Syracuse University

SURFACE

Dissertations - ALL   SURFACE

June 2017

HEALTHY IMMIGRANTS? EXPLORING COUNTRY OF ORIGIN, PRE-IMMIGRATION EXPERIENCES, AND ACCULTURATION IN RELATIONSHIP TO U.S. IMMIGRANTS' HEALTH

Ynesse Abdul-Malak
Syracuse University

Follow this and additional works at: https://surface.syr.edu/etd

Part of the Social and Behavioral Sciences Commons

ABSTRACT

Immigrants belonging to some racial/ethnic minority groups might not be benefitting from the healthy migrant effect. With data from the New Immigrant Survey (2003), which includes immigrants from Mexico, Haiti, Dominican Republic, Cuba, and Jamaica, I examine the odds of three health outcomes, chronic conditions, depressive symptoms, and fair or poor self-rated health using a series of logistic regression analyses. I draw on segmented assimilation and the cumulative inequality theories to understand and explicate the extent to which immigrants' demographic characteristics, pre-immigration experiences, and acculturation in the U.S. might have an impact on immigrants' health outcomes. Compared to Mexican immigrants, I find evidence to support that Cuban and Jamaican immigrants have significantly higher odds of reporting chronic conditions and Dominican Republic and Cuban immigrants report higher odds of depressive symptoms, while Haitian immigrants have lower odds of depressive symptoms. Female immigrants have higher odds of reporting all three health outcomes compared to their male counterparts. Relative to immigrants with good childhood health, those with unfavorable childhood health have higher odds of reporting worse health outcomes. In the logistic regression models, age of migration is not a major predictor of chronic conditions, however, immigrants who migrated at older age report higher odds of depressive symptoms and fair or poor self-rated health. Acculturation is not a significant predictor of chronic conditions and depressive symptoms. However, immigrants who are acculturated have lower odds of reporting fair or poor self-rated health than those who are not. By shedding light on the health status of understudied Caribbean immigrant groups in comparison with Mexican immigrants, this study serves as a starting point to guide policies that aim at decreasing health disparities among different immigrant groups.

HEALTHY IMMIGRANTS? EXPLORING COUNTRY OF ORIGIN, PRE-IMMIGRATION EXPERIENCES, AND ACCULTURATION IN RELATIONSHIP TO U.S. IMMIGRANTS' HEALTH

by

Ynesse Abdul-Malak

A.A.S. Regents College, Albany, NY, 2000
B.S. American University of Beirut, Lebanon, 2006
MPH American University of Beirut, Lebanon, 2008
M.A. Syracuse University, 2013

Dissertation
Submitted in partial fulfillment of the requirements for the degree of
Doctor of Philosophy in Sociology.

Syracuse University
May 2017

This dissertation is dedicated to *manman-m*, Féfé.

I would also like to thank my uncles in Haiti, Jean and Joanas Gue, who were the first in the family to pave the way and instilled in me the importance of higher education. I would like to thank my brother, Mitch, for his love and support, and his inspiring work ethics.

Last, but not least, I could not do this without the love and unwavering support of my husband, Sami, and my children, Leila and Ziad. Sami, when we met 22 years ago, you believed in me and encouraged me to reach my potential intellect, for that, I thank you. Leila, you managed the house when I was busy working and Ziad, you made me laugh when I was stressed out over deadlines.

TABLE OF CONTENTS

List of Tables

Chapter 1: Introduction and Literature Review

Are all immigrants experiencing the same degree of the healthy migrant effect? In general, immigrants experience a health advantage and have lower adult mortality than their U.S.-born counterparts (Alegria et al. 2008; Derose, Escarce, and Lurie 2007; Elo, Mehta, and Huang 2011; Fang, Madhavan, and Alderman 1996; Heron, Schoeni, and Morales 2003; Hummer et al. 2013; Kim et al. 2006; Lincoln et al. 2007; Read, Emerson, and Tarlov 2005; Singh and Miller 2004). Immigrants might be better off in terms of their health because of many factors, such as selective migration and culturally relevant healthy behaviors (Abraido-Lanza, Chao, and Florez 2005; Akresh and Frank 2008; Antecol and Bedard 2006; Cho et al. 2004; Jasso et al. 2004a). However, better health for immigrants may not apply to all health outcomes. Nor is there consensus that the immigrant health advantage is similar across different immigrant groups (Eaton and Garrison 1992; Hamilton and Kawachi 2013; Heron, Schoeni, and Morales 2003). Many studies of this health advantage have been based on Hispanic immigrants, mostly Mexicans (Alegria et al. 2008; Angel et al. 2010; Hummer et al. 2013; Markides and Eschbach 2011). Are there health disparities between different immigrant groups? Given the heterogeneity of national origin of different immigrant groups, their health status may differ based on their pre-immigration experiences and integration in the U.S.

Little is known about the healthy migrant effect among the newly arrived Caribbean immigrants. Although there are commonalities based on racial experiences among Caribbean immigrants of shared racial identities in the U.S., there exists significant cultural and contextual differences. Few studies compare black Caribbean immigrants' health status by specific country of origin or compare them to Mexican immigrants. Immigrants of the

Caribbean are not a monolithic group and their reception and acculturation in the U.S. follow divergent paths, which could impact their health outcomes. With black Caribbean immigrants, such as those from Jamaica, Haiti, Dominican Republic, and Cuba representing the greatest proportion of foreign-born blacks in the U.S. and 90% of Caribbean immigrants in the U.S (Thomas 2012; Zong & Batalova 2016), determining their health status may have significant policy implications. Investigating and understanding their health status is a first step in eliminating health disparities among immigrant populations. Specifically, this study asks whether all immigrants experience the same degree of the healthy migrant effect. I use both segmented assimilation theory and cumulative inequality theory as theoretical frameworks to explore chronic conditions, depressive symptoms, and self-rated health among Mexican and Caribbean immigrants.

HEALTHY MIGRANT EFFECT

The healthy migrant effect is a paradoxical phenomenon wherein first-generation immigrants are healthier than native-born Americans despite their lower socioeconomic status. One possible explanation for the healthy migrant effect may be due to selective migration. It is the tendency for new immigrants to be unusually healthy compared to the rest of the population in their country of origin, thus creating a type of natural selection into migration (Patel et al. 2004; Thomas 2012; Wilmoth and Chen 2003). The healthy migrant effect posits that those who migrated to the U.S. may be healthier than those who remained in their country of origin, which accounts for the health advantage over the U.S.-born population. It is plausible that those with good health are more likely to migrate.

Another explanation is that the healthy migrant effect might be due to reverse migration or the Salmon bias. That is, older immigrants and those with less than ideal health

2

are returning to their home countries and are not being accounted for during research examining immigrant health and mortality (Jasso and Rosenzweig 1982; Patel et al. 2004; Shai and Rosenwaike 1987). Using the National Health Interview Survey (NHIS) in the United States and the Mexican Health and Aging Study (MHAS) in Mexico, Riosmena and colleagues (2013) compared Mexicans living in the U.S. and those who migrated back to Mexico and found that the returned migrants have 83 percent higher odds of reporting hypertension and 472 percent higher odds of unfavorable global health compared with those living in the U.S. This study provides evidence that immigrants with less favorable health are returning to their home countries. However, some studies also show that the Hispanic health advantage is not restricted to foreign-born Hispanics; their U.S.-born counterparts also have lower mortality rates than whites (Abraido-Lanza et al. 1999). Additionally, Cuban immigrants are healthier than native-born Americans and are not able to return to Cuba, because of political reasons, which somewhat counters the Salmon bias explanation.

In summary, the healthy migrant effect is an observed phenomenon among different immigrant groups, but research suggests inconclusive explanations for this phenomenon. Selective migration and return migration are two theories proposed to explain the observed effect, but more research is warranted to fully understand why immigrants are healthier than native-born Americans. Moreover, it is still not clear whether the healthy migrant effect is similar across different immigrant groups. This study seeks to provide further insights into the complexities of the healthy migrant effect among different immigrant groups and is informed by segmented assimilation and cumulative inequality theories.

SEGMENTED ASSIMILATION AND IMMIGRANT HEALTH

Segmented assimilation theory may help us understand more fully whether various groups of Caribbean immigrants are experiencing the healthy migrant effect. Segmented assimilation theory attempts to explain patterns of divergent pathways of immigrants. It emerged as an alternative to the classical assimilation theory that posits that immigrants' trajectories follow a predictable path of upward social mobility (Gordon 1964). That is, immigrants consistently assimilate into the dominant group, across and within generations, and differences between native-born and immigrant groups disappear overtime (Alba and Nee 1997). Conversely, segmented assimilation theory states that varying human and social capital levels that immigrants bring from their home countries and the context of reception in their host countries affect their assimilation (Portes and Zhou 1993). Segmented assimilation theory traces three possible assimilation outcomes for immigrants and their subsequent generations: downward assimilation into an underclass, assimilation into the middles class, and resistance to assimilation by preserving the "immigrant community's values and tight solidarity" (Portes and Zhou 1993: 82). A key factor that might account for the divergent assimilation pathways is related to immigrants' racial/national identities. Immigrants from different countries bring with them different resources that determine their assimilation pathways. Segmented assimilation theory asserts that immigrants assimilate into different societal strata, which might lead to different health outcomes.

One possible assimilation outcome is that immigrants might integrate into an underclass and experience downward assimilation into the disadvantaged group and unfavorable health outcomes. In the U.S context, immigrants who migrate with limited human and social capital are more likely to reside in disadvantaged neighborhoods. For example, one contextual disadvantage might be in the form of neighborhoods with higher

4

concentration of poverty. Residents of these neighborhoods are more likely to have a wide range of poorer health outcomes. Using neighborhood-level data from the 1990–1994 National Health Interview Survey, Boardman and colleagues (2005) found that neighborhoods where more than 25 percent of the residents are black have 13 percent greater odds of being obese compared to those in other neighborhoods. Additionally, immigrants' experiences with racism might impact their health. Immigrant groups that are ascribed a lower status on this hierarchical racialized structure might experience limited access to health resources. Using the Chicago Community Adult Health Study, Viruell-Fuentes and colleagues (2012) investigated the relationship between ethnic/immigrant concentration and health and found that Latinos who live in neighborhoods with high concentrations of immigrants were about 50 percent less likely to receive treatment for hypertension. Immigrants who migrate with limited social and economic resources from their home countries might assimilate into poor urban neighborhoods and experience similar health outcomes as residents of these neighborhoods.

The downward assimilation pathway has encountered the most criticism, especially among European scholars, since it might not be relevant to the European situation. Vermeulen (2010: 1217) argued that the assumption of the "permanent poverty and underclass position" of the downward assimilation has not been well supported by empirical findings. Once downward assimilation is achieved, is there no return to upward assimilation? Additionally, since there is no native black "underclass" in European cities, how does downward assimilation work? Silberman, Alba, and Fournier (2007), explained that in the French context, skin-color-based racism—overly emphasized in the segmented assimilation theory—is not the major determinant for immigrants' discrimination and exclusion in

Europe, but religious affiliation, especially being Muslims, is often the basis for immigrants'

downward assimilation. More empirical evidence is needed to see whether segmented

assimilation is suitable for cross-national research or whether it does indeed fit best to study

all immigrant groups.

A second possible assimilation pathway for immigrants might be their adaptation into

the mainstream middle class and experience similar health outcomes as middle-class

Americans. This pathway is more aligned with the classical assimilation theory where

immigrants experience upward mobility. Those who migrated with higher level of social and

human capital might assimilate into middle class neighborhoods and experience better health

outcomes. Castro and colleagues (2010) tested the upward-segmented assimilation pathway

effect on Latino men is health outcomes and behaviors. They found compared to those who

experienced a downward assimilation, those who experienced an upward assimilation had

greater life satisfaction and were less likely to consume unhealthy food.

Two major criticisms of this upward assimilation pathway are: (1) immigrants might

assimilate economically to the middle class and maintain their ethnic identities while others

might possess high level and human capital and still experience downward assimilation.

Using US census data and qualitative research, Lee and Zhou (2014) found that many

Chinese and Vietnamese immigrants are resettled and assimilated into white, middle-class

suburbs through educational achievement while maintaining their ethnic identity. (2)

Conversely, there are immigrants who migrate with high level of human capital who might

have difficulty achieving upward mobility because of the U.S. hierarchical racialized system.

It could also be due to their educational credentials not being recognized. In fact, second-

generation Caribbean immigrants, especially Haitians, tend to experience downward

assimilation despite the first-generation's high level of social/human capital (Portes and Rumbaut 2014). These divergent pathways for immigrants with high human capital are mostly due to the context of reception, where some immigrant groups settle in impoverished neighborhoods with limited resources.

The third possible assimilation pathway is that immigrants, mostly the second-generations, preserve immigrant values and adhere to community solidarity. This pathway serves as a buffer against downward assimilation (Portes and Zhou 1993). One classic example is of Cuban immigrants in Miami with a "well-established economic enclave that provides a wide range of resources and role models" to Cuban children (Rumbaut 1994: 756). In their research of Hispanic immigrants and health, Zsembik and Fennell (2005) found that Mexicans who maintain their cultural practices (e.g. minimal alcohol, drug, and tobacco use) over time in the U.S. and do not acculturate maintain their health advantage versus those who acculturate.

Segmented assimilation could provide explanations on the divergent pathways that immigrants follow. Several factors, such as national origin, dictate whether immigrants would (1) assimilate into the middle class and reap the benefits of available resources for upward mobility and experience better health outcomes, (2) assimilate into an "underclass" and face a lifetime of social and economic inequality and experience unfavorable health status, or (3) preserve and maintain their culture and group identity that serves as a buffer against downward assimilation and maintain good health. These three pathways could explain the differences in immigrants' level of chronic conditions, depressive symptoms, and self-rated health.

CUMULATIVE INEQUALITY THEORY AND IMMIGRANT HEALTH

Cumulative inequality theory states that the interaction of individuals with their environment affects later life outcomes, such as health. Investigating the accumulation of inequality highlights more than later life outcomes of immigrants; it also puts the emphasis on the aging process as a whole. Cumulative inequality theory underlines the importance of life course trajectories and how they are shaped by disparities in resources, accumulation of risk, and human agency (Ferraro, Shippee, and Schafer 2009). Three of the five main tenets of cumulative inequality provide insights into understanding immigrant health (Ferraro, Shippee, and Schafer 2009). The first tenet underlines how social forces and social antecedents are correlated with current and future life conditions. In other words, early-life conditions and events in immigrants' native countries impact their later-life outcomes in their host countries. Second tenet states that disadvantage generates more exposure to risk and that advantage facilitates opportunity. That is, accumulation of disadvantage could continue throughout the life course. Immigrants who have been disadvantaged in their home countries might lack the human capital to prosper in the host countries. Conversely, advantage can accumulate among immigrants who had more human capital in their host country. The third tenet highlights how cumulative inequality is linked to premature deaths. In particular, that childhood health could be a major determinant of early mortality.

Immigrants' social antecedents, specifically pre-immigration experiences, are correlated with current and future life conditions. Poorer socioeconomic and health conditions during early life could accumulate throughout the life course and influence later life health outcomes. Longitudinal data have corroborated the premise of cumulative inequality theory. Individuals who were born in disadvantaged households are more likely to

retain some of these disadvantages in life and subsequently have premature mortality. This is in line with a body of research that has shown that socioeconomic status is a fundamental cause of health disparities (Adler and Stewart 2010; Bleich et al. 2012; Lee and Marmot 2005; Link and Phelan 1995; Phelan et al. 2004). Using the Wisconsin Longitudinal Study, Pudrovska and Anikputa (2014) examined early-life SES on later life mortality and found that women ($\beta = -0.180$, $p < .001$) and men ($\beta = -0.131$, $p < .05$) with early life high SES had significantly lower hazard of mortality. That is, those with higher SES early in life have a lower chance of dying. In another study, Hayward and Gorman (2004) have used the National Longitudinal Survey of Older Men to assess whether childhood circumstances influence adult mortality. They found that childhood socioeconomic and family conditions were linked to different events in the life course that influenced men's mortality, which they termed the long arm of childhood. In a similar study, using data from 1998 Health and Retirement Survey (HRS), Luo and Waite (2005) created a variable measuring cumulative SES across the life course and found that those who grew up in a family with relatively low SES experienced the worst health outcomes.

How do immigrants from poorer countries like Haiti and Dominican Republic fare in terms of their health in comparison to other countries? Immigrants from poorer countries might be experiencing poorer health when they migrate. Material deprivation and poverty are responsible for wide health disparities within-country and in-between countries (Braveman, Egerter, and Williams 2011; Marmot and Wilkinson 2006). Utilizing data on immigrants from several waves of the March Current Population Survey (CPS), Hamilton (2014) found that immigrants from less developed countries, such as those from the Caribbean, have higher odds of reporting fair/poor health than immigrants from more developed countries,

like the ones in Europe. Immigrants who have been disadvantaged in their home countries might lack the human capital to prosper in the host countries.

Cumulative inequality theory could provide insights on how social antecedents in immigrants' countries of origin are factors that might be impactful in their later life health outcomes and mortality. Immigrant who experienced adverse socioeconomic conditions and poorer childhood health might be prone to chronic conditions, depressive symptoms, and poor self-rated health in later life. Additionally, immigrants who are from countries with scarce economic resources might continue to experience economic disadvantage in the U.S., which could be detrimental to their health.

