2,117

|                               | Estimate (S.E.) |        |
|-------------------------------|-----------------|--------|
| Intercept                     | 2.44***         | (0.32) |
| Age                           | 0.00            | (0.00) |
| Female                        | 0.27***         | (0.05) |
| Education                     | -0.02**         | (0.01) |
| Household income              | -0.07**         | (0.03) |
| Married                       | -0.09           | (0.06) |
| Nativity status (1=U.S.-born) | -0.05           | (0.06) |
| R-square                      | 0.06            |        |

\* p <.05; \*\* p<.01; \*\*\* p<.001

When examining place of residence during formative years within the full sample, I discovered the same findings as nativity status: place of residence during formative years was not a significant predictor of symptoms of depression above and beyond the effects of age, gender, socioeconomic position and marital status (see Table 5.3).

Table 5.3. Full sample: Depressive symptoms regressed on age, gender, socioeconomic position, marital status, and place of residence during formative years, n=2,070

|   | Estimate (S.E.) |        |
|---|-----------------|--------|
| Intercept   | 2.48***         | (0.32) |
| Age   | 0.00            | (0.00) |
| Female  | 0.26***         | (0.05) |
| Education   | -0.02***        | (0.01) |
| Household income                                      | -0.07**         | (0.03) |
| Married   | -0.09           | (0.06) |
| Place of residence during formative years<br>(1=U.S.) | -0.07           | (0.06) |
| R-square  | 0.06            |        |

\* p <.05; \*\* p<.01; \*\*\* p<.001

Among the immigrant subsample, when examining the association between place of residence during formative years and number of depressive symptoms, I found no evidence to reject the null hypothesis that there were no differences by place of residence for number of depressive symptoms (see Table 5.4). In other words, there was no difference in level of depressive symptoms between those who immigrated to the U.S. before or after the age of 12. I also found no evidence to reject the null hypothesis that

there were no differences by length of residence in the U.S. for number of depressive symptoms, controlling for age, gender, socioeconomic position, and marital status (see Table 5.5).

Table 5.4. Immigrant subsample: Depressive symptoms regressed on age, gender, socioeconomic position, marital status, and place of residence during formative years, n=852

|   | Estimate (S.E.) |        |
|---|-----------------|--------|
| Intercept   | 2.27***         | (0.46) |
| Age   | -0.001          | (0.01) |
| Female  | 0.31***         | (0.09) |
| Education   | -0.02           | (0.01) |
| Household income                                      | -0.02           | (0.03) |
| Married   | -0.09           | (0.09) |
| Place of residence during formative years<br>(1=U.S.) | -0.09           | (0.15) |
| Adjusted R-square                                     | 0.03            |        |

\* p <.05; \*\* p<.01; \*\*\* p<.001

While education and income were significant predictors of number of depressive symptoms for the full sample, among the immigrant subsample, there were no significant effects of either income or education.



Table 5.5. Immigrant subsample: Depressive symptoms regressed on age, gender, socioeconomic position, marital status, and length of residence in the U.S., n=852

|                             | Estimate (S.E.) |          |
|-----------------------------|-----------------|----------|
| Intercept                   | 2.10***         | (0.50)   |
| Age                         | 0.003           | (0.01)   |
| Female                      | 0.31***         | (0.09)   |
| Education                   | -0.01           | (0.01)   |
| Household income            | -0.02           | (0.03)   |
| Married                     | -0.09           | (0.09)   |
| Length of residence in U.S. | -0.003          | (0.0026) |
| Adjusted R-square           | 0.03            |          |

\* p <.05; \*\* p<.01; \*\*\* p<.001

## Research Question 2

### *Preliminary Analyses*

In my examination of the relationship of number of depressive symptoms and sociopolitical context independent of each domain (research question 2), I first ran preliminary analyses. I computed mean depressive symptoms for the domain place of residence during formative years, to compare mean depressive symptoms across eras of sociopolitical context at time of arrival to stay in the U.S. Differences in means were compared across each context by place of residence during formative years (U.S. or Mexico), controlling for age, gender, socioeconomic position, and marital status.

As shown below in Table 5.6, for place of residence during formative years, among immigrants who spent their formative years in the U.S., individuals who arrived in the U.S. to stay during the era post-Mexican Revolution had significantly fewer depressive symptoms than those who arrived in the U.S. to stay during the era of variable deportations. Among immigrants who spent their formative years in Mexico, immigrants who arrived during the era of undocumented immigration and post-IRCA showed a mean number of depressive symptoms significantly higher than all other eras of arrival in this analysis. Comparatively, immigrants arriving in the U.S. to stay in the era post-Mexican Revolution who spent their formative years in the U.S. had the second highest mean

Table 5.6. Mean summary score of depressive symptoms (logCESD) by place of residence during formative years, and sociopolitical context: Pairwise comparisons across the immigrant subsample controlling for sociodemographics<sup>†</sup>, n=852

|        | Sociopolitical Context  |                              |             | P-Value  |               |  |
|--------|-------------------------|------------------------------|-------------|--|---------------|--|
|        | Post-Mexican Revolution | Era of Variable Deportations | Bracero Era | Era of undocumented immigration and post-IRCA                                  | (df)          |  |
| U.S.   | 1.81                    | 2.76                         | -           | -  | p<.001<br>(1) |  |
| Mexico | .38                     | 2.12                         | 2.13        | 2.89   | p<.001<br>(3) |  |
|        |                         |                              |             | Post-Mexican Revolution vs. Bracero Era  |               |  |
|        |                         |                              |             | Post-Mexican Revolution vs. Era of undocumented immigration and post-IRCA      |               |  |
|        |                         |                              |             | Era of Variable Deportations vs. Bracero Era                                   |               |  |
|        |                         |                              |             | Era of Variable Deportations vs. Era of undocumented immigration and post-IRCA |               |  |
|        |                         |                              |             | Bracero Era vs. Era of undocumented immigration and post-IRCA                  |               |  |

<sup>†</sup> Controlling for age, gender, socioeconomic position, and marital status

\* p <.05; \*\* p<.01; \*\*\* p<.001

number of depressive symptoms, also significantly higher than those arriving in the era of variable deportations and the Bracero era. The third highest mean number of depressive symptoms among immigrants who spent their formative years in the U.S. was found among immigrants arriving during the Bracero era, which was not significantly higher than the mean number of depressive symptoms for individuals arriving in the U.S. to stay during the era of variable deportations.

### *Regression Analyses*

After preliminary analyses showed significant differences in mean number of depressive symptoms across sociopolitical contexts by domain of U.S.-Mexican experience, I tested the hypotheses using a model that accounted for the sample design and clustering, which was not accounted for in the preliminary analyses. Results from the second research question examining a relationship between sociopolitical context and symptoms of depression independent of domains of U.S.-Mexican experiences are presented below for the immigrant subsample for the domains length of residence in the U.S. and place of residence during formative years. Sociopolitical context was not found to be a significant predictor of number of depressive symptoms independent of the domain length of residence in the U.S. (see Table 5.7) or place of residence during formative years (see Table 5.8).

Table 5.7. Immigrant subsample: Depressive symptoms regressed on age, gender, socioeconomic position, marital status, length of residence in U.S., and sociopolitical context (Bracero era as referent group), n=852

|                              | Estimate (S.E.) |         |
|------------------------------|-----------------|---------|
| Intercept                    | 1.96***         | (0.51)  |
| Age                          | 0.002           | (0.01)  |
| Female                       | 0.31***         | (0.09)  |
| Education                    | -0.01           | (0.01)  |
| Household income             | -0.02           | (0.03)  |
| Married                      | -0.08           | (0.09)  |
| Length of residence in U.S.  | 0.000           | (0.004) |
| Era post-Mexican Revolution  | -0.16           | (0.16)  |
| Era of variable deportations | 0.14            | (0.17)  |
| Era post-IRCA                | 0.15            | (0.14)  |
| Adjusted R-square            | 0.04            |         |

\* p <.05; \*\* p<.01; \*\*\* p<.001

Table 5.8. Immigrant subsample: Depressive symptoms regressed on age, gender, socioeconomic position, marital status, place of residence during formative years and sociopolitical context (Bracero era as referent group), n=852

|  | Estimate (S.E.) |        |
|--|-----------------|--------|
| Intercept  | 1.95***         | (0.51) |
| Age  | 0.002           | (0.01) |
| Female   | 0.31***         | (0.09) |
| Education  | -0.01           | (0.01) |
| Household income                                   | -0.02           | (0.03) |
| Married  | -0.08           | (0.09) |
| Place of residence during formative years (1=U.S.) | 0.03            | (0.15) |
| Era post-Mexican Revolution                        | -0.17           | (0.15) |
| Era of variable deportations                       | 0.14            | (0.16) |
| Era post-IRCA                                      | 0.15            | (0.10) |
| Adjusted R-square                                  | 0.04            |        |

\* p <.05; \*\* p<.01; \*\*\* p<.001

### Research Question 3

#### *Regression Analyses*

For the domain length of residence in the U.S., I found individuals who immigrated to the U.S. during the era post-IRCA (1965-1994) to have significantly more depressive symptoms compared to individuals who immigrated to the U.S. during the

Bracero era (1942-1964). The interaction term was also significant for this same era, with the slope actually changing directions, indicating that individuals who arrived in the U.S. during the era post-IRCA, had fewer symptoms of depression the longer the length of residence in the U.S., compared to individuals who arrived in the U.S. during the Bracero era (see Table 5.9). In other words, the positive relationship of arrival to the U.S. during the era post-IRCA compared to the Bracero era with symptoms of depression was modified by length of residence in the U.S.—specifically, the direction of the relationship changed to a negative one, with symptoms of depression decreasing with a longer length of residence in the U.S. This significant relationship only emerged after the inclusion of the interaction term (compared to Table 5.6 where no main effects were discovered for either length of residence in the U.S. or sociopolitical context).

For the domain place of residence during formative years, I found a similar pattern for individuals who immigrated to the U.S. in the era post-Mexican Revolution (1918-1928) compared to those who immigrated to the U.S. during the Bracero era (1942-1964) when the interaction term was present (see Table 5.10). Again, with the interaction in the model, the direction of the slope of the domain, in this model place of residence during formative years, changes. Where before there was a positive relationship between place of residence during formative years and symptoms of depression, the relationship becomes negative with the interaction.