CONTEXTUALIZING IMMIGRATION

The patterns of unemployment, poverty, health care access, and health status of different sending countries are all important factors that might play a role in contextualizing immigration. Understanding the profiles of immigrants' country of origin provides a glimpse into understanding the healthy migrant effect and the reasons for immigration. Mexico, Haiti, Dominican Republic, Cuba, and Jamaica, despite their close proximities, have divergent economic and health profiles. Haiti, Dominican Republic, Cuba, and Jamaica are the four largest immigrant groups from the Caribbean (Nwosu and Batalova 2014; Zong and Batalova 2016). Before the 1965 Immigration and Nationality Act, there were fewer than 200,000 Caribbean immigrants in the U.S and in 2014 it has increased significantly to more than 4 million, with 29% from Cuba, 25% from Dominican Republic, 18% from Jamaica, and 16% from Haiti (Zong and Batalova 2016).

The economic and health profiles of Mexico, one of the top sending countries to the

U.S., offer a mixed picture. Despite some economic and health improvements, some indicators lag behind other Organization for Economic Co-operation and Development (OECD) countries. Mexico's unemployment rate is relatively low, at 4 percent in 2015, but with 52 percent of its population lives below the poverty line (Central Intelligence Agency 2016b). Thus, poverty is a driving force for emigration in Mexico. As for health care access, prior to 2003, more than half Mexicans lacked insurance coverage and access to affordable health care services (Frenk et al. 2003). Health care reform in 2003 introduced a universal access scheme, *Seguro Popular*, which improved health care coverage and decreased the number of uninsured to about 21 percent (OECD 2016). However, some health indicators are less than ideal. The obesity rate has greatly increased, from 24.2 percent in 2002 to 32.4 percent in 2014, while mortality from cardiovascular diseases have significantly decreased to 298.1 in 2002 to 272.9 per 100,000 in 2014 (OECD Health Statistics 2014). In summary, Mexico economic and health profiles could play a role in determining Mexican migration to the U.S. and later-life health outcomes for those migrants.

Haiti has the worst economic and health outcomes in the Western Hemisphere due to its political instability and debilitated economy. About 40 percent of its population are unemployed, while two-thirds of the formal labor force do not have formal jobs, underemployment rates are staggering (Central Intelligence Agency 2016a). In 2001, about 50 percent of Haitian households lived in absolute poverty (Verner 2008), and currently, 58 percent of the population and living under the poverty line (Central Intelligence Agency 2016a). Consequently, most Haitians emigrate because of lack of economic opportunities in Haiti. As for healthcare access, before the devastating 2010 earthquake, 46 percent of Haitians did not have access to health care (WHO 2011). The earthquake only exacerbated

what little healthcare infrastructure there was. Haitians now lack universal health coverage and most Haitians gets their healthcare from out-of-pocket private providers and non-governmental agencies (Pan American Health Organization/World Health Organization 2013). Haiti's leading causes of death are mostly infectious diseases due to lack of proper sanitation and cardiovascular diseases (Pan American Health Organization/World Health Organization 2013). The patterns of poverty in Haiti are determining factors for Haitians' emigration to the U.S.

Although the Dominican Republic shares the island of Hispaniola with Haiti, their economic and health outcomes are very different. Due to its political stability, the Dominican Republic has become a tourist destination and benefits economically from the tourism sector. Unemployment rate is at 4 percent, underemployment may be as high as 25 percent and 41 percent of Dominicans lives the below poverty line (Central Intelligence Agency 2017). Extreme poverty has gone from 16 percent in 2004 to 10 percent in 2010 (Pan American Health Organization/World Health Organization 2013). As for healthcare access, the Dominican Republic has a national public health system in addition to a private sector, which provides coverage for the population's health care needs (Pan American Health Organization/World Health Organization 2012). Ultimately, most Dominicans either have access to health services, by paying out-of-pocket for care, or from a government subsidized mechanism. However, health indicators are in need of improvement due to fragmentation of the health care system and cost inefficiency. Cardiovascular diseases, road injuries, and diabetes are the leading causes of mortality (WHO 2015c). The recent immigration of Dominicans to the U.S. is largely for family reunification and for better economic opportunities (Nwosu and Batalova 2014).

Cuba is the only country from the Americas where its immigration to the U.S. follows a different immigration pathway; therefore, not surprisingly, Cuban immigrants have divergent economic and health outcomes. Large-scale Cuban migration to the United States began after Fidel Castro took power in 1959 and since the Cuban Adjustment Act of 1966, Cubans who present themselves at any U.S. port of entry are immediately granted asylum-seeker status and can have permanent resident status after a year, once they pass background criminal checks. Because of the Cuban government control, there are unreliable national economic data and no reliable national data is available regarding poverty rates. However, one estimate of Cuban unemployment rate puts it at 2.4 percent (Central Intelligence Agency 2017). As for healthcare, Cuba is generally regarded as having one of the most stellar and efficient health systems in the world and its high quality primary care network makes health care very accessible. Infectious and non-communicable diseases are under control, comparable to or surpassing the rates of economically developed countries, and emergency health needs of Cubans are well met (Campion and Morrissey 2013; Cooper, Kennelly, and Orduñez-Garcia 2006).

The economic and health profiles of Jamaica could provide insights into understanding the context of immigration and the healthy migrant effect for Jamaican immigrants in the U.S. For the last 30 years, Jamaica has experienced some economic upheavals and has one of the slowest growing economies in the world, with an unemployment rate of 13.7 percent (The World Bank 2017). Unemployment rates are much higher for youth and women, and about 16 percent of Jamaicans lives under the poverty line (Central Intelligence Agency 2017). Jamaica has been unable to provide sufficient employment for its entire large, highly educated workforce, forcing many of its most skilled

and educated workers to emigrate to the UK or the U.S. in a brain drain (Healy and Stepnick 2017: 401). This has had a significant negative impact on Jamaica's public health system where one third of the trained medical personnel have emigrated (ECOSOC 2009). Jamaica has a decentralized health system where health services are overseen by regional health authorities that provide health care to the population (Pan American Health Organization/ World Health Organization 2012). The retention of health care workers is major challenge for Jamaica health system to fight ailments such as cerebrovascular and communicable diseases, which are the leading causes of death in the island (Pan American Health Organization/ World Health Organization 2012). In summary, Jamaica's economic and health profiles are intertwined, with health care workers emigrating from the country due to poor working conditions and compensation and for better opportunities in the U.S.

Contextualizing immigration by looking at economic and health profiles of countries of origin provides insights to the factors that play a role in a population's migration patterns. Why do immigrants from countries with similar economic and health profiles experience divergent outcomes in the U.S. in such things as health status? Unemployment rates in Mexico and the Dominican Republic are similar, but immigrants from these two countries have divergent health outcomes in the U.S. At the same time, Haitian immigrants with the least favorable economic and health profiles might not be worse off in terms of their health compared to immigrants from Mexico, Dominican Republic, Jamaica, and Cuba. On the one hand, it could be that immigrants' assimilation might play a role in determining their health outcomes in the U.S. On the other hand, the early life events in their home countries might contribute to their late-life health outcomes. Alternatively, it could be a combination of both; assimilation and early life events. Contextualizing immigration could provide insights to

differences in Mexican and Caribbean immigrants' physical and mental health outcomes, such as chronic conditions, depressive symptoms, and self-rated health.

HEALTH OUTCOMES OF IMMIGRANTS

To measure immigrants' health outcomes, I examine their level of chronic conditions, depressive symptoms and self-rated health. These three health outcomes provide us with a broad view of immigrants' overall health. Specifically, chronic condition measures, in the forms of hypertension, diabetes, and heart problems, are good objective indicators of underlying physical health. Depressive symptom measures provide a broad overview of their emotional health, while self-rated health is a subjective health measure that encapsulates immigrants' overall health status.

Chronic Conditions
Chronic health conditions, such as cardiovascular diseases (CVD) and diabetes are major causes of morbidity and mortality globally (Roger et al. 2011; WHO 2015a; WHO 2015b). Several data sets from the CDC show that currently more than one in three Americans live with some types of CVD in the forms of heart disease or stroke, and that among all racial groups, blacks have the highest prevalence of hypertension (41 percent), a risk factor for CVD, regardless of sex or educational status (Roger et al. 2011). Using data from 1997 to 2005 of the National Health Interview Survey (NHIS), Oza-Frank and Narayan (2008) showed that immigrants from Mexico, Central America and the Caribbean have higher prevalence of diabetes compared to European immigrants, 7 percent and 3 percent, respectively. Using the National Survey of American Life (NSAL) data, Erving (2011) found that after controlling for SES and social roles, Caribbean black immigrant women have 43

percent greater odds of reporting greater chronic illness (including cancer, hypertension, diabetes, stroke, blood circulation problems, and heart trouble) relative to men. Differences in chronic health conditions between different immigrants are understudied and not well understood.

Depressive Symptoms
While mental health, in general, among immigrants is understudied, some research has been carried out on Hispanic immigrants. Although many studies have found that Hispanic immigrants have better mental health than their U.S.-born counterparts, the results might not be consistent among all subgroups. Alegria and colleagues (2008) used two national representative surveys, the National Latino and Asian American Study and the National Comorbidity Survey Replication, and found that in general when foreign-born Latinos are grouped under one ethnic umbrella, they have a mental health advantage over their U.S.-born counterparts. However, when Latino groups are disaggregated by country of origin, there are disparities in their level of mental health disorders. Specifically, the rate for any lifetime mental health disorder was highest among Puerto Ricans at 37 percent, followed by Mexicans at 30 percent, Cubans at 28 percent, and other Latino groups at 27 percent (Alegria et al. 2008). Acculturation seems to be positively correlated with depression. Scholarly works on Hispanic immigrants' acculturation and their mental health disorders are limited. This outdated study conducted on Cuban and Haitian immigrants who arrived in the U.S during the 80's found that Cubans had double the level of depression compared to Haitians (Eaton and Garrison 1992)

The patterns of depressive symptoms among different immigrant groups are mixed. On the one hand, some studies showed that immigrant have lower level of depressive

symptoms that U.S.-born Americans (Lincoln et al. 2007). On the other hand, other studies have shown that immigrants have higher level of depressive symptoms compared their U.S.-born counterparts (Im et al. 2015; Viruell-Fuentes and Andrade, 2016; Wilmoth and Chen 2003). How does the level of Mexican immigrants' depressive symptoms compare to Caribbean immigrants? This study could provide an understanding of immigrants' emotional health.

Self-Rated Health

Self-rated health is a widely used self-report measure of health status that is based on a five-point scale ranging from excellent to poor. The global self-rated health measure is used to assess health status and predict mortality (Idler 1992; Idler and Kasl 1995). It is validated as a subjective health assessment measure (Adler et al. 2008; Ferraro and Kelley-Moore 2001; Idler and Benyamini 1997), and has strong correlation with objective health measures (Jylhä 2006). When it comes to U.S. immigrants, self-rated health results have been mixed. Some studies have shown that immigrants generally have better self-rated health than their native-born counterparts (Akresh and Frank 2008; Angel et al. 2010; Markides and Eschbach, 2005), while other studies have shown that immigrants have worse self-rated health than U.S.-born Americans (Abdulrahim and Baker 2009). Using Waves 1 and 2 of the Los Angeles Family and Neighborhood Survey (L.A. FANS) longitudinal data, Bjornstrom and Kuhl (2014) reported that foreign-born Latinos had five times lower odds of reporting fair/poor health compared to African Americans. Other studies have shown that immigrants' favorable self-rated health differs among various immigrant groups. West Indian-born blacks had 41 percent higher odds and African-born blacks had 36 percent lower odds of reporting fair/poor health compared to U.S.-born blacks (Read, Emerson, and Tarlov 2005). Using the

17

NIS data to analyze self-rated health among African immigrants, Okafor and colleagues (2013) found disparities in self-rated health among African immigrants, whereby those with moderate dietary changes reported worse self-rated health. Additionally, self-rated health worsens with longer stay in the U.S. among Hispanic and black immigrant groups (Acevedo-Garcia 2010). The self-rated health measure could provide an overall assessment of Mexican and Caribbean immigrants' health status, but should be used critically because of its mixed results.

DEMOGRAPHIC CHARACTERISTICS AND PRE-IMMIGRATION EXPERIENCES AND HEALTH OUTCOMES

Immigrants' demographic characteristics and pre-immigration experiences could provide insights into their health disparities. Demographic variables include gender, current age, and education. Variables for pre-immigration experiences include childhood health and age of migration. Research suggests that health outcomes in the forms of chronic conditions, depressive symptoms, and self-rated health vary among different immigrant groups and could be explained by pre-immigration experiences.

Immigrants' national origin and their demographic variables could account for their divergent health outcomes. Asian Americans enjoy better socioeconomic profiles and hence experience better general health outcomes than many immigrants from Latin America and the Caribbean (Park et al. 2008; Williams 2002), but they do experience higher cancer rates than other immigrants. Data from the National Health Interview Survey (1992-1995) has shown that Chinese male immigrants and Japanese female immigrants have higher lung cancer mortality than their U.S.-born counterparts by 51 percent and 42 percent, respectively; while black immigrants have 69 percent lower lung cancer mortality than U.S.-born blacks (Singh

18

and Miller 2004). Even among black immigrants, there is a disparity in health outcomes based on specific region of origin. Black Africans experience more favorable self-rated health, followed by West Indies and European blacks (Read, Emerson, and Tarlov 2005). A study that looked at the impact of gender on immigrants' health, drawing on data from eight waves of the NHIS (2000-2007), showed that Middle Eastern and Mexican immigrant women are significantly less healthy than their male counterparts on self-rated health and hypertension (Read and Reynolds 2012). In fact, Middle Eastern immigrant women are nearly twice as likely to report fair or poor health than men, at 17 percent and 9 percent, respectively; and women reported a diagnosis of hypertension at 20 percent compared to 13 percent for men. As for age, the newer immigrants are getting older and will face some health challenges. From the 2007 California Health Interview Survey, it was noted among older adults that diabetes, obesity, and poor self-rated health are more prevalent among immigrant Mexican elders than non-Hispanic whites (Villa et al. 2012).

Education as a stellar socioeconomic measure might help explain the variation noted in immigrant health. Although socioeconomic status is, almost universally, a major determinant of health disparities, its effects on immigrants' health is not well understood and the results are mixed and contingent on which health outcomes are being studied. The socioeconomic status profile of immigrants is less than desirable: compared to U.S.-born Americans, immigrants are less likely to be high school graduates and more likely to live in poverty and to work in service occupations (Abraido-Lanza et al. 1999; Grieco et al. 2012; Singh and Siahpush 2001). However, their health trajectories do not always follow the expected path, i.e. low socioeconomic status translates into poorer health. For example, Mexicans in the lower socioeconomic status bracket do not experience poorer health as their

white counterparts (Abraido-Lanza et al. 1999; Williams 2005). Hispanic women in the lowest levels of education have lower infant mortality rates than their white counterparts (Williams 2005). However, many researchers believe that the cumulative disadvantage of these new immigrants who occupy the lower socioeconomic status would inadvertently affect their health, especially when they reach old age (Villa et al. 2012). Using the National Survey of American Life (NSAL), Lacey and colleagues (2015) found increased odds (AOR = 2.33, $p < 0.01$) for fair or poor self-rated health among Caribbean immigrants who are not in the labor force compared to their employed counterparts. Generally, the impact of socioeconomic status on immigrants' health is not well understood and more scholarly work is needed to understand how socioeconomic status operates, especially as it pertains to immigrants' health outcomes.

Research on immigrant health considers the impact of immigrants' pre-immigration experiences, such as their childhood health and age of migration, on their health outcomes. Generally, early disadvantage such as childhood poor health accumulate over the life course and might translate into poorer health trajectories (Blackwell, Hayward, and Crimmins 2001; Glymour et al. 2008; Haas 2008; Haas 2007; Hayward and Gorman 2004; Warner and Hayward 2006). Empirical works that focus on immigrants' early life events, such as childhood health, and later-life health outcomes are scarce. To my knowledge, there are no studies that look into the effects of childhood health on later life Caribbean immigrants' health disparities and there is a lack of cross-national population studies. Using the 2003 New Immigrant Survey data, Okafor and colleagues (2013) found that African immigrants who rate their childhood health as excellent/very good are less likely to rate their adult health

as good/fair/poor. Generally, childhood health is strongly associated with later-life health outcomes.

Differences in immigrants' age of migration capture some of the variation noted in their health. Scholarly works regarding the health of immigrants at different ages of migration find a mixed picture of health advantages and disadvantages. While those who migrated at younger age are expected to experience poorer health outcomes as they age, those who come at a later age might be experiencing poorer health because of lack of resources in their home country. Given that about half of the immigrants are between 18 and 44 years old compared to only a third of the U.S.- born population (Grieco et al. 2012), the non-European immigrants are expected to age in place in the U.S. A study of Baby Boomers' cohorts from the 2007 California Health Interview Survey revealed that diabetes, obesity, and poor self-rated health are more prevalent among immigrant Mexican elders than their non-Hispanic whites counterparts(Villa et al. 2012).

ACCULTURATION[1] AND HEALTH OUTCOMES

---

[1] There have been significant caveats in using acculturation in immigrants' health research. Viruell-Fuentes and colleagues (2012) argued that acculturation emphasizes the role of individualized cultural responses and overlooks structural contexts; specifically how immigration intersects with race, class, immigrant status, and gender to be more insidious to health outcomes and shape health inequities.