Table 5.9. Immigrant subsample: Depressive symptoms regressed on age, gender, socioeconomic position, marital status, length of residence in U.S., sociopolitical context, interaction of length of residence in U.S. and sociopolitical context (Bracero era as referent group), n=852

|   | Estimate (S.E.) |         |
|---|-----------------|---------|
| Intercept   | 1.97***         | (0.51)  |
| Age   | -0.001          | (0.01)  |
| Female  | 0.30***         | (0.09)  |
| Education   | -0.01           | (0.01)  |
| Household income  | -0.02           | (0.03)  |
| Married   | -0.08           | (0.09)  |
| Length of residence in U.S.   | 0.01            | (0.005) |
| Era post-Mexican Revolution   | 2.43            | (2.69)  |
| Era of variable deportations  | -3.51           | (2.15)  |
| Era post-IRCA   | 0.62*           | (0.26)  |
| Interaction of length of residence in U.S. and Era post-Mexican Revolution  | -0.04           | (0.04)  |
| Interaction of length of residence in U.S. and Era of variable deportations | 0.06            | (0.04)  |
| Interaction of length of residence in U.S. and Era post-IRCA                | -0.02*          | (0.01)  |
| Adjusted R-square   | 0.06            |         |

\* p <.05; \*\* p<.01; \*\*\* p<.001

For the domain place of residence during formative years, I found a similar pattern for individuals who immigrated to the U.S. in the era post-Mexican Revolution (1918-1928) compared to those who immigrated to the U.S. during the Bracero era (1942-1964) when the interaction term was present (see Table 5.10). Again, with the



Table 5.10. Immigrant subsample: Depressive symptoms regressed on age, gender, socioeconomic position, marital status, place of residence during formative years, sociopolitical context, interaction of place of residence during formative years and sociopolitical context (Bracero era as referent group), n=852

|   | Estimate (S.E.) |         |
|---|-----------------|---------|
| Intercept   | 2.21***         | (0.61)  |
| Age   | -0.001          | (0.01)  |
| Female  | 0.31***         | (0.09)  |
| Education   | -0.01           | (0.01)  |
| Household income  | -0.02           | (0.03)  |
| Married   | -0.09           | (0.09)  |
| Place of residence during formative years (1=U.S.)  | 0.20            | (0.23)  |
| Era post-Mexican Revolution   | 0.26            | (0.21)  |
| Era of variable deportations  | -0.01           | (0.17)  |
| Era post-IRCA   | 0.16            | (0.10)  |
| Interaction of place of residence during formative years and Era post-Mexican Revolution  | -0.78*          | (0.32)  |
| Interaction of place of residence during formative years and Era of variable deportations | 0.43            | (0.33)  |
| Interaction of place of residence during formative years and Era post-IRCA                | 0.000           | (0.000) |
| Adjusted R-square   | 0.06            |         |

\* p <.05; \*\* p<.01; \*\*\* p<.001

interaction in the model, the direction of the slope of the domain, in this model place of residence during formative years, changes. Where before there was a positive relationship between place of residence during formative years and symptoms of depression, the relationship becomes negative with the interaction. In other words, those

who immigrated to the U.S. during the era post-Mexican Revolution and residing in the U.S. during their formative years had fewer depressive symptoms compared to those who immigrated to the U.S. in the Bracero era and lived in Mexico during their formative years.

Additionally, I examined the direct relationship between sociopolitical context and number of depressive symptoms within the subset of the population who immigrated from Mexico. Sociopolitical context was not a significant predictor of symptoms of depression, controlling for age, gender, socioeconomic position and marital status (see Table 5.11).

Table 5.11. Immigrant subsample: Depressive symptoms regressed on age, gender, socioeconomic position, marital status, sociopolitical context (Bracero era as referent group), n=852

|                              | Estimate (S.E.) |        |
|------------------------------|-----------------|--------|
| Intercept                    | 1.87***         | (0.50) |
| Age                          | 0.00            | (0.01) |
| Female                       | 0.33***         | (0.09) |
| Education                    | -0.01           | (0.01) |
| Household income             | -0.01           | (0.03) |
| Married                      | -0.09           | (0.09) |
| Era post-Mexican Revolution  | -0.17           | (0.15) |
| Era of variable deportations | 0.13            | (0.14) |
| Era post-IRCA                | 0.14            | (0.09) |
| Adjusted R-square            | 0.04            |        |

\* p <.05; \*\* p<.01; \*\*\* p<.001

I further investigated sociopolitical context and its relationship to symptoms of depression, and if age of arrival to the U.S. modified this relationship. Furthermore, I examined if this relationship held above and beyond that of the domain of place of residence during formative years.

I found that for those who immigrated in the era post-Mexican Revolution, the older age the individual was at the time they encountered that context, the higher the number of depressive symptoms, with the direction of the slope changing with this interaction from negative to positive. Stated another way, for individuals who immigrated to the U.S. in the era post-Mexican Revolution, as age at time of arrival to the U.S. increased, so did number of depressive symptoms, compared to individuals who immigrated to the U.S. during the Bracero era (Table 5.12).

Finally, I examined if the interaction of sociopolitical context and age of arrival to the U.S. held, above and beyond that of the domain of U.S.-Mexican experiences. For place of residence during formative years, I found that the interaction remained significant, but this time the direction of the slope remained positive (see Table 5.13).