Research in acculturation and its impact on immigrants' health status is mixed and acculturation has been found to be both a risk and a protective factor. For some immigrant groups, a higher level of acculturation translates into better health outcomes and may be a protective factor for certain health outcomes. A study that was conducted on data from the 1991 National Health Interview Survey (NHIS) showed that more acculturated Latinos were one and a half times less likely to have a high BMI and are more likely to have exercised in the previous two weeks, compared to less acculturated Latinos (Abraido-Lanza, Chao, and Florez 2005). In addition, the prevalence of diabetes among Arab immigrants seems to decrease with longer stay in the U.S. (Dallo and Borrell 2006). Using the 2003 NIS data, Kandula, Kersey, and Lurie (2004) demonstrated that proficient language use and increased time spent in the United States are positively correlated with better health among Mexican immigrants. In another study that used the 2003 Detroit Arab American Study data and language use as a proxy for acculturation found that foreign-born Arab Americans who were interviewed in Arabic are more than 3 times as likely to report worse health outcomes compared to U.S.-born Arab Americans (Abdulrahim and Baker 2009). It is possible that immigrants who are less acculturated have less access to health care and might be in a lower socioeconomic status.

On the other hand, higher acculturation could be linked to worse health outcomes. Data from New York City Department of Health and Mental Hygiene suggests that foreign-born New Yorkers who reside in the U.S. for more than four years report worse general health than more recent arrivals, at 24 percent versus 17 percent, and that they are more likely to be obese, at 16 percent versus 12 percent (Kim et al. 2006). Data from the California Health Interview Survey (CHIS) found that Korean immigrants with less educational

attainment and who are acculturated (increased life spent in the U.S.) have poorer general health status and have three times the odds of being a smoker than those who are less acculturated (Ra, Cho, and Hummer 2013). Acculturation seems to operate differently for different health outcomes and different immigrant groups. More research is warranted to understand how acculturation impacts the health of the new wave of recent immigrants.

As the literature shows, many factors are at play in determining the health status of different immigrant groups and not all immigrants are experiencing the healthy migrant effect. Informed by segmented assimilation and cumulative inequality theories, this study provides evidence for the link between demographic pre-immigration experiences, language acculturation, and immigrant health. As I identify immigration as a process, I am able to unravel how immigrants from similar regional location have divergent health outcomes based on the specific country of origin and the possible factors that might explain these health disparities. My research offers a viable framework for understanding Caribbean immigrant health disparities. More importantly, this research provides a baseline for future research and sheds lights on the health of these new immigrants who deserve more attention in epidemiological research, since they are changing the U.S. demographic landscape.

To give an overview of the dissertation, in Chapter 2, I first discuss my dataset and methodology and I provide information about the variables. In Chapter 3, I analyze data to examine the relationship between demographic characteristics, pre-immigration experiences, and language acculturation with chronic conditions. In Chapter 4, I investigate the relationship between demographic characteristics, pre-immigration experiences, and language acculturation with depressive symptoms. In Chapter 5, I explore the relationship between demographic characteristics, pre-immigration experiences, language acculturation,

health indicators, and self-rated health. Health indicators are chronic conditions and

depressive symptoms from chapters three and four that I use in chapter five as predictors of

self-rated health. Finally, in Chapter 6, I discuss the main findings, the limitations of this

study mostly based on the restrictiveness of the data, and my contribution to the literature

gap. I provide a baseline and several potential areas for future research.

Chapter 2: Data and Methods

PURPOSE OF THE STUDY

A growing body of scholarly works has focused on the health of Hispanic immigrants, mostly Mexicans, or grouped immigrants by region of origin. To compare the health of immigrants from Mexico and from the Caribbean, I use the 2003 New Immigrant Survey (NIS) data because it includes information about recent immigrants and those who have been residing in the U.S. for a long time. It also contains a sizeable number of Mexican and Caribbean immigrants.

My overarching research question is: what is the relationship between national origin, gender, and immigrants' health, when specifically comparing Mexican and Caribbean immigrants? First, I explore the extent to which pre-immigration experiences are predictors of unfavorable health outcomes. Second, I investigate extent to which immigrants' acculturation is related to immigrants' health. This dissertation contributes to the literature by exploring the validity of healthy migrant effect among various immigrant groups and is among the very few scholarly works that focuses its analysis on Caribbean immigrants. Additionally, it untangles the pan-ethnic grouping of Caribbean immigrants. Also, the examination of gender effects on health is unique.

This study uses the 2003 round one[2] of the New Immigrant Survey (NIS),

---

[2] The second round of the New Immigrant Survey was conducted from June 2007 through April 2008 and the re-interview rate was 45.5% (Massey, 2011). The investigators attribute the sharp decline in response rates of the second round from the baseline survey to the rising anti-immigrant sentiment and hostile environment immigrants faced after 2003 (Massey 2011). The data for round 2 became available in 2014 and the sample size became too small to carry out this present study.

also known as the NIS-2003 (Jasso et al. 2004b). The NIS is a collaborative project of Princeton, New York, and Yale Universities, and RAND. The data is maintained and managed by Princeton University's Office of Population Research Data Archive. NIS comprised of a public use dataset and a restricted-use dataset that has personally identifiable information. The NIS is the first nationally representative multi-cohort panel study of immigrants who have just become legal U.S. permanent residents. The NIS-2003 sampling frame was based on immigration records compiled by the U.S. government.

The sample frame was stratified by immigrant visa categories. The survey was conducted between May and November 2003, and included immigrants who were already living in the U.S. and those who were sponsored either through employers or the family reunification program, with a sample size of 8,750 representing an overall response rate of 69 percent (Jasso et al. 2004b). The survey was conducted immediately after the immigrants obtained their permanent residency status and Green Cards, and the interviews were conducted in their choice of language. More than half of the interviews were conducted in a language other than English. The NIS-2003 has a wealth of information on demographic characteristics, migration history, education, employment, earnings histories, language and religion histories, marital history, health, health behaviors, and health care (Jasso et al. 2004b). Data was also collected on all children under the age of eighteen living in the household.

This study represents immigrants who were 18 years of age or older who had visas as principals or as accompanying family members, excluding adult offspring and other relatives (Jasso et al. 2004b). My sample is comprised of 1,613 immigrants from Mexico, Haiti, Dominican Republic, Cuba, and Jamaica. Immigrants from other countries are excluded from

the analysis. The dataset contains several sub-files that correspond to each section of the survey questionnaire. This study uses the following sections: Section A–Demographics, Section B–Pre-Immigration Experiences, Section C–Employment, Section D–Health, Section F–Health Care Utilization and Daily Activities, and Section J–Social Variables. It also includes the codebook. The sub-files are merged into one dataset.

RESEARCH QUESTIONS

Drawing on prior research, this dissertation is guided by one key research question: what is the relationship between country of origin, gender, and immigrants' health, when specifically comparing Mexican and Caribbean immigrants? I present three data chapters driven by more specific questions that explore the connections between pre-immigration experiences, language acculturation, and immigrants' health outcomes.

Chapter 3 is driven by the following key exploratory questions: (1) Do immigrants from Caribbean countries report more chronic health conditions than those from Mexico? (2) Are immigrants' chronic condition statuses linked to pre-immigration factors, such as childhood illnesses and age of migration? Specifically, do immigrants with poor childhood health report more chronic conditions, while controlling for country of origin, gender, and age? (3) Are there differences in chronic conditions based on language acculturation while controlling for demographic and pre-immigration experience variables? (4) What is the interaction effect of country of origin and gender with respect to chronic conditions? Specifically, do country of origin disparities in chronic conditions differ by gender?

Chapter 4 asks the following key questions: (1) Do the odds of depressive symptoms differ significantly by country of origin? (2) Are immigrants' level of depressive symptoms

linked to pre-immigration factors such as childhood illnesses and age of migration? (3) Are there differences in depressive symptoms based on language acculturation? (4) How does gender affect the association between country of origin and depressive symptoms?

Chapter 5 explores the following research questions: (1) Are there differences in self-rated health based on country of origin and gender? (2) To what extent do pre-immigration experiences predict self-rated health? Specifically, do immigrants with poorer childhood health have higher odds of reporting worse self-rated health? (3) What is the role of language acculturation in predicting and explaining self-rated health variation among Mexican and Caribbean immigrants? (4) Do health indicators, such as chronic conditions and depressive symptoms, predict worse self-rated health?

CONCEPTUAL MODEL

Independent Variables   **Dependent Variables**

-Country of Origin

Demographic Variables

-Gender   -Chronic Conditions (Chapter 3)

-Current Age   -Depressive Symptoms (Chapter 4)

-Education   -Self-Rated Health (Chapter 5)

Pre-immigration Experiences

-Childhood Health

-Age of Migration

Language Acculturation

Health Indicators

-Chronic Conditions (Chapter 5)

-Depressive Symptoms (Chapter 5)

Measurements

For my dependent variables, I focus on three measures of health status: chronic conditions, depressive symptoms, and self-rated health. Chronic conditions and depressive symptoms are objective measures while self-rated health is a subjective health measure. First, for chronic conditions, the NIS asks respondents: ''Has a doctor ever told you that you have…?'' In response, the respondents had to choose from a list of health problems. This dissertation only

uses the following responses[3]: high blood pressure, diabetes or high blood sugar, and heart problems. Summary scores are created for chronic conditions where one point is assigned for having: high blood pressure, diabetes or high blood sugar, or heart problems, and zero point assigned for not having any of the conditions (Erving 2011; Okafor et al. 2013). Second, for depressive symptoms, the NIS asks respondents: ''During the past 12 months, was there ever a time when you felt sad, blue, or depressed for two weeks or more in a row?'' Respondents answered yes or no. Based on responses to this questions, I created a binary variable of depressive symptoms where 0 is "no depressive symptoms" and 1 is "having depressive symptoms" (Montgomery et al. 2014; Huffman et. al. 2006; Frazier et al. 2014). The third dependent variable is self-rated health, which is a measure of self-perceived overall health (Abdulrahim and Baker 2009; Acevedo-Garcia et al. 2010; Bjornstrom and Kuhl 2014; Haas 2007; Jylhä 2006; Read and Reynolds 2012), which has been proven to be a reliable measure of an individual's health status (Idler and Benyamini 1997). The NIS also asks the respondents to report on their overall health by asking: "How would you rate your overall physical health at the present time? Would you say it is excellent, very good, good, fair or poor?" The result is presented as a dichotomous variable[4] with fair and poor are grouped as

---

[3] I chose these three chronic conditions because they are major risk factors for cardiovascular diseases and the other chronic conditions in the NIS data, such as cancer and lung diseases, had low observations.

[4] I dichotomized self-rated health variable because some of the cells for the responses were too small to carry out an ordered logit regression. In fact, the "poor" response had only 31 observations.

unfavorable self-rated health =0 while excellent, very good, and good are grouped as

favorable self-rated health =1 (Abdulrahim and Baker 2009; Acevedo-Garcia et al. 2010;

Bjornstrom and Kuhl 2014; Haas 2007; Jylhä 2006; Read and Reynolds 2012).

My independent variables for Chapters 3 and 4 are: (1) country of origin; (2)

demographic variables, which include gender, current age, and education; (3) pre-

immigration experiences which are measured with childhood health and age of migration;

and (4) language acculturation. For Chapter 5, I use the independent variables from Chapters

3 and 4 while also including chronic conditions and depressive symptoms, as health

indicators.

The independent variables in Chapters 3, 4, and 5 were measured as follows: For

country of origin, the NIS asked respondents: "In what country were you born?" I only used

respondents from Haiti, Dominican Republic, Cuba, and Jamaica, and make Mexico[5] the

reference category. For gender, I used the following question: "I need to ask these questions

of everyone, are you male or female?" I dichotomized gender where male is the reference

category. For current age, respondents were asked: "In what year were you born?" Age was

computed by subtracting the birth year from 2003, the year of the NIS interview. Age was

kept as a continuous variable. Childhood health was measured on a Likert scale, self-rated

---

[5] Mexico is chosen as the reference category because most of the research that have been

done in immigrants' health has been carried out in Mexican immigrants (Abraido-Lanza et al.

1999; Abraído-Lanza et al. 2006; Markides, Kyriakos S. and Karl Eschbach 2005; Markides

and Eschbach, 2011; Angel et al. 2010; Hummer et al. 2013). They have become the *de facto*

immigrant group for the healthy migrant effect hypothesis. Also, in this sample they were the

least educated.

question: "Consider your health while you were growing up, from birth to age 16. Would you say that your health during that time was excellent, very good, good, fair, or poor?" The responses are coded as ''excellent'' = 1 to ''poor'' = 5. I recoded the responses as ''excellent/very good'' = 1 and ''good/fair/poor'' = 0 (Okafor et al. 2013; Okafor, Carter-Pokras, and Zhan 2014). To create the age of migration variable, I used the question: "In what month and year did you first leave (country of origin) to live in another country for at least 60 days?" I subtracted year of migration with year of birth[6] (Okafor et al. 2013; Okafor, Carter-Pokras, and Zhan 2014), this variable is kept as a continuous variable. For education, I used the following question: "How many years of schooling in total have you completed?" I dichotomized education as 0= less than 12 years of schooling and 1= 12 or more years of schooling (Okafor et al. 2013). To create a language acculturation variable, I used the question: "How well would you say you speak English?" Responses ranged from 1= ''very well'' to 4=''not at all'' (Okafor et al. 2013). For Chapter 5, I used the chronic conditions and depressive symptoms measurements that are used in Chapters 4 and 5.

Analysis plan

I used the baseline data from the 2003 New Immigrant Survey (NIS) to examine factors that impact the health status of Caribbean immigrants in comparison with Mexican immigrants. Both univariate and multivariate statistical procedures were performed to analyze the content of the data. Descriptive and frequency statistics were generated on all variables. Data screening was conducted to identify outliers, missing data, and potential multicollinearity. Outlier cases were excluded from the analysis. Missing data for the dependent and focal variables were deleted.

---

[6] The NIS did not specifically asked immigrants when they entered the U.S.

Throughout the multivariate analyses, the cutoffs for assessing statistical significance are at alpha .05 and .10 levels. Chi-squared analysis was conducted to determine whether weighted differences in the reports of chronic conditions, depressive symptoms, and self-rated health among immigrants by country of origin are significant. Using SAS Version 9.4 on Microsoft Windows, logistic regression analyses were used to estimate the odds ratio of chronic conditions, depressive symptoms, and fair or poor self-rated health. All analyses were analyzed by country of origin.

Immigration is a process where different stages are important to understand the effects on health outcomes, such as chronic health conditions, depressive symptoms, and self-rated health. Broadly, my analyses are guided by my research questions and models are gradually specified[7] starting from demographic variables, pre-immigration experiences, and language acculturation. In the regression models for Chapters 3 and 4, I sequentially introduce different set of measures to assess chronic conditions and depressive symptoms, in a model-building sequence designed to see the effect of country of origin. In Model 1, I begin by looking at the country of origin, gender, and age, as predictors of chronic conditions and depressive symptoms. In Model 2, while adjusting for demographic variables, I introduce the

---

[7] I choose to follow a sequential modeling because immigration is a process where different stages are important to understand their effects on later-life health outcomes, chronic health conditions, depressive symptoms, and self-rated health. There is a cumulative effect of immigrants' demographic characteristics, early life events, and acculturation on later life health outcomes. In this study, I report all the models, from the baseline to the fully-specified models, as it is customary in sociological research.

pre-immigration experience variables, childhood health, age of migration, and education, because the mechanisms that help explain differences in health among different immigrant groups might be based on early life events. In Model 3, I assess the impact of language acculturation, on chronic conditions and depressive symptoms, while adjusting for demographic variables and pre-immigration experiences. In Model 4, for Chapters 3 and 4, I examine the interaction of the country of origin and gender on chronic conditions and depressive symptoms while adjusting for current age, pre-immigration experiences, and language acculturation. Specifically, I examine whether gender moderates the effects of the country of origin on the health outcomes, chronic conditions and depressive symptoms. In the regression models for Chapter 5, I follow a similar model-building sequence as in Chapters 3 and 4 to assess self-rated health. However, in Model 4, I look at the effects of chronic conditions and depressive symptoms on self-rated health. In other words, my dependent variables for Chapters 3 and 4 are used as independent variables in Chapter 5.

Distribution of Variables by Country of Origin

Percentage and mean distribution of the three health outcomes, demographic characteristics, pre-immigration experiences, and language acculturation by country of origin are presented in Table 2.1. As illustrated, Haitian immigrants had higher prevalence of chronic conditions, at 19 percent, followed by Cuban and Jamaican immigrants at 16 percent, Mexican immigrants at 14 percent, and Dominican Republic immigrants at 12 percent. As for depressive symptoms, Cuban immigrants had the highest prevalence at 29 percent, followed by Dominican Republic immigrants at 20 percent, Mexican immigrants at 17 percent, Jamaican immigrants at 16 percent, and Haitian immigrants at 10 percent. It is worth noted

that Haitian immigrants had the lowest prevalence of depressive symptoms, among all the immigrant groups. When it comes to fair or poor self-rated health, Haitian immigrants reported higher level at 17 percent, followed by Mexican immigrants at 16 percent, and Dominican Republic immigrants at 13 percent, and Cuban and Jamaican immigrants at 8 percent.