Table 5.12. Immigrant subsample: Depressive symptoms regressed on age, gender, socioeconomic position, marital status, age arrived in U.S. to stay, and sociopolitical context (Bracero era as referent group), n=852

|  | Model 1         |         | Model 2         |         | Model 3         |         |
|--|-----------------|---------|-----------------|---------|-----------------|---------|
|  | Estimate (S.E.) |         | Estimate (S.E.) |         | Estimate (S.E.) |         |
| Intercept  | 2.118***        | (0.498) | 1.951***        | (0.509) | 2.273***        | (0.623) |
| Age  | -0.001          | (0.006) | 0.003           | (0.006) | 0.000           | (0.008) |
| Female   | 0.313***        | (0.092) | 0.306***        | (0.091) | 0.315***        | (0.090) |
| Number of years of education   | -0.014          | (0.012) | -0.015          | (0.013) | -0.014          | (0.013) |
| Yearly household income  | -0.022          | (0.032) | -0.016          | (0.033) | -0.023          | (0.032) |
| Marital status   | -0.087          | (0.091) | -0.084          | (0.091) | -0.096          | (0.090) |
| Age arrived in U.S. to stay  | 0.003           | (0.003) | -0.001          | (0.004) | -0.004          | (0.005) |
| Era post-Mexican Revolution  |                 |         | -0.181          | (0.157) | -0.576*         | (0.250) |
| Era of variable deportations   |                 |         | 0.132           | (0.166) | 0.406           | (0.310) |
| Era post-IRCA  |                 |         | 0.177           | (0.137) | -0.081          | (0.411) |
| Interaction of age of arrival in U.S. to stay and Era post-Mexican Revolution  |                 |         |                 |         | 0.042*          | (0.020) |
| Interaction of age of arrival in U.S. to stay and Era of variable deportations |                 |         |                 |         | -0.018          | (0.017) |
| Interaction of age of arrival in U.S. to stay and Era post-IRCA                |                 |         |                 |         | 0.006           | (0.009) |
| Adjusted R-square  | 0.037           |         | 0.041           |         | 0.052           |         |

\* p <.05; \*\* p<.01; \*\*\* p<.001

Table 5.13. Immigrant subsample: Depressive symptoms regressed on age, gender, socioeconomic position, marital status, place of residence during formative years, age came to U.S. to stay, sociopolitical context, interaction of age and sociopolitical context (Bracero era as referent group), n=852

|  | Model 1         |         | Model 2         |         | Model 3             |         |
|--|-----------------|---------|-----------------|---------|---------------------|---------|
|  | Estimate (S.E.) |         | Estimate (S.E.) |         | Estimate (S.E.)     |         |
| Intercept  | 2.113***        | (0.495) | 1.950***        | (0.509) | 2.373***            | (0.636) |
| Age  | -0.001          | (0.006) | 0.003           | (0.007) | -0.004              | (0.008) |
| Female   | 0.313***        | (0.092) | 0.307***        | (0.091) | 0.315***            | (0.090) |
| Number of years of education   | -0.014          | (0.012) | -0.015          | (0.013) | -0.013              | (0.013) |
| Yearly household income  | -0.021          | (0.033) | -0.016          | (0.033) | -0.021              | (0.033) |
| Marital status   | -0.086          | (0.091) | -0.083          | (0.091) | -0.091              | (0.090) |
| Place of residence during formative years (1=U.S.)                             | 0.017           | (0.172) | 0.006           | (0.176) | 0.217               | (0.244) |
| Age arrived in U.S. to stay  | 0.003           | (0.003) | -0.001          | (0.005) | 0.000               | (0.007) |
| Post-Mexican Revolution  |                 |         | -0.182          | (0.159) | -0.699*             | (0.287) |
| Era of variable deportations   |                 |         | 0.132           | (0.165) | 0.266               | (0.360) |
| Post-IRCA  |                 |         | 0.174           | (0.139) | -0.007              | (0.411) |
| Interaction of age of arrival in U.S. to stay and Era post-Mexican Revolution  |                 |         |                 |         | 0.054*              | (0.026) |
| Interaction of age of arrival in U.S. to stay and Era of variable deportations |                 |         |                 |         | -0.008 <sup>a</sup> | (0.022) |
| Interaction of age of arrival in U.S. to stay and Era post-IRCA                |                 |         |                 |         | 0.003               | (0.009) |
| Adjusted R2  | 0.036           |         | 0.040           |         | 0.052               |         |

\* p <.05; \*\* p<.01; \*\*\* p<.001; <sup>a</sup> Approaching significance at p<.07

## Summary of Results

This study sample is 44% U.S.-born; of those who were born outside of the U.S., immigrants had a mean length of residence in the U.S. of 34 years, and were significantly older, less educated, and had a lower yearly household income compared to their U.S. counterparts. Sixty-five percent of the population resided in the U.S. during their formative years (before the age of 12). Through investigation of the research questions, I found no significant difference in depressive symptoms by nativity status, length of residence in the U.S., or place of residence during formative years, controlling for age, gender, socioeconomic position, and marital status. Said differently, in this older U.S.-Mexican population, I found no difference in symptoms of depression across domains of U.S.-Mexican experience. This was also true in the investigation of the relationship of sociopolitical context to depressive symptoms above and beyond that of each of the domains of U.S.-Mexican experiences, and controlling for age, gender, socioeconomic position, and marital status. In other words, I did not find evidence that nativity status, length of residence in the U.S., or where formative years were spent influenced symptoms of depression, above and beyond sociodemographics.

However, when examining whether sociopolitical context modified the effects of each domain on number of depressive symptoms, within the immigrant subsample I found evidence that sociopolitical context modified relationships between the domain length of residence in the U.S., and depressive symptoms, for individuals arriving to the U.S. during the era post-IRCA (1965-1994). For place of residence during formative years, only the interactive term was significant.