As for gender, except for Cuban immigrants which were 50 percent female, all the other countries, female immigrants were the majority. Jamaican immigrants were the youngest at an average age of 37 years of age and Haitian immigrants were the oldest at 43 years of age. The most educated immigrants, those with at least 12 years of schooling, were Cuban and Jamaican immigrants, at 74 percent and 63 percent, respectively. The least educated immigrants were Mexican immigrants where only 33 percent of them had at least 12 years of schooling. The majority of the immigrants reported good childhood health. Dominican Republic immigrants migrated at an older age of 40, followed by Haitian immigrants at 38, Cuban immigrants at 35, Jamaican immigrants at 31, and Mexican immigrants migrated at the youngest age of 30. Dominican Republic immigrants were the least acculturated with only 7 percent spoke English while Jamaican immigrants had the highest-level language acculturation at 99 percent.

Chapter 3: Examining Chronic Conditions among Caribbean and Mexican Immigrants

Health disparities in the U.S. remain at the forefront of medical sociology and public policy debates. Despite this widespread interest, little is known about the differences in chronic conditions between Mexican and Caribbean immigrants. The immigrant health advantage has been attributed mostly to Mexican immigrants (Abraido-Lanza et al. 1999; Angel et al. 2010; Hummer et al. 2013; Markides and Eschbach 2005; Markides and Eschbach 2011). Interest in other immigrants' health has grown due to demographic changes. Caribbean immigrants are growing in significance as a proportion of black immigrants in the U.S. (Nwosu and Batalova 2014). These immigrants are sometimes classified as "black" and research on their health status might miss the ethnic differences that exist among them. Their health merits greater focus and empirical attention. In this chapter, I examine disparities in three chronic conditions, including hypertension, heart problems, and diabetes, between Caribbean and Mexican immigrants. These three health conditions are major contributors to disability and mortality globally and in the United States (Roger et al. 2011; WHO 2015). No studies currently compare Caribbean immigrants' health status by specific country of origin and gender.

THEORETICAL FRAMEWORK

This chapter, which looks into chronic conditions among immigrants, is informed by the segmented assimilation theory and cumulative inequality theory. Taken together, these theories provide insights into the process of social and economic inequalities that are pervasive in the U.S., which could have an impact on the health outcomes of immigrants. These theories could shed light on how early life events, such as pre-immigration factors, and

language acculturation could be contributing factors to health inequalities among different immigrant groups, especially on the level of their chronic conditions.

Segmented Assimilation Theory

Segmented assimilation theory is used to explain the adaptation and integration of non-Western immigrants into the U.S., such as immigrants coming from the Caribbean. It posits that diverse ethnic groups, especially those that identify as black, might assimilate into an underclass (Portes and Zhou 1993; Zhou 2012). It recognizes that contextual differences are what account for the new immigrants' assimilation. Immigrants' race, country of origin, and access to economic opportunities are some factors that are responsible for their successful assimilation (Portes and Zhou 1993). In the U.S., structural forces resulting from the prevalence of racial discrimination and segregation can explain some of the differences in the social mobility of different immigrant groups. Racial discrimination might hinder Caribbean immigrants' upward mobility, who might assimilate into the "underclass" in urban areas and are less likely to adopt health conducive behaviors, such as poor dietary habits and lack of exercise, which can lead to chronic conditions. Additionally, immigrant women might be at a disadvantage economically, which might explain their worse health outcomes. Using neighborhood quality as a measure of assimilation, Akresh and colleagues (2016) tested segmented assimilation to examine immigrants' BMI and self-rated health and found that women who live in the least disadvantaged neighborhoods are less likely to be overweight, with a relative risk ratio (RRR) of .85 compared to more disadvantaged neighborhood with RRR of one. Immigrants who assimilate into an underclass are more likely to be overweight, which is a risk factor for a multitude of chronic conditions, such as hypertension, heart problems, and diabetes. Compared to whites, black Americans have higher level of chronic

37

conditions. For example, non-Hispanic blacks' prevalence rate of hypertension is 41 percent, compared to 28 percent among non-Hispanic whites (Yoon, Fryar, and Carroll 2015). As for diagnosis of diabetes, the age-adjusted rates for whites and blacks are 8 percent and 12 percent, respectively (Centers for Disease Control and Prevention 2014). Heart disease is the most common cause of death in the U.S. and has a higher prevalence among black: about 50 percent of all black American adults have some form of cardiovascular disease, including heart disease, compared to about 33 percent of all white adults (Mozaffarian et al. 2015). Segmented assimilation theory underscores the diverse experiences of immigrants and how structural factors play a major role in their health outcomes.

Cumulative Inequality Theory

Cumulative inequality theory sheds light on the differences that exist in immigrants' levels of chronic conditions as they age. Cumulative inequality theory posits that life course trajectories are shaped by disparities in resources, accumulation of risk, and human agency (Ferraro, Shippee, and Schafer, 2009). Different immigrant groups experience different health outcomes based on early life events, such as pre-immigration experiences. Cumulative inequality theory underscores how disadvantage generates more exposure to risk and that advantage facilitates opportunity. Not only does it focus on later life outcomes of immigrants, it also puts emphasis on the aging process as a whole. It recognizes that inequality is linked to premature deaths. This raises the possibility that immigrants from a specific disadvantaged group may be dying at higher rates due to chronic conditions. These premature deaths may be linked to unfavorable childhood health and socioeconomic conditions in their home countries.

Cumulative inequality theory provides insights into how the country of origin, time of and age at migration, and childhood health condition are all important factors in determining immigrants' later-life levels of chronic conditions. That is, an individual's life outcomes, such as health, are embedded and shaped by the specific historical time-period or the timing of events over their life trajectories. Additionally, cumulative life course exposures to low socioeconomic conditions can lead to chronic diseases (Kaufman 2004; Pollitt, Rose, and Kaufman 2005). For example, immigrants with fewer resources early in life in their home countries, such as lack of education, often continue to have fewer resources in the U.S. and as a result, they struggle with more adverse health conditions. In contrast, immigrants who come from countries with favorable economic resources could be better off in terms of social mobility and health in the U.S. Cumulative inequality theory informs my research by revealing how Mexican and Caribbean immigrants' levels of chronic conditions are linked to early life conditions, such as poor childhood health.

To assess the chronic health conditions of immigrants, I combine segmented assimilation theory with cumulative inequality theory. I draw on these two theories to understand and explicate the extent to which Mexican and Caribbean immigrants' demographic characteristics, pre-immigration experiences, and integration in the U.S. might have an impact on their levels of chronic conditions.

LITERATURE REVIEW

Research suggests that chronic conditions can be used to measure and explore health status among various groups. Chronic health conditions, in the forms of cardiovascular diseases (CVD) and diabetes, are prevalent among all racial groups and can be used to assess overall

health status. Scholarly works have demonstrated how country of origin, gender, current age, childhood health, age of migration, education, and language acculturation are contributing factors to chronic conditions.

Chronic Health Conditions

Chronic health conditions in the forms of cardiovascular diseases (CVD) and diabetes are major causes of morbidity and mortality globally (WHO 2015a; WHO 2015b; Roger et al. 2011). In the U.S., there are stark racial and gender differences in patterns and distribution of chronic health conditions (Carlisle 2012; Carlisle 2014; Oza-Frank and Narayan 2008). Several data sets from the Center for Disease Control (CDC) have shown that currently more than one in three Americans live with some type of CVD in the forms of heart disease or stroke, and among all racial groups, blacks have the highest prevalence of hypertension (41 percent), a risk factor for CVD, regardless of sex or educational status (Roger et al. 2011). Using data from 1997 to 2005 of the National Health Interview Survey (NHIS), Oza-Frank and Narayan (2008) showed that immigrants from Mexico, Central America and the Caribbean have higher prevalence of diabetes compared to European immigrants, of 7 percent versus 3 percent. Using the National Survey of American Life (NSAL) data, Erving (2011) found that after controlling for socioeconomic status and social roles, Caribbean black immigrant women have 43 percent greater odds of reporting chronic illnesses (including cancer, hypertension, diabetes, stroke, blood circulation problems, and heart trouble) relative to men. Differences in chronic health conditions between different immigrants are understudied and not well understood.

Country of Origin

40

Heterogeneity in the country of origin among the U.S. immigrant population may translate into different levels of chronic conditions. However, most research has grouped immigrants by regions of origin and not by countries, even though immigrants from different countries experience different health outcomes. Generally, immigrants show significantly lower risks of mortality from cardiovascular diseases (Singh and Siahpush 2001). Compared to the U.S.-born, foreign-born Hispanics are 29 percent less likely to have high blood pressure (Yoon, Fryar, and Carroll 2015), and Caribbean immigrants are .98 times less likely to report chronic cardiovascular conditions than their native-born counterparts (Carlisle 2012). Differences in chronic conditions exist even among same racial groups. Using linked data from the Collaborative Psychiatric Epidemiology Surveys (CPES), Carlisle (2014) found that among Latinos, Cubans' prevalence of chronic cardiovascular diseases is higher than Mexicans, at 35 percent and 15 percent, respectively, and that among Caribbeans, Haitians (23 percent) reported fewer instances of chronic cardiovascular diseases than Jamaicans (36 percent). Comparing immigrants by their country of origin could provide a more thorough and nuanced understanding of chronic conditions among various groups that is currently missing from existing literature.

Gender

Research into the impact of gender on health shows that women are more likely to have chronic health conditions. In the U.S. context, women are less likely to be health selected for work migration and are more likely to migrate as family reunification (Ruiz, Zong, and Batalova 2015). A study that looked at the impact of gender on immigrants' health, drawing on data from eight waves of the NHIS (2000-2007), showed that Middle Eastern and Mexican immigrant women are significantly less healthy than their male counterparts on self-

rated health and hypertension (Read and Reynolds 2012). A study that compared Mexicans and Mexican-Americans found that women in the latter group have higher levels of hypertension than men, at 30 percent and 27 percent, respectively (Morales et al. 2014). For Caribbean blacks, Erving (2011) found that after accounting for socioeconomic characteristics, women reported higher levels of chronic conditions than their male counterparts. More studies are needed to look at what role gender plays in Caribbean immigrants' level of chronic conditions.

Current Age

The number of older immigrant adults of non-European origin in the U.S. are expected to increase significantly in the coming years (Zong and Batalova 2016). This has important policy implications since age is a factor that may help in explaining the prevalence of chronic health conditions among U.S. immigrants. In general, older American adults report higher levels of chronic conditions, such as hypertension and diabetes, and this is especially true among the black population (Centers for Disease Control and Prevention 2014; Yoon, Fryar, and Carroll 2015). The same pattern is seen among older immigrant adults (Carlisle 2012; Choi 2012; Gubernskaya 2015; Oza-Frank and Narayan 2008; Roshania, Narayan, and Oza-Frank 2008). More attention is needed on older immigrants' high levels of chronic conditions because they are often likely to lack health care coverage (Choi 2006).

Education

Education is one the key measures of socioeconomic status, which is a predictor of many health outcomes, such as chronic conditions. The socioeconomic status of immigrants compares less than favorably with U.S.-born Americans, with immigrants less likely to be

high school graduates, more likely to live in poverty, and more likely to work in service occupations (Abraido-Lanza et al. 1999; Grieco et al. 2012; Singh and Siahpush 2001). However, their health trajectories do not necessarily follow the expected path of low socioeconomic status translating into poorer health. Although the effects of socioeconomic status on immigrants' health are not well understood, Mexican immigrant women with less than high school education have 20 percent higher odds of having hypertension and 40 percent higher odds of having diabetes than women with more than high school graduation (Morales et al. 2014). However, many researchers believe that the cumulative disadvantage experienced by these new immigrants who occupy lower SES will adversely affect their health, especially when they reach old age (Villa et al. 2012).

Childhood Illness

Childhood health can influence immigrants' susceptibility to chronic conditions, but it is not known whether this relationship persists into later-life. Generally, early disadvantages such as childhood poor health accumulate over the life course and may translate into poorer health trajectories (Blackwell, Hayward, and Crimmins 2001; Case, Fertig, and Paxson 2005; Glymour et al. 2008; Haas 2007; Haas 2008; Hayward and Gorman 2004; Warner and Hayward 2006). Using HRS data, Blackwell, Hayward, and Crimmins (2001) found that the occurrence of childhood illness increases the incidence of later-life chronic cardiovascular conditions by 15 percent. Unfortunately, empirical work that focuses on immigrants' early life events, such as childhood health, and later-life health outcomes are scarce. To my knowledge, no studies have examined the effects of childhood health on chronic conditions in later life of Caribbean immigrants, and there is a lack of cross-national population studies.

Age of Migration

The age of migration may have an effect on the level of chronic conditions among Mexican and Caribbean immigrants, and those who migrate at a younger age are expected to experience poorer health outcomes as they age. Similarly, those who migrate at an older age may experience poorer health because of increased exposure to lack of resources while they still lived in their home countries. Colón-López and colleagues (2009) examined this age at migration and its impact on cardiovascular mortality among elderly Mexican-origin immigrants and found that those who migrated before the age of 50 had nearly twice the risk of cardiovascular mortality compared to those who migrated after 50, and that this association increased nearly threefold after controlling for age and sex. Conversely, those who migrated at older age could be in better health due to selection. More research is needed to evaluate the impact of age of migration with other immigrant groups, including Caribbean immigrants.

Language Acculturation

The process of acculturation may help explain the disparities in the chronic conditions of immigrants in the U.S. Research in acculturation and health status have provided inconsistent results, suggesting that acculturation could be either a risk factor or a protective factor. For some immigrant groups, higher levels of acculturation translate into better health outcomes. A study that was conducted on data from the 1991 National Health Interview Survey (NHIS) showed that more acculturated Latinos were one and a half times less likely to have high BMI and are more likely to have exercised in the previous two weeks compared to less acculturated Latinos (Abraido-Lanza, Chao, and Florez 2005). In addition, the prevalence of

diabetes among Arab immigrants seems to decrease with longer stay in the U.S. (Dallo and Borrell 2006). Using the 2003 the New Immigrant Survey data, Kandula, Kersey, and Lurie (2004) demonstrated that proficient language use and increased time spent in the United States are positively correlated with better health among Mexican immigrants.

On the other hand, higher acculturation can be linked to worse health outcomes. Data from the New York City Department of Health and Mental Hygiene has suggested that foreign-born New Yorkers who reside in the U.S. for more than four years report worse general health than more recent arrivals, at 24 percent versus 17 percent, and that they are more likely to be obese, at 16 percent versus 12 percent (Kim et al. 2006). Data from the California Health Interview Survey (CHIS) found that Korean immigrants with less educational attainment and who are acculturated (increased life spent in the U.S.) have poorer general health status and have three times the odds of being a smoker, than the low educated and acculturated ones (Ra, Cho, and Hummer 2013). Acculturation seems to operate differently for different health outcomes and for different immigrant groups. More research is warranted to understand how acculturation affects the level of chronic conditions among Mexican and Caribbean immigrant

METHODS AND DATA

Conceptual Model

| **Country of Origin** | **Demographic Variables**
Gender
Current Age
Education | **Pre-Immigration experiences**
Childhood Health
Age of Migration | **Language Acculturation** |

Chronic Conditions
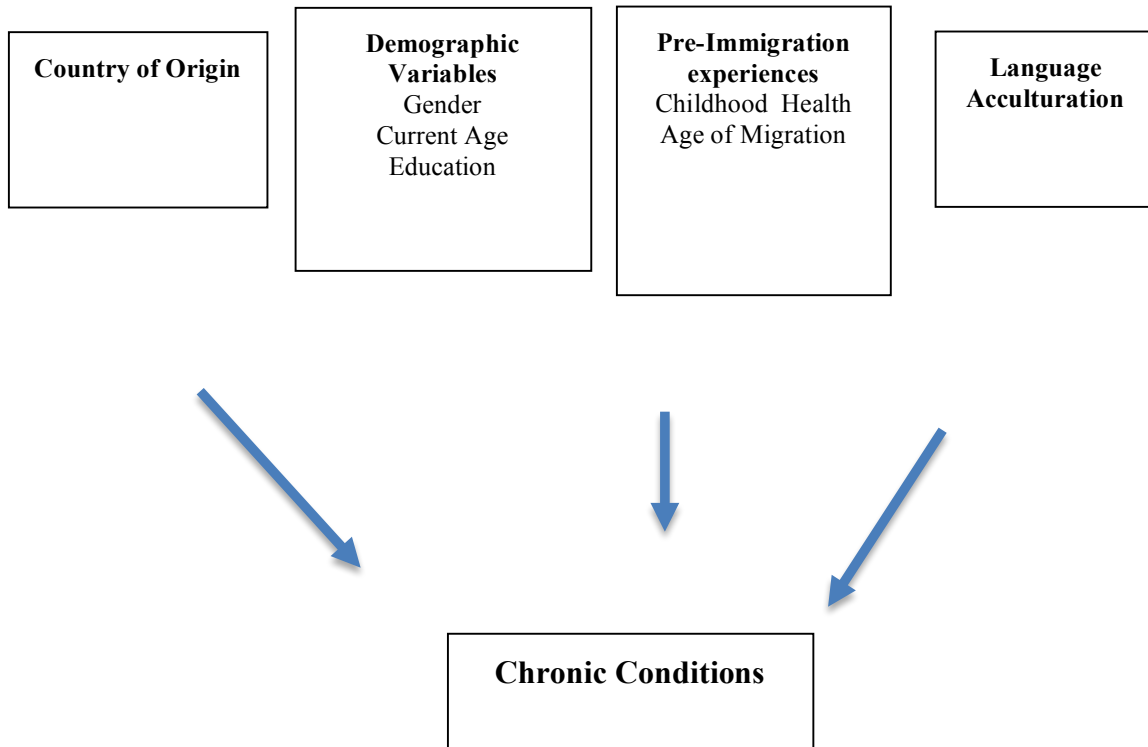
The analyses of this chapter are based on the New Immigrants Survey (NIS) data. The NIS-2003 sampling frame was based on immigration records compiled by the immigration agency of the U.S. government, currently known as the U.S. Citizenship and Immigration Services (USCIS). It contains chronic conditions measures, demographic characteristics, variables for pre-immigration experiences, and acculturation. All analyses were conducted with SAS Version 9.4 on Microsoft Windows.