Furthermore, the investigation of main effects for sociopolitical context on number of depressive symptoms found the era post-Mexican Revolution to have a significant relationship with symptoms of depression, and only when the interactive term age of arrival into the U.S. was included in the model. And, finally, when testing if this relationship remained significant above and beyond that of the domain of place of residence during formative years, it was found that the interaction remained significant. In summary, there is evidence to support that for some eras of sociopolitical context, age of arrival in the U.S. is significantly associated with number of depressive symptoms. Table 5.14 below summarizes study questions, hypotheses, and findings.

Table 5.14. Summary of study findings

| Research Questions  | Hypotheses  | Findings  |
|---|---|---|
| <p>Q1: What is the association between each domain of U.S.-Mexican experiences and number of depressive symptoms?</p> | <p><i>Full Study Sample</i><br/>                     H1a: Individuals born in the U.S. will have fewer depressive symptoms than those who are not born in the U.S.<br/>                     H1b: Individuals who spent their formative years in the U.S. will have fewer depressive symptoms than those who did not spend their formative years in the U.S.</p> <p><i>Immigrant Subsample</i><br/>                     H1c: Individuals who have lived in the U.S. for more years will have fewer depressive symptoms than those who have lived in the U.S. for fewer years.<br/>                     H1d: Individuals who spent their formative years in the U.S. will have fewer depressive symptoms than those who did not spend their formative years in the U.S.</p> | <p>Failed to reject null hypothesis of no difference in depressive symptoms by nativity status;<br/>                     Failed to reject null hypothesis of no difference in depressive symptoms by place of residence during formative years;<br/>                     Failed to reject null hypothesis of no difference in depressive symptoms by length of residence in the U.S.;<br/>                     Failed to reject null hypothesis of no difference in depressive symptoms by place of residence during formative years;</p> |



Table 5.14. Summary of study findings (continued)

| Research Questions   | Hypotheses  | Findings   |
|--|---|--|
| Q2: Is there a relationship between sociopolitical context and number of depressive symptoms independent of domains of U.S.-Mexican experiences? | H2a: Individuals who immigrated to the U.S. during the era post-Mexican Revolution (1918-1928) and during the era of variable deportations (1929-1941) will have a greater number of depressive symptoms than those who immigrated to the U.S. during the Bracero era (1942-1964), independent of length of residence in the US.<br><br>H2b: Individuals who immigrated to the U.S. during the era post-Mexican Revolution (1918-1928) and during the era of variable deportations (1929-1941) will have a greater number of depressive symptoms than individuals who immigrated to the U.S. during the Bracero era (1942-1964), independent place of residence during formative years. | Failed to reject null hypothesis of no difference in depressive symptoms by sociopolitical context, independent of length of residence in the U.S.;  |
| Q3: What is the relationship of number of depressive symptoms and domains of U.S.-Mexican experiences by sociopolitical context?                 | H3a: Individuals who immigrated to the U.S. during the era post-Mexican Revolution (1918-1928) and during the era of variable deportations (1929-1941) that also have a longer length of residence in the U.S. will have fewer depressive symptoms than those who have a shorter length of residence in the U.S., compared to individuals who immigrated to the U.S. during the Bracero era (1942-1964).  | For the era post-IRCA compared to the Bracer era, sociopolitical context significantly modified the relationship between length of residence in the U.S. and depressive symptoms; no differences found for other eras; |

| Research Questions   | Hypotheses  | Findings   |
|--|---|--|
| Q2: Is there a relationship between sociopolitical context and number of depressive symptoms independent of domains of U.S.-Mexican experiences? | H2a: Individuals who immigrated to the U.S. during the era post-Mexican Revolution (1918-1928) and during the era of variable deportations (1929-1941) will have a greater number of depressive symptoms than those who immigrated to the U.S. during the Bracero era (1942-1964), independent of length of residence in the US.<br><br>H2b: Individuals who immigrated to the U.S. during the era post-Mexican Revolution (1918-1928) and during the era of variable deportations (1929-1941) will have a greater number of depressive symptoms than individuals who immigrated to the U.S. during the Bracero era (1942-1964), independent place of residence during formative years. | Failed to reject null hypothesis of no difference in depressive symptoms by sociopolitical context, independent of length of residence in the U.S.;  |
| Q3: What is the relationship of number of depressive symptoms and domains of U.S.-Mexican experiences by sociopolitical context?                 | H3a: Individuals who immigrated to the U.S. during the era post-Mexican Revolution (1918-1928) and during the era of variable deportations (1929-1941) that also have a longer length of residence in the U.S. will have fewer depressive symptoms than those who have a shorter length of residence in the U.S., compared to individuals who immigrated to the U.S. during the Bracero era (1942-1964).  | For the era post-IRCA compared to the Bracer era, sociopolitical context significantly modified the relationship between length of residence in the U.S. and depressive symptoms; no differences found for other eras; |