I presented the characteristics for the total sample based on the country of origin. I performed bivariate and multivariate analysis to answer the following research questions: 1) Do immigrants from Caribbean countries exhibit worse chronic health conditions than those

from Mexico? 2) Are immigrants' chronic condition statuses linked to pre-immigration factors such as childhood illnesses and age of migration? Specifically, do immigrants who had poor childhood health have one or more chronic conditions while controlling for the country of origin, gender, age, and education? 3) Are there differences in chronic conditions based on language acculturation while controlling for demographic and pre-immigration experience variables? 4) What is the interaction effect of the country of origin variable and gender with respect to chronic conditions? Specifically, do disparities in chronic conditions differ by gender?

I use segmented assimilation and cumulative inequality theories to examine whether demographic variables, pre-immigration experiences, and language acculturation mediate the relationship between the country of origin and chronic conditions. I first present results from descriptive and bivariate logistic regression analyses. Then, I will enter these variables into the logistic regression models gradually and I add an interaction term for country of origin and gender into the final model.

Dependent Variable: Chronic Conditions

For chronic conditions, the NIS asks respondents: ''Has a doctor ever told you that you have…?'' Respondents had to choose from a list of health problems. This dissertation uses responses that chose high blood pressure, diabetes or high blood sugar, and heart problems. A summary score for chronic conditions is created where one point is assigned for having high blood pressure, diabetes or high blood sugar, or heart problems and zero point is assigned for not having any of these three chronic conditions. (Erving 2011; Okafor et al. 2013)

Independent Variables

Country of origin

I specify the country of origin as my key predictor of chronic health conditions. The NIS asks respondents: "In what country were you born?" The countries are dichotomously coded with Mexico assigned to the reference category. I compare Haitian, Dominican Republic, Cuban, and Jamaican immigrants to Mexican immigrants.

Gender

I assess the impact of gender on chronic health conditions. NIS asks respondents: "I need to ask these questions of everyone, are you male or female?" Gender is dichotomized as male = 0 and female = 1.

Current Age

To understand immigrants' chronic health conditions, age is used as another predictor. NIS asks respondents: "In what year were you born?" Age is computed by subtracting the birth year from 2003, year of NIS interview (Okafor et al. 2013). Age is kept as a continuous variable, with a range of 18-93 years in age.

Education

To understand immigrants' current socioeconomic status and its association with chronic conditions, I use education as a measure of socioeconomic status. The NIS asks respondents the following question: "How many years of schooling in total have you completed?" I

dichotomously coded education with 0 = less than 12 years of schooling and 1 = 12 or more years of schooling.

Childhood illness

To measure childhood health and to highlight its association with chronic conditions, I use the NIS question that asks respondents to report their childhood health: "Consider your health while you were growing up, from birth to age 16. Would you say that your health during that time was excellent, very good, good, fair, or poor?" It is dichotomously coded with excellent, very good, and good responses coded as favorable childhood health and given a value of one, and fair and poor responses coded as unfavorable childhood health and given a value of 0 (Okafor et al. 2013; Okafor, Carter-Pokras, and Zhan 2014).

Age of migration

The age of migration can be a predictor of chronic conditions. To create the age of migration variable I use the question: "In what month and year did you first leave (country of origin) to live in another country for at least 60 days?" I subtract year of migration with year of birth (Okafor et al. 2013). This variable is kept as continuous, with a range of 0-93 years in age.

Language acculturation

To examine the relationship of language acculturation and chronic conditions, I use the question: "How well would you say you speak English?" Responses ranged from 1 = ''very well'' to 4 = ''not at all." This variable is dichotomized into 0 = "not well/not at all'' and 1 = "well/very well" (Okafor et. al., 2013).

RESULTS

In Table 3.1, I provide the percent distributions and frequencies of the focal variables of this chapter—chronic conditions, country of origin, gender, age, education, childhood health, age of migration, and language acculturation. As seen on Table 3.1, about 14 percent of the whole sample of 1613 immigrants reported having one or more chronic conditions, with hypertension at 11 percent, diabetes at 5 percent and heart problems at 1 percent. About two-thirds of the sample were from Mexico while the rest were from Haiti at 9 percent, Dominican Republic at 10 percent, Cuba at 9 percent, and Jamaica at 7 percent. There were 58 percent females and the mean age was 42. On average, these immigrant groups had 9 years of education, which translated to approximately 58 percent having less than 12 years of schooling. As for childhood health, just about 5 percent of the immigrants reported having poor or fair childhood self-rated health. The average age of migration was 32 years old. About 30 percent had English language proficiency.

I examined the relationship between chronic conditions and each of the independent variables. In Table 3.2, I present bivariate associations between having one or more chronic conditions and country of origin, demographic characteristic, pre-immigration, and language acculturation variables. As demonstrated in Table 3.2, country of origin was not significantly associated with chronic conditions, Haiti had a prevalence of 19 percent, the highest level of chronic conditions, compared to Dominican Republic at 12 percent, Cuba and Jamaica at 16 percent and Mexico at 13 percent. Gender was significantly associated with chronic conditions. Overall 16 percent of female immigrants had one or more chronic conditions

compared to 12 percent of male immigrants. Age was significantly correlated with chronic conditions. About 18 percent of those with less than 12 years of schooling had one or more chronic conditions, compared to 9 percent of those with more than 12 years. Age of migration and language acculturation were both significantly correlated with chronic conditions. Those who had one or more chronic conditions had migrated at an older age, on average at 47 years of age. Immigrants who spoke English were about 50 percent less likely to have one or more chronic conditions compared to those who did not, at 9 percent versus 17 percent.

For the multivariate analysis, a series of four sequential models were used. Logistic regression was used to examine the outcomes of the dependent variable: having one or more chronic conditions (=1) versus not having any chronic condition (=0). For Model 1, I included country of origin and demographic variables, which were gender, age, and education. For Model 2, I included country of origin and the demographic variables in addition to pre-immigration experiences variables, which were childhood self-rated health and age of migration. For Model 3, I included Model 1 and 2 variables and added language acculturation. Model 4 examined the interaction effect of gender and country of origin while using all those variables that were included in Models 1, 2, and 3. I discuss each model using the log(odds) coefficients to facilitate interpretation and $\log (p/(1-p)) = \alpha + \beta_1 X_1 + \beta_2 X_2 + \ldots \beta_k X_k$; p is the probability that the event Y occurs, $p(Y=1)$, and $p/(1-p)$ is the odds that $Y=1$.

The logit models to predict chronic condition are as follows:

Model 1: $\log (p/(1-p)) = \alpha + \beta1$ Haiti $+ \beta2$ Dominican Republic $+ \beta3$ Cuba $+ \beta4$ Jamaica $+ \beta5$ female $+ \beta6$ current Age $+ \beta7$ education

Model 2: log (p/(1-p)) = α + β1 Haiti + β2 Dominican Republic + β3 Cuba + β4 Jamaica + β5 female + β6 current Age + β7 education + β8 childhood health + β9 age of migration

Model 3: log (p/(1-p)) = α + β1 Haiti + β2 Dominican Republic + β3 Cuba + β4 Jamaica + β5 female + β6 current Age + β7 education + β8 childhood health + β9 age of migration + β10 language acculturation

Model 4: log (p/(1-p)) = α + β1 Haiti + β2 Dominican Republic + β3 Cuba + β4 Jamaica + β5 female + β6 current Age + β7 education + β8 childhood health + β9 age of migration + β10 language acculturation + β11 female * Haiti + β12 female * Dominican Republic + β13 female * Cuba + β14 female * Jamaica

The slope coefficient (β) is interpreted as the change in the log odds of Y as X increases by one unit. To aid interpretation, the results are reported as odds ratio: Odds (Y=1) = exp (α + $\beta_1 X_1 + \beta_2 X_2 + ... + \beta_k X_k$).

In a series of logistic regression models, Table 3.3 shows the odds ratio (OR) of having one or more chronic conditions by the explanatory variables of interest. The coefficients predicting the odds of having one or more chronic conditions are listed. Model 1 examined the association between country of origin, demographic variables, and chronic conditions. The odds of chronic conditions for immigrants from Haiti and Dominican Republic were not significantly different from Mexican immigrants, adjusting for gender, age, and education. Haitian immigrants reported higher levels of chronic conditions, which was significant at the bivariate level (see Table 3.2). However, when gender, age, and education were introduced in the Model 1 logistic regression, the coefficient for Haitian immigrants was no longer significant. As for Dominican Republic immigrants, their report of chronic conditions was lower compared to all the other countries and was not significant at

the bivariate level and remained statistically not significant in comparison to Mexican immigrants, net of gender, age, and education. Compared to Mexican immigrants, the odds of reporting chronic conditions for Cuban and Jamaican immigrants were 1.56 and 1.68 times higher (p-value < 0.10), respectively, while adjusting for demographic variables. As for gender, the odds of chronic conditions among female immigrants were 1.37 times greater (p-value < 0.05) than for male immigrants, adjusted for country of origin, age, and education. The odds of having one or more chronic conditions increased by a factor of 1.07 (p-value < 0.001) with every year increased in age. That is, as immigrants got older, their odds of chronic conditions increased, net of covariates. Education[8] was not a significant predictor of chronic conditions, adjusted for country of origin, gender, and age.

Looking at just the demographic variables and chronic conditions among Mexican and Caribbean immigrants, we see that coming from Cuba and Jamaica, being a woman, and being older were strong predictors of having one or more chronic conditions. Model 1 analysis answered my main research question as to whether immigrants from Caribbean countries exhibited more chronic health conditions than those from Mexico. From this baseline model, there were clear differences on immigrants' chronic conditions based on their country of origin. Haitian, Cuban, and Jamaican immigrants had higher level of chronic

---

[8] Supplemental analysis (See Appendix 1) revealed that when education was removed from the analysis the significance of country of origin changed. When I adjusted for only gender, Haitian immigrants' coefficient was significant while Cuban and Jamaican immigrants' coefficients were no longer significant. Compared to Mexican immigrants, Haitian immigrants had 1.50 times greater odds of reporting of chronic conditions.

conditions than Mexican immigrants. However, when I controlled for gender, age, and education, only Cuban and Jamaican immigrants' coefficients remained statistically significant.

Model 2 tested the variables in Model 1 while also including pre-immigration experience variables. Pre-migration experience variables included childhood self-rated health and age of migration. As seen in Table 3.3, compared to Mexican immigrants, Haiti and Dominican Republic immigrants' coefficients remained statistically insignificant, even with the introduction of pre-immigration experiences, while Cuban and Jamaican immigrants reported chronic conditions that were 1.61 (p-value < 0.10) and 1.73 (p-value < 0.05) times higher than immigrants from Mexico, respectively, net of demographic characteristics, childhood health, and age of migration. After accounting for pre-immigration experience factors, the association between Cuban and Jamaican immigrants and chronic conditions became more pronounced. In other words, when taking into consideration immigrants' pre-immigration factors the odds of chronic conditions among Cuban and Jamaican immigrants increased by 7 percentage and 6 percentage points, respectively, in comparison with Mexican immigrants, net of demographic characteristics. Similar results were noted for gender, the association of gender and chronic conditions increased in magnitude and significance when pre-immigration factors are considered. Female immigrants reported 1.40 (p-value < 0.05) times higher odds of chronic conditions compared to immigrant women, net of country of origin, age, education, and pre-immigration experiences. Conversely, the relationship between age, education, and chronic conditions did not change when I added pre-immigration experience variables into Model 2, with age remaining a significant predictor of chronic conditions, net of country of origin and gender.

As for pre-immigration experiences, poor childhood health was a significant predictor of having one or more chronic conditions with odds of 1.79 (*p*-value <.001). That is, immigrants who reported worse childhood health had a 1.79 times greater odds of reporting one or more chronic conditions compared to immigrants who had better childhood health, adjusting for country of origin, gender, age, education, and age of migration. Age of migration was not a significant predictor of chronic conditions, likely due to sample size limitations.

Model 2 analysis provided insights into my second research question concerning the importance of pre-immigration experiences in predicting chronic condition and whether childhood health affected the odds of chronic conditions. I found some evidence in Model 2 that immigrants' chronic condition status was linked to pre-immigration experiences such as poor childhood health while adjusting for country of origin, demographic characteristics, and age of migration. Specifically, immigrants who had poorer childhood health had higher odds of reporting chronic conditions. In summary, Model 2 provided evidence that being from Cuba or Jamaica, being a woman, being older, and having worse childhood health were all significant predictors of chronic conditions.

The next set of results in Model 3 presented the impact of demographic variables, pre-immigration experiences, and language acculturation on having one or more chronic conditions. The coefficients for Haiti and Dominican Republic immigrants did not significantly change from Models 1 and 2. Cuban and Jamaican immigrants' coefficients continued to be significant. Compared to Mexican immigrants, Cuban immigrants had 1.59 (*p*-value <.10) times higher odds of chronic condition, net of demographic variables, pre-immigration experiences, and language acculturation, while the odds for Jamaican

immigrants were 1.90 (p-value <.10) times higher. Compared to male immigrants, the odds of chronic conditions were 1.39 (p-value <.05) times higher among women immigrants, net of country of origin, age, education, pre-immigration experiences, and language acculturation. As for age, each additional year increased the odds of chronic conditions by 7 percent while adjusting for country of origin, gender, education, pre-immigration experiences, and language acculturation. This indicated that older immigrants were reporting higher level of chronic conditions. Immigrants who reported worse childhood health had 1.79 times higher odds of reporting chronic conditions compared to those who reported favorable childhood health, net of country of origin, demographic characteristics, pre-immigration experiences, and language acculturation. It is startling that language acculturation was not a significant predictor of chronic conditions in the multivariate analysis, although it was significant at the bivariate level.

The findings from Model 3 did not add much to our understanding of the differences in the reporting of chronic conditions among Mexican and Caribbean immigrants. The significant predictors were coming from Cuba, Jamaica, being a woman, being older in age, and having worse childhood self-rated health. My third research question asked whether there are differences in chronic conditions based on language acculturation while controlling for demographic and pre-immigration experience variables. Model 3 gave no support for language acculturation having a significant impact on reporting chronic conditions. That is, immigrants' language proficiency did not predict the odds of having one or more chronic conditions, net of covariates.

Additional analysis for country-by-country comparisons of Model 3 revealed no evidence of significant differences in the reporting of chronic conditions between Cuban and

Jamaica immigrants (Appendix 2). However, there were significant differences in reporting of chronic conditions between Dominican Republic and Cuban immigrants, and Dominican Republic and Jamaican immigrants.

I then examined whether the effects of country of origin on chronic conditions were modified by gender. Model 4 tested this possibility by adding an interaction term between the effects of country of origin and gender on chronic conditions while adjusting for current age, education, pre-immigration experiences, and language acculturation. Model 4 indicated that Cubans, Jamaicans, women, older immigrants, and those with poorer childhood health continued to have greater-than-one odds of chronic conditions with the interaction term, and only the Cuba variable interaction with gender was marginally significant. When allowing the association between country of origin and chronic conditions to differ for female and male immigrants, I found that gender differences only applied to Cuban immigrants. Specifically, Cuban men had 2.8 times the odds of having one or more chronic conditions, compared to their Mexican counterparts, while the odds of chronic conditions for Cuban women were almost the same ($2.80*0.36 = 1.01$) as for Mexican women. My fourth research question is partially answered with the interaction term of gender and country of origin with respect to chronic conditions. The interaction of gender and country of origin offered inconsistent effects on chronic conditions.

DISCUSSION

The main objective of this chapter has been to examine the relationship between the country of origin and chronic conditions through the lens of segmented assimilation and cumulative inequality theories. With respect to this objective, I found some evidence that contradicts the

hypothesis for a health advantage among Caribbean immigrants, particularly for Cuban and Jamaican immigrants. Compared to Mexican immigrants, Cuban and Jamaican immigrants had greater odds of reporting chronic conditions. In their research investigating health disparities among Hispanic subgroups, Zsembik and Fennell (2005) found that Cubans reported more chronic conditions than Mexicans. Similar result was noted in Carlisle's (2012; 2015) studies of chronic condition disparities in ethnic subgroups: after controlling for nativity and length of stay in the U.S, Cubans had higher levels of chronic conditions among Latino-Americans and Jamaicans had higher levels among Afro-Caribbean groups. My results corroborate a long line of research that has shown that immigrant women report higher levels of chronic conditions (Erving 2011; Read and Reynolds 2012). It is possible that Cuban and Jamaican immigrants because of their higher level of socioeconomic status in comparison to Mexican immigrants are more likely to be diagnosed with a chronic condition (See Table 2.1). Surprisingly, language acculturation was not a significant predictor of chronic conditions. Cuban immigrants are the least acculturated while Jamaican immigrants are the most acculturated, but both have higher level of chronic conditions in comparison to the other immigrant groups in my sample and acculturation was not a significant predictor of chronic conditions. It is possible that the measure I used in this study for acculturation did not fully capture immigrants' actual acculturation.

In summary, using logistic regression analyses I examined factors of chronic conditions among Mexican and Caribbean immigrants and found that coming from Cuba and Jamaica, being a woman, being older, and having poorer childhood health are all associated with having one or more chronic conditions. By shedding light on the health status of

understudied Caribbean immigrant groups in comparison to Mexican immigrants, this chapter goes beyond previous studies that only used pan-ethnic grouping of immigrants.

LIMITATIONS

Although the findings from this research yielded interesting conclusions, a few limitations are noted. First, all variables were self-reported, which might be subjected to recall bias, and the presence of chronic conditions might be over- or under-stated. Second, my analyses failed to consider the role of health behaviors and access to health care with regards to chronic conditions. Third, the cross-sectional nature of the data limited the possibility to establish temporal relationship for chronic condition and determining factors under study. Fourth, the data is somewhat old at more than 10 years old. However, it provides a rare opportunity to compare Caribbean immigrants, an underrepresented population, to Mexican immigrants on a large population-based sample.

CONTRIBUTION

The primary goal of this chapter was to document and explain the disparity of chronic conditions among Mexican and Caribbean immigrants. The argument underlying my research question rests on the validity of the healthy migrant effect and recognizing that country of origin heterogeneity is not fully understood in health research. While Mexican groups are well researched, the body of knowledge about the health status of Caribbean immigrants remains especially thin and thus, conclusions regarding their health may be overly simplistic. Conceptually, this research demonstrates that country of origin is a determinant factor for chronic conditions. Also, it underscores how women's health should

be at the forefront of health research. This is a starting point for the health research community to improve research designs that can consider the complexities and differences that permeate immigrants' health based on their country of origin and gender. Furthermore, this work serves as a starting point to guide policies aimed at decreasing health disparities and mortality due to chronic conditions among the different immigrant groups.

Chapter 4: Investigating Depressive Symptoms among Caribbean and Mexican Immigrants

There are significant differences in immigrants' physical health outcomes, such as chronic conditions. But do these differences also apply to mental health? Specifically, are there disparities in depressive symptoms among immigrant groups from different countries and regions? In addition, do these patterns differ for women and men? In general, depression and depressive symptoms are correlated with poor physical health conditions and increased mortality (Katon 2003). A prospective cohort study of 9374 adolescents found that those who had depressed moods at baseline were twice as likely to become obese, which is a major risk factor for diabetes and heart diseases, in the follow-up phase (Goodman and Whitaker 2002). In fact, depression can increase mortality in those diagnosed with chronic conditions such as diabetes and heart problems.

Caribbean immigrants constitute 50 percent of all black immigrants and their number continues to rise (Thomas 2012). Therefore, investigating their mental health can have significant policy benefits. However, academics have not placed substantial importance on research into Caribbean immigrants' mental health. A few studies have shown inconsistent results regarding the rates of mental illnesses, such as depression and depressive symptoms, among Caribbean immigrants (Lincoln et al. 2007; Mereish et al. 2016; Miranda et al. 2005; Williams et al. 2007a; Williams et al. 2007b). In general, good mental health is important for individuals' well-being and evidence has shown that mental disorders, such as depressive disorders, are strongly related to many risky behaviors and to prevention and successful treatment of chronic conditions (Chapman, Perry, and Strine 2005). In this study, I draw on segmented assimilation and cumulative inequality theories to investigate disparities in depressive symptoms between Caribbean and Mexican immigrants.

MENTAL ILLNESS AND IMMIGRANTS

The disparities in mental illnesses among different minority groups are not well understood.

In fact, mental illnesses among various immigrant groups remain understudied. Between

2009 and 2012, about eight percent of Americans reported having moderate or severe

depression within the last two weeks (Pratt and Brody 2014). The few empirical findings that

exist show that the rates of mental illness among U.S. adults are lower for foreign-born

individuals than their U.S.-born counterparts (Alegria et al. 2008; Breslau et al. 2009;

González et al. 2010; Im et al. 2015; Jimenez et al. 2010; Lincoln et al. 2007; McGuire and

Miranda 2008; Miranda et al. 2005; Ortega et al. 2000; Williams et al. 2007). U.S.-born

individuals of Mexican descent are 3.8 times more likely to have any type of mental disorder,

including depression, than their Mexican-born counterparts (Ortega et al. 2000). Diverse

studies have used different measures to assess mental illnesses in epidemiological research,

but depression and depressive symptoms are two common measures of mental health in

epidemiological research and in this research, I explore the latter.

Depression and Depressive Symptoms and Immigrants

Depression as a medically diagnosed condition includes symptoms on how individuals feel,

think, and perform their daily activities, such as sleeping, eating, or working (American

Psychiatry Association 2013). Although depressive symptoms are often confused with

depression, individuals may report depressive symptoms without a diagnosis of depression

by health care practitioners. Depressive symptoms are a cluster of emotional symptoms that

might signal a diagnosis of major depressive episodes and/or depression (American

Psychiatry Association 2013). Depressive symptoms, such as feeling sad, are more common

and usually less severe than depression, and they may or may not lead to depression. Depression is related to the number and duration of depressive symptoms. Depression is a major cause of disability in the U.S. and the most prevalent form of mental disorder (McKenna et al. 2005). Data from The National Latino and Asian American Study (NLAAS) conducted in 2002-2003—a comprehensive study of Latino mental health—indicate that Latino immigrants had a 24 percent prevalence of lifetime depressive disorders compared to 37 percent of U.S-born Latinos (Alegria et al. 2006). Differences in depression among Hispanics are patterned by immigration status. Those who were born in the U.S. have a higher prevalence of major depressive episodes than those who migrated to the U.S., at 19 percent and 13 percent, respectively (Alegria et al. 2008). A study carried out in NYC on a sample of 9,151 disadvantaged black women showed that U.S.-born black women were about 2.50 times more likely to be diagnosed with depression when compared to Caribbean-born women (Miranda et al. 2005).

Mental health problems, such as depression, among immigrant subgroups are not well understood. Some research shows that some immigrant groups are more likely to experience depressive symptom due to discrimination and acculturative stress (Finch, Kolody, and Vega 2000; Gee et al. 2006). Other research shows that immigrants are less likely to experience emotional problems due to social support and resiliency (Keyes 2009; Vidal et al. 2011). Drawing from data from Wave 1 of The National Epidemiologic Survey on Alcohol and Related Conditions (NESARC), Gibbs and colleagues (2013) found that Caribbean blacks (AOR=2.22) had significantly lowest odds of lifetime prevalence of major depressive disorders compared to African Americans (AOR=4.58) and non-Hispanic whites (AOR=5.53). Keyes postulated (2009) that blacks' resiliency in the face of discrimination

63

and social inequality is one of the possible explanation for their lower level of mental disorders when compared to non-Hispanic whites.

Depressive symptoms can be used to assess immigrants' mental health. Depressive symptoms include a cluster of symptoms ranging from feeling of sadness to thoughts of suicide and they vary by individual (American Psychiatry Association 2013). U.S.-born Hispanics exhibit more depressive symptoms than their immigrant counterparts, while controlling for demographic, socioeconomic, and family characteristic variables (Viruell-Fuentes and Andrade 2016). In a similar study, Ornelas and colleagues (2011) found that Hispanic immigrants who experienced high poverty before migration were nine times more likely to have higher levels of depressive symptoms than those who did not, while controlling for a vast array of variables. As for black Americans, using the National Survey of American Life (NSAL) data, Lincoln et al. (2007) found that black immigrants who have lived less than 10 years in the U.S. have lower depressive symptoms than U.S.-born blacks or Caribbean blacks who have resided in the US for more than 10 years. Little is known about the level of depressive symptoms among Caribbean immigrants by country of origin. Few studies disaggregate Caribbean immigrants' health status by specific country of origin and gender. Immigrants from specific regions and their reception and acculturation in the U.S. follow divergent mental health paths, which could impact their level of depressive symptoms.

THEORETICAL FRAMEWORK

Generally, depression and depressive symptoms are viewed in the medical model in the same way as many physical ailments. The medical model considers symptoms of depression to be consequences of mental, physical, and chemical changes that take place primarily in the brain

(American Psychiatric Association 2013). Psychiatrists based their approach to diagnosis and treatment on that model. Using the modern classification systems, such as the Diagnostic and Statistical Manual of Mental Disorders (DSM) and the International Classification of Diseases (ICD), psychiatrists follow a standard of practice to reliably diagnose and treat depression and depressive symptoms. For this dissertation, I rely on the social model, which takes a broader view and regards social forces as major determinants of depression, and specifically depressive symptoms (Williams and Neighbors 2006).

This chapter, looking into the level of depressive symptoms among immigrants, is informed by segmented assimilation theory and cumulative inequality theory. Taken together, these theories provide insights into the process of social stratification that is pervasive in the U.S., and which could have an impact on the mental health outcomes of immigrants. These theories shed light on how early life events, such as pre-immigration experiences and acculturation, could be contributing factors to health inequalities among different immigrant groups, and specifically to different levels of depressive symptoms.

Segmented Assimilation Theory and Depressive Symptoms

Segmented assimilation emphasizes the importance of the context of an immigrant's integration into the host society. The new immigrants are diverse in backgrounds and are received into different sectors of American society, from impoverished urban settings to affluent suburbs (Zhou 1997). Non-European-immigrants, specifically those who are black and come from the Caribbean, are more likely to live in urban settings and are more likely to face inequality and discrimination that can lead to mental health outcomes, such as depression and depressive symptoms. Testing the segmented assimilation theory to investigate various quality-of-life indicators in a study of mostly Latino men in Arizona,

65

Castro and colleagues (2010) found that those who followed a downward path of assimilation exhibited the lowest level of life satisfaction.

In this chapter, I use segmented assimilation theory to provide insights into the experiences of Caribbean immigrants in the United States. Caribbean immigrants may be assimilating into an underclass and experiencing deteriorating mental health conditions similar to native-born black Americans. According to Lacey and colleagues (2015), Caribbean immigrants' poor social and living conditions might be contributing factors to their higher levels of mental disorders. While controlling for a vast array of variables, Lincoln et al. (2007) found strong correlation between segmented assimilation and mental health and determined that socioeconomic status and discrimination are major predictors of depressive symptoms among black Caribbean immigrants. Segmented assimilation theory underscores the diverse experiences of immigrants and how their acculturation plays a major role in their social mobility, which could ultimately affect their mental health.

Cumulative Inequality Theory and Depressive Symptoms

The cumulative inequality theory provides insights into the differences that exist in immigrants' mental health status as they age. To conceptualize what shapes immigrants' odds of depressive symptoms, I draw from some of the components of cumulative inequality theory. Specifically, how early-life conditions and events in immigrants' native countries, such as immigrants' childhood health and age of migration, impact their later-life outcomes, such as depressive symptoms, in their host countries.

Cumulative inequality theory provides insight into how the country of origin, childhood health, and age at migration are all important factors in determining the level of depressive symptoms. This theory posits that financial strain might be an important predictor

of mental health (Ferraro and Shippee 2009). Using the HRS and drawing from cumulative inequality theory, Wilkinson (2016) investigated how financial strain of the great recession contributed to mental health of older adults and found that there was worsening of depression during the years from 2006 (pre-recession) to 2010 (post-recession). Immigrants with fewer resources early in life in their home countries often continue to have fewer resources in the U.S. and thus, they struggle with more adverse health effects through their life trajectories. By contrast, immigrants who come from countries with better economic resources could be better off in terms of social mobility and health in the U.S. Cumulative inequality theory informs this research by revealing how Mexican and Caribbean immigrants' level of depressive symptoms may be linked to early life experiences, such as lack of resources in their native countries and poor childhood health.

To assess the level of depressive symptoms of immigrants, I integrate segmented assimilation theory with cumulative inequality theory. Both theories inform this research by offering a glimpse into the extent to which Mexican and Caribbean immigrants' pre-immigration experiences and acculturation levels might have an impact on their level of emotional health.

LITERATURE REVIEW

Research suggests that depressive symptoms can be a reliable indicator of mental health status among various populations (Lincoln et al. 2007; Pratt and Brody 2014; Viruell-Fuentes and Andrade 2016). This study examines the role of several risk factors for depressive symptoms that are particularly salient for immigrants: country of origin, gender, current age, education, childhood health, age of migration, and language acculturation.

Country of Origin

Prevalence of depression and depressive symptoms among different immigrant groups may vary based on country of origin. Currently, more studies have been carried out on depression than on depressive symptoms. Gonzalez and colleagues (2010) conducted the first U.S. national study to compare major depression among the main U.S. ethnic groups and demonstrated that the country of origin might play a role in predicting depression, although populations from some countries, such as black Caribbean immigrants, were grouped together by region. The study showed that Cubans and Puerto Ricans have higher levels of depression when compared to the other ethnic groups in the sample, such as Mexicans and black Caribbean immigrants. Specifically, the 12-month prevalence of lifetime major depression for foreign-born is approximately 13 percent for Puerto Ricans, 7 percent for Mexicans, 8 percent for Cubans, and 4.8 percent for black Caribbeans (González et al. 2010). Similar results were noted for Haitian men, who had lower odds of mood disorders compared with men from the English-speaking Caribbean countries (odds ratio = .23), but the opposite was true for Haitian women (odds ratio = 1.59) (Williams et al. 2007). To my knowledge, no studies have investigated depressive symptoms among Caribbean immigrants by country of origin. Given the recent increase in the number of immigrants from these countries, determining their mental health status is essential.

Gender

Research considering the effects of gender on mental health shows that women are more likely to have depressive symptoms when compared to men (Alegria et al. 2007; Kwag, Jang, and Chiriboga 2012). In general, depression accounts for a greater proportion of the disability-adjusted life year (DALY) for women than for men (McKenna et al. 2005). As for

depressive symptoms, for Americans of 12 years of age and older, reports of moderate or severe depressive symptoms within a two week period are more common among women than for men, at 10 percent and 6 percent, respectively (Pratt and Brody 2014). Studies of immigrants looking at gender differences in depressive symptoms among various groups are scarce. Using NLAAS data, a nationally representative sample of Hispanics 18 years or older, Alegría and colleagues (2007) found that Hispanic immigrant women from Mexico, Cuba, and Puerto Rico have higher rates of depressive disorders than their male counterparts. Another study of older Hispanic women in lower socioeconomic statuses showed that they had higher levels of depressive symptoms than their male counterparts (Kwag et al. 2012). To my knowledge, there are no scholarly works that examine gender differences in depressive symptoms among black Caribbean immigrants.

Current Age

Age is a factor that may help explain disparities in depressive symptoms among U.S. immigrants. In general, depression is more prevalent among Americans aged 40-59, with a prevalence of 7 percent compared to those aged 19-39 at 5 percent (Pratt and Brody 2014). The patterns of depressive symptoms in later-life are mixed (Jimenez et al. 2010; Wilmoth and Chen 2003). Some research shows that depressive symptom rates among certain older immigrants are similar to their U.S.-born counterparts. Using NLAAS, Jimenez and colleagues (2010) found that there is a significant difference in 12-month rates of any depressive disorder between older foreign-born Latino whites and their U.S.-born counterparts, but there are no significant differences between older non-Latino Whites and Asian and Afro-Caribbean respondents. On the other hand, Wilmoth and Chen (2003) found a significant increase in depressive symptoms over time for older black and Hispanic

immigrants living alone versus nonimmigrants. It does appear that age is a determining factor in explaining disparities in depressive symptoms.

Education

Education is a key predictor of many health outcomes, including mental illnesses such as depressive symptoms. Immigrants have less favorable socioeconomic profiles compared to U.S.-born Americans, and are less likely to be high school graduates and more likely to live in poverty and to work in service occupations (Abraido-Lanza et al. 1999; Grieco et al. 2012; Singh and Siahpush 2001). The effect of socioeconomic status on immigrants' mental health, as well as the factors associated with poverty, may increase immigrants' exposure to discrimination and the chances of social marginalization, which may in turn be linked to episodes of mental disorders (Alegria et al. 2007; Finch, Kolody, and Vega 2000; Hiott et al. 2006). Immigrants with less than a college education have more depressive symptoms (Im et al. 2015; Wilmoth and Chen 2003). In fact, being African American or a Hispanic immigrant and having received lower education increases the magnitude of depressive symptoms (Wilmoth and Chen 2003). Most empirical studies control for education but do not examine the effects of education on depressive symptoms. Scholarly works that look into the effects of education on depressive symptoms of Caribbean immigrants are scarce.

Childhood Health

Childhood health can influence immigrants' levels of depressive symptoms, but it is not known whether this relationship persists into later-life. Generally, early disadvantages such as childhood poor health accumulate over the life course and may translate into poorer health trajectories (Blackwell, Hayward, and Crimmins 2001; Case, Fertig, and Paxson 2005;

70

Hayward and Gorman 2004; Warner and Hayward 2006). Many studies have explored the association of childhood health with later-life physical health but very few explore how it shapes emotional health. Data from HRS (2012) with a sample of 8041 respondents demonstrates how poorer childhood health is a major predictor of late-life depression. In a study with similar data, Latham (2015) found the persistence of the Long Arm of childhood health in predicting emotional health. Compared to those without childhood disability, respondents with childhood disability are an increased risk of developing depressive symptoms in later life (Latham 2015). Generally, childhood health is strongly associated with later-life health outcomes.