Table 5.14. Summary of study findings (continued)

| Research Questions | Hypotheses   | Findings  |
|--------------------|--|---|
| Q3 (continued):    | <p>H3b: Individuals who immigrated to the U.S. during the era post-Mexican Revolution (1918-1928) and during the era of variable deportations (1929-1941) that also spent their formative years in the U.S. will have fewer depressive symptoms than those who did not spend their formative years in the U.S., compared to individuals who immigrated to the U.S. during the Bracero era (1942-1964).</p> | <p>For the era post-Mexican Revolution compared to the Bracero era, sociopolitical context significantly modified the relationship between place of residence during formative years and depressive symptom; no differences found for other eras;</p> |
|                    | <p>H3c: Individuals who immigrated to the U.S. during the era post-Mexican Revolution (1918-1928) and during the era of variable deportations (1929-1941) will have a greater number of depressive symptoms than individuals who immigrated to the U.S. during the Bracero era (1942-1964).</p>  | <p>Failed to reject null hypothesis of no difference in depressive symptoms by sociopolitical context;</p>  |
|                    | <p>H3d: Individuals who immigrated to the U.S. during the era post-Mexican Revolution (1918-1928) and during the era of variable deportations (1929-1941) that were also of older age when they immigrated to the U.S. will have a greater number of depressive symptoms than those who immigrated at a younger age, compared to those who immigrated to the U.S. during the Bracero era (1942-1964).</p>  | <p>For the era post-Mexican Revolution compared to the Bracero era, age of arrival to U.S. significantly modified the relationship between sociopolitical context and depressive symptom; no differences found for other eras;</p>                    |

Table 5.14. Summary of study findings (continued)

| Research Questions | Hypotheses   | Findings   |
|--------------------|--|--|
| Q3 (continued):    | <p>H3e: Individuals who immigrated to the U.S. during the era post-Mexican Revolution (1918-1928) and during the era of variable deportations (1929-1941) that were also of older age when the immigrated to the U.S. will have a greater number of depressive symptoms than individuals who immigrated at a younger age, compared to those who immigrated to the U.S. during the Bracero era (1942-1964), independent of place of residence during formative years.</p> | <p>For the era post-Mexican Revolution compared to the Bracero era, age of arrival to U.S. significantly modified the relationship between sociopolitical context and depressive symptom, independent of place of residence during formative years; no differences found for other eras.</p> |

## **CHAPTER 6**

### **DISCUSSION AND CONCLUSIONS**

#### **Introduction**

This study found no evidence to support rejecting the null hypothesis of no difference in number of depressive symptoms for any of the three domains of U.S.-Mexican experiences examined above and beyond the sociodemographic control variables. In other words, depressive symptoms did not systematically vary by nativity status, place of residence during formative years, or length of residence in the U.S., after accounting for differences in education and income associated with nativity status. However, after preliminary analyses supporting evidence to explore differences in number of depressive symptoms by domain of U.S.-Mexican experience across sociopolitical context, this study found that, for immigrants, the interaction of sociopolitical context at the time of entry into the U.S. and age of arrival to the U.S. are significant predictors of number of depressive symptoms. The results of this study are discussed along three dimensions: (1) a move beyond traditional measures for the researching the health of Latino populations; (2) how depressive symptoms differ systematically across eras of sociopolitical context; and (3) how further understanding context of entry can complement current research directions on context of exit from

sending countries. The implications for future research and policy and study limitations and strengths are also examined.

### **Moving Beyond Traditional Measures**

My first research question was whether there was an association between domains of U.S.-Mexican experiences and symptoms of depression in this older, Mexican-origin population. Raw mean scores showed higher CESD scores among immigrants compared to U.S.-born Mexican-origin adults, after controlling for sociodemographics of age, gender, socioeconomic position, and marital status. I found no evidence of a difference in number of depressive symptoms for the domains (nativity status, place of residence during formative years, length of residence in the U.S.), all measures that have been widely used as proxies for acculturation (Hunt, Schneider et al. 2004).

These findings fit an emerging body of research that do not find these domains of U.S.-Mexican experiences to be the most relevant indicator for health outcomes after controlling for sociodemographic variables. For example, Gonzalez and colleagues found that for self-rated health and for individuals who had medical histories of diabetes, hypertension, heart disease, and stroke, nativity status was not a significant predictor, when controlling for age, gender, and education (Gonzalez, West et al. Submitted). In that same study, Gonzalez and colleagues also found that among older age Mexican American adults, immigrants with longer length of residency in the U.S. had better outcomes than those with shorter length of residency, for cognitive functioning and functional activities. These dissertation findings are consistent with the work of

Gonzalez and colleagues and extend it to the mental health outcome of symptoms of depression and to the domain place of residence during formative years. Thus, a further examination is needed to understand this domain of U.S.-Mexican experiences, and explanations of differences from other studies.

This study's findings provide evidence that, for this population, sociopolitical context explains more variance in depressive symptoms than these more traditional measures when also controlling for socioeconomic position. While nativity status, length of residence in the U.S., and place of residence during formative years were not independently significant beyond socioeconomic position, the interaction of sociopolitical context at time of entry and age of arrival to the U.S. was, suggesting more can be learned from these measures for symptoms of depression.

### **Age of Arrival to the U.S., Sociopolitical Context, and Depressive Symptoms**

Through the further examination of the direct relationship of sociopolitical context on depressive symptoms, I found a significant interaction between sociopolitical context and age of arrival into the U.S. in relation to symptoms of depression. Findings supported study hypotheses that sociopolitical context would have a significant relationship with symptoms of depression when interacting with age of arrival to the U.S. for individuals arriving in the U.S. during the era post-Mexican Revolution (compared to the Bracero era).

Other significant study findings include the pattern of the relationship of sociopolitical context for arriving in the U.S. during the era post-Mexican Revolution, as both an independent predictor of depressive symptoms, and as a predictor above and

beyond that of the domain place of residence during formative years. For two models (shown in Table 5.9 and 5.10), I found that age of arrival to the U.S. modified the relationship between sociopolitical context and symptoms of depression for individuals arriving to the U.S. in the era post-Mexican Revolution, and continues to modify the relationship above and beyond domain of U.S.-Mexican experience (place of residence during formative years).