Age of Migration

Age of migration might shape the level of depressive symptoms among Mexican and Caribbean immigrants. For general health, those who migrated at younger age are expected to experience poorer health outcomes as they age. This could be because they assimilate into the American culture and their health outcomes merge with the native-born population. As for mental health, the relationship between the age of migration and mental health generates inconsistent results. Some studies show a mental health disadvantage to those immigrants who migrated before adolescent years, while others show an advantage. Alegria and colleagues (2007) examined age at migration and its impact on psychiatric disorders among Mexican, Puerto Rican, Cuban and "other" immigrants and found that those who migrated before the age of 13 years or after the age of 34 years had higher overall psychiatric disorder prevalence rates than among those who had migrated at other ages. Specifically, compared to their U.S-born counterparts, Hispanic immigrant men who migrated before the age of 13 had

an odds ratio of depressive disorders of 1.40 and those who migrated at the ages of 18 to 34 had an odds ratio of 0.52 (Alegria et al. 2007). As for Caribbean immigrants, age of migration operates differently in predicting mood disorder, such as depressive symptoms, and gender seems to play a role. Compared to U.S.-born blacks, Caribbean immigrant men who migrated before the age of 12 had 0.38 times lower odds, while women had 1.29 times greater odds of being diagnosed with mood disorder (Williams et al. 2007). Conversely, Breslau and colleagues (2009) found that men and women of African or Caribbean origin who migrated at the age of 13 or older were 57 percent less likely to experience mood disorder than their U.S.-born counterparts. More research is needed to evaluate the impact of age of migration on depressive symptoms, especially for black Caribbean immigrants.

Language Acculturation

The process of acculturation may help explain disparities in depressive symptoms among immigrants in the U.S. An extensive literature search on acculturation and immigrants reveals that most of the work is done on Spanish-speaking immigrants. Results from research in acculturation and health status are inconsistent, showing that acculturation could be either a risk or a protective factor. Acculturation is measured approximately by immigrants' language use and the number of years spent living in the U.S. Some studies have linked higher acculturation to worse mental health outcomes (González et al. 2010; Hiott et al. 2006). Per one study, the rate of depressive symptoms among Mexicans who only speak Spanish is three times higher than their more-acculturated counterparts (Ornelas and Perreira 2011). Similarly, another study revealed that low levels of acculturation are significantly correlated with higher depressive symptoms levels (Kwag, Jang, and Chiriboga 2012). On the other hand, for some immigrant groups, higher levels of acculturation translate into better

mental health outcomes. One study of different Hispanic subgroups shows that U.S.-born Hispanics were at significantly higher risk than their immigrant counterparts for any depressive disorder, at 20 percent versus 15 percent (Alegria et al. 2008). Wilmoth and Chen (2003) found that each additional year an immigrant has spent in the U.S. decreases their depressive symptoms over time. Acculturation seems to operate differently for different health outcomes and different immigrant groups. More research is warranted to understand how acculturation impacts levels of depressive symptoms among Mexican and Caribbean immigrants.

Therefore, based on previous research related to immigrant mental health, the main aim of this chapter is to assess whether demographic variables, pre-immigration experiences, and acculturation are factors that contribute to the level of depressive symptoms among Mexican and Caribbean immigrants. I will also examine whether gender moderates the effect of country of origin and depressive symptoms. Specifically, I hypothesize that female immigrants may fare worse in terms of depressive symptoms when compared to male immigrants. To conceptualize how these factors shape immigrants' health, I draw mainly on segmented assimilation and cumulative inequality theories.

Conceptual Model

Country of Origin	**Demographic Variables** Gender Current Age Education	**Pre-Immigration experiences** Childhood health Age of Migration	**Language Acculturation**

Depressive Symptoms
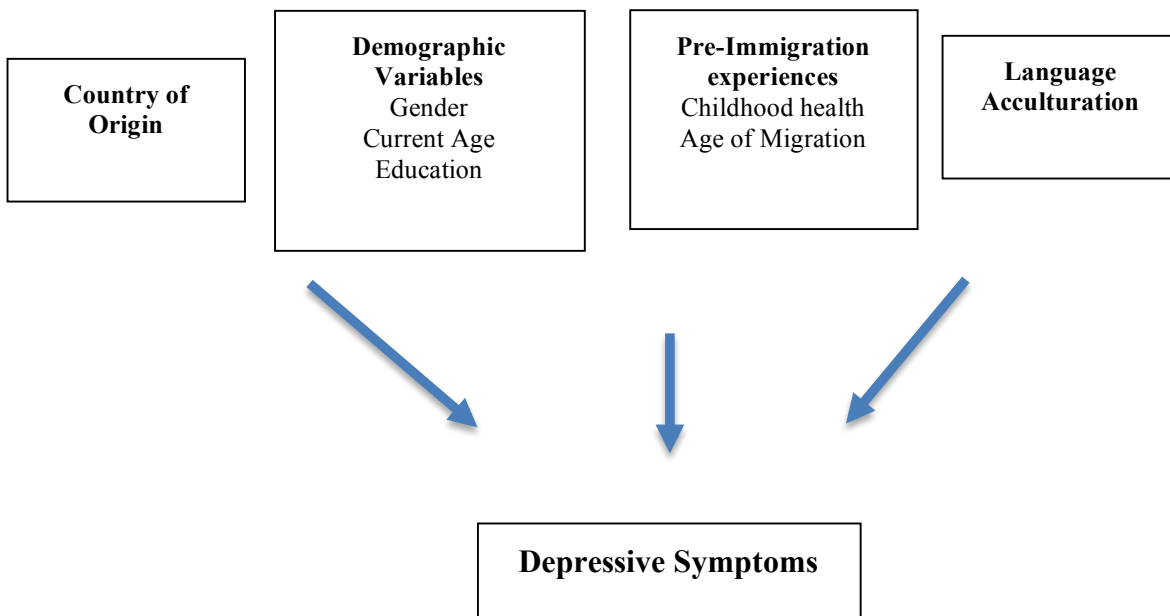
These chapter's analyses are based on the 2003 New Immigrant Survey (NIS) data. The NIS is the first nationally representative multi-cohort panel study of immigrants who have just become legal U.S. permanent residents between May and November 2003. This is the only national database that separates the regions that the immigrants come from into countries of origin and also has information on depressive symptoms. The NIS-2003 sampling frame was based on immigration records compiled by the immigration agency of the U.S. government, currently known as the U.S. Citizenship and Immigration Services (USCIS). All analyses were conducted with SAS Version 9.4 on Microsoft Windows. The NIS-2003 includes information on all variables in my conceptual model: demographic characteristics, migration history, language, and health.

To investigate depressive symptoms among Mexican and Caribbean immigrants, I will first present results from descriptive and bivariate logistic regression analyses. Then, I will enter these variables into the logistic regression models progressively and add an

interaction term for the country of origin and gender into the final model. In summary, I will examine and compare Caribbean and Mexican immigrants' level of depressive symptoms in relationship to demographic variables, pre-immigration experiences, and acculturation. Included in the demographic variables are gender, current age, education, pre-immigration factors, such as childhood health and age of migration, and language acculturation.

I present the characteristics for the total sample based on the country of origin. I performed bivariate and multivariate analysis to examine the following four research questions: First, do the odds of depressive symptoms differ significantly by country of origin? Second, are immigrants' level of depressive symptoms linked to pre-immigration factors such as childhood illnesses and age of migration? Third, are there differences in depressive symptoms based on language acculturation? Fourth, is there an interaction effect between the country of origin and gender with respect to depressive symptoms?

Dependent Variable: Depressive Symptoms

For depressive symptoms, the NIS asks respondents: ''During the past 12 months, was there ever a time when you felt sad, blue, or depressed for two weeks or more in a row?'' Depressive symptoms variable is created by assigning one for "yes" responses and zero for "no" responses. According to the American Psychiatric Association (2013), these symptoms are major components of depressive disorders diagnosis. Montgomery and colleagues (2014) used this database and the same question to study general depression outcome. Additionally, several studies have confirmed that a single screening question for depressive symptoms has good sensitivity and specificity (Frazier et al. 2014; Huffman et al. 2006).

Independent Variables

Country of origin

I specify country of origin as my key predictor of depressive symptoms. The NIS asks respondents: "In what country were you born?" Countries are dichotomously coded, with Mexico as the omitted reference category. I compare Mexican immigrants to Haitian, Dominican Republic, Cuban, and Jamaican immigrants.

Gender

I assess the impact of gender on depressive symptoms. NIS asks respondents: "I need to ask these questions of everyone, are you male or female?" Gender is dichotomized as male = 0 and female = 1.

Current age

To understand immigrants' level of depressive symptoms, age is used as a control. NIS asks respondents: "In what year were you born?" Age is computed by subtracting the birth year from 2003, the year of NIS interview. Age is kept as a continuous variable, ranging from 18 to 93.

Education

To measure immigrants' education, I use the following question: "How many years of schooling in total have you completed?" I transform years of education to a binary variable, where 0 = less than 12 years of schooling and 1 = 12 or more years of schooling.

Childhood health

To measure childhood health, I use the NIS question that asks respondents to report their childhood health: "Consider your health while you were growing up, from birth to age 16. Would you say that your health during that time was excellent, very good, good, fair, or poor?" It is dichotomously coded with excellent, very good, and good responses classified as favorable childhood health and given a value of 1, and fair and poor responses classified as unfavorable childhood health and given a value of 0 (Okafor et al. 2013; Okafor, Carter-Pokras, and Zhan 2014).

Age of migration

To create the age of migration variable I use the question: "In what month and year did you first leave (country of origin) to live in another country for at least 60 days?" I subtract year of migration with year of birth (Okafor et. al. 2013). This variable is kept as a continuous variable, ranging from 0 to 93 years of age.

Language acculturation

To examine acculturation, I use the question: "How well would you say you speak English?" Responses ranged from 1 = ''very well'' to 4 = ''not at all." This variable is dichotomized (due to small sample size of certain countries) into 0 = "not well/not at all'' and 1 = "well/very well" (Okafor et. al., 2013).

RESULTS

Table 4.1 shows the percent distributions and frequencies of key variables of this chapter—depressive symptoms, country of origin, gender, current age, education, childhood health, age of migration, and language acculturation. As shown in Table 4.1, about 19 percent of the whole sample of 1539 immigrants reported feeling sad, blue, or depressed for two weeks or more in a row, during the past 12 months. About two-thirds of the sample was from Mexico while 9 percent was from Haiti, 10 percent from the Dominican Republic, 10 percent from Cuba, and 7 percent from Jamaica. The sample contained 58 percent females and the mean age was 39 years. Approximately 58 percent had less than 12 years of schooling. As for childhood health, just over 6 percent of the immigrants reported having poor or fair childhood health. The average age of migration was 32 years old. About 31 percent were acculturated in the English language.

I examined the bivariate relationship between depressive symptoms and each of my independent variables, using Pearson chi-square tests. Table 4.2 shows the bivariate associations between having depressive symptoms and demographic characteristics, pre-immigration factors, and language acculturation. As shown in Table 4.2, country of origin is significantly associated with depressive symptoms: Cubans had the highest level of depressive symptoms (about 30 percent), three times higher than Haitians (10 percent). Gender was significantly correlated with depressive symptoms at *p*-value less than .001. Female immigrants had a prevalence of depressive symptoms at 22 percent compared to 15 percent of men. Age and education were not significantly correlated with depressive symptoms. Childhood health was significantly associated with depressive symptoms, with 28 percent (*p*-value <.05) of immigrants who reported poor childhood health compared to 18

percent of those with good childhood health. Age of migration was not significantly related to depressive symptoms. Language acculturation was significantly correlated with depressive symptoms. Approximately 20 percent (*p*-value <.10) of immigrants who were not acculturated reported having depressive symptoms compared to 16 percent of those who were acculturated.

For the multivariate analysis, a series of four sequential models were used. Logistic regressions were used to examine the outcomes of the dependent variable: feeling sad, blue, or depressed for two weeks or more in a row, during the past 12 months. For Model 1, I included country of origin and demographic variables. For Model 2, I included pre-immigration experiences, in addition to country of origin and the demographic variables. For Model 3, I included Model 1 and Model 2 variables and added language acculturation. Model 4 examined the interaction between gender and country of origin with all the variables that were included in Models 1, 2, and 3. In the logit model log (p/(1-p))= $\alpha + \beta_1 X_1 + \beta_2 X_2 + \ldots \beta_k X_k$; p is the probability that the event Y occurs, p(Y=1), and p/(1-p) is the odds that Y=1. The logit models to predict depressive symptoms are as follows:

Model 1: log (p/(1-p)) = α + β1 Haiti + β2 Dominican Republic + β3 Cuba + β4 Jamaica + β5 female + β6 current age + β7 education

Model 2: log (p/(1-p)) = α + β1 Haiti + β2 Dominican Republic + β3 Cuba + β4 Jamaica + β5 female + β6 current age + β7 education + β8 childhood health + β9 age of migration

Model 3: log (p/(1-p)) = α + β1 Haiti + β2 Dominican Republic + β3 Cuba + β4 Jamaica + β5 female + β6 current age + β7 education + β8 childhood health + β9 age of migration + β10 language acculturation

Model 4: log (p/(1-p)) = α + β1 Haiti + β2 Dominican Republic + β3 Cuba + β4 Jamaica + β5

female + β6 current age + β7 education + β8 childhood health + β9 age of migration + β10

language acculturation + β11 female * Haiti + β12 female * Dominican Republic + β13

female * Cuba + β14 female * Jamaica

The slope coefficient (β) is interpreted as the change in the log odds of Y as X increases by

one unit. To aid interpretation, the results are reported as odds ratio: Odds (Y=1) = exp (α +

$\beta_1 X_1 + \beta_2 X_2 + \ldots + \beta_k X_k$).

Model 1 examines the association between demographic variables and depressive

symptoms. As shown in Table 4.3, Model 1 contains odds ratio (OR) from a logistic

regression predicting the log(odds) of having depressive symptoms based on demographic

variables. Compared to Mexican immigrants, the odds of depressive symptoms are two times

higher (OR=2.01, *p*< .001) among Cuban immigrants, adjusting for demographic

characteristics. Conversely, Haitian immigrants had .50 (*p*< .05) times lower odds of

reporting depressive symptoms. Dominican Republic and Jamaica immigrants were not

significantly different in terms of depressive symptoms, compared to Mexican immigrants.

The odds of depressive symptoms among female immigrants were 1.63 (*p*< .001) times

greater than for male immigrants, net of country of origin and age. For every additional year

increased in age, the odds of fair or poor depressive symptoms among Mexican and

Caribbean immigrants increased by 1.01 (*p*-value < .001) times, adjusting for country of

origin, gender, and education. Older immigrants were more likely to report depressive

symptoms. Education[9] was not a significant predictor of depressive symptoms, net of covariates. In summary, when looking at demographic variables and depressive symptoms among Mexican and Caribbean immigrants, coming from Cuba or Haiti, being a woman, older in age were strong predictors of depressive symptoms.

Model 1 shows that there were differences in immigrant health based on country of origin while adjusting for gender, age, and education, which answers my main research question. Accounting for demographic characteristics, country of origin was a significant predictor of depressive symptom.

Model 2 includes the demographic variables in Model 1 and pre-immigration experiences as predictors of depressive symptoms. As shown in Table 4.3, being from Haiti, Dominican Republic, Cuba, and gender, current age, childhood health, and age of migration were statistically significant predictors of depressive symptoms. Compared to Mexican immigrants, the odds of reporting depressive symptoms were .60 times lower for Haitian immigrants, controlling for gender, age, education and pre-immigration experiences. By contrast, the odds were 1.63 times greater for Dominican immigrants and 2.54 times greater for Cuban immigrants. While Dominican immigrants had an elevated, but not statistically significant, odds of depressive symptoms in Model 1, after accounting for pre-immigration experiences in Model 2, the odds became greater in size and significance (OR= 1.63, $p <$

---

[9] Supplemental analysis (see Appendix 3) revealed that when education was removed from the logistic regression and I controlled for gender and then gender and age there were no changes in significance and magnitude of the relationship between country of origin and depressive symptoms.

.05). This suggests that Dominican immigrants' pre-immigration experiences (childhood health and age of migration) are favorable and protective against depressive symptoms. In supplementary analysis (see Appendix 4), I find that age at migration is the primary protective factor; Dominican immigrants tend to migrate at an older age than Mexican immigrants. Conversely, the relationship between being from Haiti or Cuba, gender, and depressive symptoms did not change when I added pre-immigration experience variables into Model 2. Being from Haiti or Cuba remained important predictors of depressive symptoms. When comparing all the countries with Mexico, Haiti is the only one with lower odds of depressive symptoms.