In the final model (Table 5.12), the interaction term itself, a product of age of arrival to stay in the U.S. to stay and arriving in the U.S. to stay during the era post-Mexican Revolution, is positive and statistically significant in each model. This significance suggests evidence of a linear relationship between age of arrival in the U.S. to stay and sociopolitical context. In other words, as age at time of arrival to the U.S. increased, so did number of depressive symptoms. However, the combination of these finding with the context at time of entry into the U.S. are the most significant findings discovered. While these analyses adjust for age, the effect seen may be related to the emotional distress caused by living within a known social context, and being forced to enter a new social context. Which sociopolitical context may matter more is discussed below.

### **Immigration Context of Entry v. Context of Exit**

While I found evidence in study findings to support the hypothesis that sociopolitical context is a predictor of symptoms of depression for immigrants who arrived in the U.S. during the era post-Mexican Revolution compared to those who arrived in the Bracero era, the direction of the relationship did not match what was



hypothesized. Originally, I expected that among immigrants, arriving to the U.S. to stay during the Bracero era would have the smallest number of depressive symptoms compared to other eras, because I expected the Bracero era to have the greatest security of resources fundamental to health such as economic work opportunities. By comparison, I expected that individuals arriving in the U.S. to stay during the post-Mexican Revolution would have the highest number of depressive symptoms, as they were more likely to arrive in the U.S. as political refugees. Through regression analyses using the Bracero-era group as the referent group, I found the opposite to be true for this population: individuals arriving in the U.S. to stay during the era post-Mexican Revolution were found to on average have fewer depressive symptoms than those who arrived in the U.S. to stay during the Bracero era, when also controlling for sociodemographics and age of arrival in the U.S.

These findings suggest further consideration of what has been described in literature about migration, place and health by Portes and colleagues as “context of exit” for migration (Portes, Escobar et al. 2007), and what is examined in this study, which in comparison could be described as “context of entry” at the point of arrival to the U.S. to stay. Seemingly these are complementary concepts. For populations that are migrating due to conditions such as war, as it was hypothesized was the case for immigrants arriving in the U.S. post-Mexican Revolution, while the context of exit may be negative for health, the context of entry into the U.S. may be more health-supporting, and therefore ameliorates higher numbers of depressive symptoms.

From this same perspective, examining the Bracero era as a positive context of entry captures only one side of a process that also incorporates a context of exit for

Mexican populations that had no other economic options in Mexico, and were forced to migrate to the U.S., often as single men with no further support network, and under a negative context of exit. From this perspective, findings could be interpreted that in the long term, guest-worker programs may increase number of depressive symptoms.

However, the mechanisms for these findings remain unknown. For example, access to health care and resources fundamental to health, such as educational opportunities and other resources to assist in navigation through U.S. structures and systems may be an unknown moderator of symptoms of depression, but are beyond the scope of this study.

## **Study Implications**

### **Implications for Future Research**

#### **Findings of No Difference for Domains of U.S.-Mexican Experiences**

The largest implication of the lack of statistically significant relationships between measures that have been used as proxies for acculturation in the past – nativity status, place of residence during formative years, and length of residence in the U.S. - is the need for understanding if these findings are unique to this particular study or population, or if the associations found in earlier studies leading to a “healthy migrant” hypothesis result from a structural academic impetus to publish statistically significant study findings. Furthermore, the role of socioeconomic position and the variance it explains in this and previous studies must be further understood. It may be that the domains operate through their effects on socioeconomic position, and current approaches have not directly tested this. Future studies should aim to follow the same population

across the lifecourse to identify if threshold effects exist for these domains of U.S.-Mexican experiences that no longer affect health outcomes as adults reach older age. A greater effort should also be made to understand how different sociopolitical contexts can influence the health of U.S.-born populations, its predictability of other health outcomes compared to the traditional covariate measures used to predict health in Latino populations (i.e. domains of U.S.-Mexican experiences), and the relevance for different age groups.

Each of these domains needs further investigation across common health outcomes and multiple age groups to determine the age when the health effect of the immigration process are no longer visible. Ideally the same individuals would be followed across their lifecourse, however the large study sample required to account for the large population differences would likely carry a high economic burden. Furthermore, the possible threshold effect hinted toward in this investigation also necessitates further research.

Further understanding this phenomenon will be a complex process and require a mixed methods approach to understand the narratives of these individuals' exits from their countries of origin and entries into receiving host societies, and the pathways through which these experiences affect health. How these processes influence the lifecourse of these individuals, access to health-sustaining opportunities, such as education and knowledgeable social networks, and ultimately health outcomes can be better understood through prospective studies, and likely natural experiments observing individuals as immigration policies proceed forward and are implemented. Qualitative studies would greatly enhance our understanding as well, capturing binational

experiences during time of exit from countries of origin and time of entry in the U.S., and allow a flexibility not available within purely quantitative evaluations. Furthermore, these study findings support analyses that revise the current conceptual framework to incorporate socioeconomic position as a mediator between domains of U.S.-Mexican experiences, as well as the need for further exploration of the independent and cumulative effects of context of exit and context of entry for immigration.

### **Testing Findings across Populations**

While this study's focus is on an older Mexican-origin population, the approach used can be applied to other populations, and should be to gain a clearer understanding of context of entry and its relationship to health outcomes. The primary variable of interest, sociopolitical context, was operationalized through policies specific to this group: older immigrants of Mexican-origin. To apply the research to other immigrant populations, policies specific to that population should first be explored, whether it be by age group, nationality, or immigrant status. From there, cohorts can be identified by their shared sociopolitical experience and analyzed against other contexts for comparison of health outcomes.

### **Implications for policy**

There are several policy implications resulting from this study's findings. Primarily, they resolve around consideration of the well-being and rights of immigrant populations.

First, in the least-squares comparison of means, individuals arriving in the U.S. during sociopolitical eras that had variable enforcement of immigration policies and higher rates of undocumented immigration in the long term were shown to have the highest rates of depressive symptoms, compared to other eras that had a more hospitable context of entry in the U.S. Present-day immigration raids and deportation efforts are also likely harmful to health. Further study is necessary to assess all decisions to deport any undocumented immigrant, and to understand the relationships between immigration policies and direct implications for health.

Alternatively, it is unclear from these study findings if a guest worker program like that conducted last century under the Bracero program will be any more beneficial to health unless the program also offers access to health care and protection of fundamental human rights. As illustrated in these study findings, individuals who immigrated to the U.S. during the Bracero era were actually shown to have higher numbers of depressive symptoms when compared to the era post-Mexican Revolution.

Adapted from the construct of “chain migration” (MacDonald and MacDonald 1974), Person and Rosenbaum describe “chain enrollment,” whereby Latino students are more likely to enroll in a college where a “primary social contact...family and friends from their own ethnic group” has attended that school (Person and Rosenbaum 2006). Therefore, in addition to a new guest worker program, educational opportunities for guest workers and their children would also likely benefit Mexican immigrant populations, to enable lower-educated immigrants, such as those who are likely to come under a guest worker program, with upward mobility in educational opportunities and increased

knowledgeable social networks, all resources that study findings indicate may be beneficial for health.

### **Study Limitations and Strengths**

Despite study limitations, this study is the first to attempt to examine more structural conditions such as sociopolitical context, which may be an underlying mechanism for traditionally examined covariates of Latino health. By placing measures which have been previously used as proxies of acculturation, such as nativity status, place of residence during formative years, and length of residence in the U.S. contextually within eras, individuals are stratified in cohorts by the social, economic, political and historical contexts which influence their life trajectories. In addition, this is the first study to examine multiple domains of U.S.-Mexican experiences within the same older adult Mexican-origin population for the outcome of symptoms of depression.

However, the results of this study, and therefore generalizations of study findings, have five primary limitations: the cross-sectional nature of the study, a crude measure of sociopolitical context, the individual-level analysis that was conducted, missing data, and the linear modeling of the analysis. While the current study is a cross-sectional analysis, I have used the baseline measures of a longitudinal study and can further investigate these results across time in future analyses.

The operationalization of sociopolitical context is a relatively broad, crude measure, and is currently limited to interpretation for immigrant populations. In addition, the measure of year of arrival in the U.S. to stay, which is half of the interaction used to operationalize sociopolitical context for the purpose of analyses, is limited by recall bias, and the inability to capture further bi-national experiences that respondents may have

previously had. While the eras are supported by the literature, the length of time for each defined era varies, and some capture time periods of up to two and three decades of time, which makes interpretation of findings difficult.

The final sample size for analyses using the immigrant subsample was limited by the number of immigrant respondents with enough information to calculate a summary CES-D score. Immigrant respondents with a calculated summary CES-D score (n=852) are biased by gender, but by no other sociodemographic variables or main predictors of importance to this analysis. I recommend that future studies examining this dataset impute data for missing values, and see if findings remain robust. Furthermore, future analyses should use specialized subsample procedures, currently unavailable in SAS.

This study is also limited by the individual-level analysis and linear modeling to address research questions. Prior studies suggested research on Latino populations would benefit from studies that divert away from an individual-level focused measure of acculturation to more structural conditions (Viruell-Fuentes 2007). Additionally, the measure of sociopolitical context would specifically benefit from an operationalization that allowed a multi-level analysis, to understand what each era contributes above and beyond the level of the individual. The present analysis is cross-sectional, and thus not able to meet all of Hill's criteria of causation (Hill 1965). However, this study does make a plausible and coherent argument for the association between sociopolitical context and depressive symptoms. Future studies can examine other criteria such as temporality, by examining policies enacted after the baseline wave of this study, in addition to dose-response relationship, as individuals live through multiple policies and contexts.

## **Conclusions**

Findings of no difference between domains of U.S.-Mexican experience and symptoms of depression, measures that included nativity status, place of residence during formative years, and length of residence in U.S., and often used as proxies for acculturation in health studies on Latino populations, raise questions about previous findings. Furthermore, these findings support further investigations for a mechanism or pathway for different findings for health outcomes within Latino subpopulations. If these domains do in fact operate through socioeconomic position, further research and future interventions should strive to address these issues, rather than continue the current concentration on independent associations between proxies of acculturation and health.

Macrosocial determinants of population-level health is a growing field of study in public health. This study takes a novel, ecological approach to examine an older Mexican-origin population, sociopolitical context at time of arrival in the U.S. to stay, and symptoms of depression. Further understanding of context of entry to the U.S., and where these findings fit in the larger literature of migration, place and health are necessary.

What is clear from these findings is that this is an examination of an older Mexican-origin population that has lived through multiple sociopolitical contexts that have passed. Each social policy change creates another segmented lived experience and therefore possibly different health trajectory. It is imperative for researchers to understand contextual differences, and implications for health, to influence health policy,



and by understanding how the decisions we make about social and economic policies today influence or reduce future health inequalities.

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