Compared to male immigrants, female immigrants had 1.73 (p-value < .001) times the odds of reporting fair or poor self-rated health, net country of origin, age, education, and pre-immigration experiences. For every additional year increased in age, the odds of fair or poor depressive symptoms among immigrants increased by 1.03 (p-value < .001) times, adjusting for country of origin, gender, education, and pre-immigration experiences. Surprisingly, education is not a significant predictor of depressive symptoms, net of country of origin, gender, age, and pre-immigration experiences. As for pre-immigration factors, childhood health and age of migration were significant predictors of depressive symptoms. Immigrants with unfavorable childhood health had 1.93 (p-value < .001) times greater odds of developing depressive symptoms than those with favorable childhood health, net of country of origin, demographic characteristics, and age of migration. Age of migration was a significant predictor of having depressive symptoms with an odds .98, with a p-value <.001, meaning that each additional year added to the age at migration decreased the odds of depressive symptoms by 2 percent. That is, those who migrated at older age had lower odds

of reporting depressive symptoms, while accounting for country of origin, gender, age, education, and childhood health. Model 2 therefore answers my second research question: there is a link between immigrants' reporting of depressive symptoms and pre-immigration experiences such as childhood health and age of migration. In summary, being from Haiti, the Dominican Republic, or Cuba, and gender, current age, childhood health, and age of migration were statistically significant predictors of depressive symptoms.

Model 3 examines the variables from Models 1 and 2 and adds language acculturation as predictors of depressive symptoms. The significant predictors are: being from Haiti, Dominican Republic, or Cuba, being a woman, being older in age, having had unfavorable childhood health, and migrating at an early age. Model 3 added little to our understanding of depressive symptoms among Mexican and Caribbean immigrants. It is surprising that language acculturation is not a significant predictor of depressive symptoms, net of pre-immigration experiences. The findings from Model 3 failed to provide evidence that there are differences in depressive symptoms based on language acculturation while controlling for country of origin, demographic characteristics, and pre-immigration experience variables. That is, immigrants' English language proficiency was not a predictor of depressive symptoms.

Supplemental analysis (Appendix 5) to test country-by-country differences revealed that Cuban immigrants reported significantly higher odds of depressive symptoms in comparison with Haitian, Dominican Republic and Jamaican immigrants while Haitian immigrants reported significantly lower odds of depressive symptoms than Dominican Republic and Jamaican immigrants. All countries' comparison in the sample in the study were significant except for Dominican Republic and Jamaican immigrants' comparison.

83

Model 4, the full model, examines the effects of the interaction between the country of origin and gender on depressive symptoms, while adjusting for current age, education, pre-immigration experiences, and language acculturation. When allowing the association between country of origin and depressive symptoms to differ for women and men, I find that this gender difference only exists for Cuban immigrants. Cuban men have 3.8 times the odds of depressive symptoms compared to their Mexican counterparts, while Cuban women have 1.9 times the odds of depressive symptoms compared to Mexican women. My fourth research question is partially answered with the interaction term between gender and country of origin with respect to depressive symptoms.

DISCUSSION AND CONTRIBUTION

In this chapter, I examine the impact of several factors on depressive symptoms among Mexican and Caribbean immigrants. Results from logistic regression models on a sample of 1539 respondents from the New Immigrant Survey suggest that country of origin (except for immigrants from Jamaica), being a woman, current age, childhood health, and age of migration status are associated with having depressive symptoms. By shedding light on the mental health of understudied Caribbean immigrant groups in comparison to Mexican immigrants, this chapter goes beyond the pan-ethnic grouping of immigrants. It isolated some Caribbean countries and compare them to Mexican immigrants.

To assess depressive symptoms among immigrants, I integrated segmented assimilation theory with cumulative inequality theory. Both theories inform my research by shedding light on the extent to which Caribbean immigrants' demographic characteristics,

84

pre-immigration experiences, and language acculturation are associated with their report of depressive symptoms. The consistent findings of this dissertation are that country of origin, gender, age, childhood health, and age of migration, are significant predictors of depressive symptoms.

My results are consistent with the findings of Williams and colleagues (2007) regarding Haitians having a lower level of mood disorder when compared to Caribbean Spanish-speaking countries, although their results were only for men. It should be noted that the NIS data includes only documented Haitian immigrants. I conjecture that the lower level of depressive symptoms among my sample might be due to positive selection of these particular Haitian immigrants. Even though Haiti is one of the poorest countries in the Western hemisphere, documented Haitian immigrants may come from higher socioeconomic status strata and are healthier, which may explain their better level of mental health. These respondents were most likely sponsored by immediate relatives who are U.S. citizens and were the beneficiaries of remittances. In 2015, Haiti received more foreign remittances than any other Caribbean country, with payments equaling 20 percent of its GDP (Central Intelligence Agency 2016), an increase from 5 percent in 1996 (Amuedo-Dorantes, Georges, and Pozo 2010). This provides a reason for caution in generalizing these findings to all Haitian immigrants.

As for Dominican immigrants, they are more likely to live in poverty and reside in urban areas than any other foreign-born group in the U.S. (Nwosu and Batalova 2014). Dominican immigrants' propensity to live in urban areas alongside African Americans and their higher level of mental illness might be due to their higher level of poverty and discriminatory stress, similar to that experienced by African Americans. This result is in line

with segmented assimilation premise that immigrants who integrate into urban areas might be experiencing worse health outcomes. More research is needed to understanding fully the higher level of depressive symptoms among Dominican immigrants.

My findings also confirm previous findings that show that Cuban immigrants have one of the highest level of depressive symptoms among Hispanic immigrants (Alegria et al. 2006; González et al. 2010). Many Cubans immigrate to the U.S. from a harsher political environment than other immigrant groups and they cannot return home, which could partially explain their higher-level of mental illnesses.

My findings regarding gender and depressive symptoms are consistent with a plethora of research that found that women tend to have higher levels of depressive symptoms than men (Alegria et al. 2007; Kwag, Jang et al. 2012; McKenna et al. 2005). Women are more likely to occupy subordinate roles and this could engender more emotional stress. Therefore, their higher levels of depressive symptoms might the result of stresses due to gender-based roles and cumulative life stressors.

Consistent with the cumulative inequality theory premises, my results show that older immigrants have higher odds to report depressive symptoms and their odds of depressive symptoms are linked to early life events such as poor childhood health. As for age of migration, persons who migrated at an older age reported higher lower odds of depressive symptoms. My analysis also corroborates the findings of Breslau and colleagues (2009), who found that Caribbean immigrants who migrated when older are less likely to experience mood disorder. Past studies have shown mixed results regarding the impact of acculturation on mental health, suggesting that it can be conducive to better health and can be linked to worse health outcomes (Alegria et al. 2008; González et al. 2010; Hiott et al. 2006; Ornelas

and Perreira 2011). My findings did not corroborate the mixed result of acculturation on health. In all the models, language acculturation is not a significant predictor of depressive symptoms, net of other variables in the model. It could be that measure for English language proficiency did not properly capture the effects of acculturation in this sample group. This work serves as a starting point for future research that aims at understanding mental health disparities among different immigrant groups.

LIMITATIONS

Despite the various significant results, some limitations to this study are important to acknowledge. First, the cross-sectional nature of the data did not allow me to assess temporal relationship. It is possible that the respondents' perception of their pre-immigration experiences was influenced by their response to the outcome variable, depressive symptoms, which could then have resulted in endogeneity in the models. Second, I was also limited by a single item measure of depressive symptoms, which may be insufficient to reflect the respondents' actual level of depressive symptoms. Third, when the sample was analyzed by country of origin, it was noted that the numbers of respondents from the Caribbean countries were all small. Therefore, caution should be taken in generalizing the results to a larger population. Fourth, given the racialized nature of U.S. society, discrimination and racism may play a crucial role in immigrants' level of depressive symptoms. But, I was unable to measure discrimination, which is a major factor in depression (Finch et al. 2000; Mereish et al. 2016; Ornelas and Perreira 2011). Furthermore, Caribbean immigrants from the same background may identify themselves along different racial lines. This then raises the question as to whether their health differ along the various racial lines. A future study could tease out

the racial nuances that exist among Caribbean immigrants. Fifth, I was not able to measure

stigma. Immigrants' reporting of mental health problems is at times hindered by stigma

(Vega et al. 2010). Perhaps, the lower reporting of depressive symptoms among some of the

respondents could be underestimated because mental health is at times stigmatized (Dieujuste

2016).

Chapter 5: Examining Self-Rated Health among Caribbean and Mexican Immigrants

The healthy migrant effect posits that immigrants have better general health than native-born Americans. However, immigrants belonging to some racial/ethnic minority groups might not be benefitting as much as others from this health advantage. This raises the question whether there are disparities in self-rated health among immigrant groups from the same geographical region. This chapter investigates disparities in self-rated health between Caribbean and Mexican immigrants. Immigrants from the Caribbean are becoming an important demographic group and therefore, determining their health status has significant policy implications.

SELF-RATED HEALTH AND IMMIGRANTS

Self-rated health is one of the most widely used health measures in medical sociology. It is based on a five-point scale ranging from excellent to poor and is used to assess health status and predict mortality. It has been validated as a subjective health assessment measure (Adler et al. 2008; Ferraro and Kelley-Moore 2001; Idler and Benyamini 1997), and has been shown to have strong correlation with objective health measures (Jylhä 2006). Among U.S. immigrants, the self-rated health results have been mixed, with some studies showing that immigrants generally have better self-rated health than their native-born counterparts (Akresh and Frank 2008; Angel et al. 2010; Markides and Eschbach 2005; Okafor et al. 2013), while other studies showed that immigrants have worse self-rated health (Abdulrahim and Baker 2009; Okafor et al. 2013). Using Waves 1 and 2 of the Los Angeles Family and Neighborhood Survey (L.A. FANS) longitudinal data, Bjornstrom and Kuhl (2014) reported that African Americans had five times the odds of reporting fair/poor health compared to

foreign-born Latinos. Other studies have shown that immigrants' self-rated health differs among various immigrant groups. Using the NIS data to analyze self-rated health among African immigrants, Okafor and colleagues (2013) found disparities in self-rated health among African immigrants, with those with moderate dietary change reporting worse self-rated health. Additionally, self-rated health worsens with longer duration of stay in the U.S. among Hispanic and black immigrant groups (Acevedo-Garcia et al. 2012). Self-rated health measure could provide an overall assessment of Mexican and Caribbean immigrants' health status, but should be used critically because of its mixed results.

When it comes to Mexican and Caribbean immigrants, most studies have been conducted on Hispanic immigrants and their self-rated health are usually compared with their native-born counterparts. Most studies have shown that Mexicans generally have better self-rated health than their native-born counterparts (Akresh et al. 2016; Angel et al. 2010; Markides and Eschbach 2005). As for black immigrants, a study showed that West Indian-born blacks had 41 percent greater odds and African-born blacks had 36 percent lower odds of reporting fair/poor health, compared to U.S.-born blacks (Read, Emerson, and Tarlov 2005). Using the National Survey of American Life, Erving (2011) reported that Caribbean blacks' better self-rated health is contingent on the availability of resources in the U.S. As to evidence for health disparities based on country of origin, most studies group immigrants by region of origin and do not consider the differences that exist among immigrants from different countries. More research is needed to examine immigrants' self-rated health by country of origin.

THEORETICAL FRAMEWORK

Two complementary theories inform this chapter's analysis of immigrants' self-rated health. Segmented assimilation theory posits that immigrants' adaptation trajectories are contingent on the combination of resources they bring from their home country (human capital) and the contextual factors in the receiving country. Compatible with this assertion, cumulative inequality theory highlights the importance of early life events and the continuation of inequality over the life course, and how they produce divergent health outcomes among different immigrant groups. Taken together these theories provide insights into the process of social stratification that is pervasive in the U.S., which could have an impact on the health status of immigrants. These theories could shed light on how pre-immigration experiences and language acculturation could be contributing factors to health inequalities among different immigrant groups, and specifically on their report of self-rated health.

Segmented Assimilation Theory

Segmented assimilation emphasizes the importance of human capital and social context in the receiving country. The new immigrants are diverse and are established in different sectors of American society, from impoverished urban settings to affluent suburbs (Zhou 1997). Consequently, these contextual differences shape their health outcomes. Immigrants coming from poorer countries in the Caribbean with fewer resources and opportunities might assimilate into an underclass, live in poverty-stricken neighborhoods, and have similar health outcomes as native-born African Americans. Rumbaut (1997) conjectures that these structural forces could hinder healthy behaviors of the new wave immigrants. These immigrants, specifically those who are identified as blacks, are more likely to live in urban

settings and are more likely to adapt to the black American way of life, such as poor dietary habits and lack of exercise, which can lead to unfavorable self-rated health

In this chapter, I use segmented assimilation theory because it provides insights into the experiences of Caribbean immigrants in the U.S. Black immigrants might be assimilating into an underclass and experiencing deteriorating health status as black Americans. Segmented assimilation theory underscores the diverse experiences of immigrants and how contextual factors, such as the ability to successfully integrate into American social structures, play a major role in their social mobility. Informed by segmented assimilation theory, Acevedo-Garcia and colleagues (2010) found through their research that second and third generation black immigrants have higher odds of reporting unfavorable self-rated health compared to first generation black immigrants. This might be explained by the chronic exposure to contextual factors, such as social and economic inequality, that individuals belonging to minority groups face in the U.S.

Cumulative Inequality Theory

To conceptualize how pre-immigration experiences might shape self-rated health, I draw from cumulative inequality theory. The cumulative inequality theory provides insights into the differences that exist in an individual's health status as they age. It postulates that life course trajectories are shaped by disparities in resources, accumulation of risk, and human agency (Ferraro, Shippee, and Schafer 2009). Early-life conditions and events in the immigrants' native countries, such as immigrants' childhood health and age of migration, impact their later-life outcomes in their host countries, such as their self-rated health. Immigrants who start with limited resources, such as lower level of education, might struggle financially and lack access to opportunities that are conducive to favorable health outcomes.

Childhood health, as an example of an early life event, is a predictor of later-life outcomes (Blackwell et al. 2001; Crimmins and Finch 2006; Hayward 2004). In a recent study using 1998–2006 waves of the Health and Retirement Study (HRS), Montez and Hayward (2011) demonstrated how poor childhood health increased mortality risks among adults across different genders and races among adults 50 years and older. For example, black women who reported poor childhood self-rated health had a risk of death 1.72 times higher than those who reported better childhood self-rated health. Cumulative inequality theory helps explain how disparities in self-rated health among various immigrant groups are contingent on timing of events across the life course.

To assess self-rated health among immigrants, I complement segmented assimilation theory with cumulative inequality theory to understand the extent to which Mexican and Caribbean immigrants' pre-immigration experiences and language acculturation might impact their self-rated health.

LITERATURE REVIEW

Research provides ample evidence that self-rated health can be used as an outcome measure to explore health status among various groups. Self-rated health is one the most commonly utilized subjective health measures in social epidemiology. Research shows that the country of origin, gender, age, education, childhood illness, age of migration, acculturation, and health indicators are all risk factors for self-rated health.

Country of Origin

Research shows that immigrants' self-rated health differs among various immigrant groups based on country of origin. Research carried out on a national sample of U.S. immigrants'

93

top 12 sending countries revealed that when compared to white sending countries, immigrants from black sending countries have higher odds of unfavorable self-rated health, 1.31, whereas Asian and Hispanic sending countries have lower odds, .86 and .89, respectively (Acevedo-Garcia et al. 2010). West Indian-born blacks have 41 percent higher odds and African-born blacks have 36 percent lower odds of reporting fair/poor health compared to U.S.-born blacks (Read, Emerson, and Tarlov 2005). African blacks experience the most favorable self-rated health followed by West Indies and European blacks (Read, Emerson, and Tarlov 2005). Using the NIS data to analyze self-rated health among African immigrants, Okafor and colleagues (2013) found disparities in self-rated health among African immigrants, whereby those with moderate dietary change report worse self-rated health than those with little dietary change. Disaggregating immigrants by country of origin could provide a more thorough and nuanced understanding of health disparities among various groups.

Gender

Research on the impact of gender on self-rated health shows that women are more likely to have worse self-rated health when compared to men. A study using the 1989-96 National Health Interview Survey (NHIS) data showed that Hispanic immigrant women's BMI and self-rated health merged to native levels after 10-15 years in the U.S. (Antecol and Bedard 2006). A study on the impact of gender on immigrants' health, drawing on data from eight waves of the NHIS (2000-2007), showed that Middle Eastern and Mexican immigrant women are significantly less healthy than their male counterparts on self-rated health and hypertension (Read and Reynolds 2012). In fact, Middle Eastern immigrant women are nearly twice as likely to report "fair or poor" health than men, at 17 percent versus 9 percent.

94

As for Caribbean immigrants, Erving (2011) found that there is a female health disadvantage for self-reported health, where women had 38 percent lower odds of reporting favorable self-rated health compared to their male counterparts. To my knowledge, there are no scholarly works that study gender differences of self-rated health among black Caribbean immigrants, based on country of origin.

Current Age

Scholarly works regarding the health of immigrants of different ages find a mixed picture of health advantages and disadvantages. About half of the immigrant population in the U.S. are between the ages of 18 and 44 years old, compared to only a third of the U.S.- born population (Grieco et al. 2012). The number of non-European older immigrant adults are expected to increase significantly and are expected to experience poorer health outcomes as they age. Children of immigrants are twice more likely to report fair or poor health compared to children of non-immigrants, at 7% versus 3% (Capps et al. 2005). A study of Baby Boomers' cohorts from the 2007 California Health Interview Survey revealed that poor self-rated health is more prevalent among immigrant Mexican elders than non-Hispanic whites (Villa et al. 2012). Overall, older immigrants in minority groups are less likely to have health insurance, which might explain their health disadvantage. For example, Latino immigrants have 23 times lower odds than European immigrants of being without health insurance (Choi 2006).

Education

It is well documented that education is a predictor of health status (Akresh and Frank 2008; Gubernskaya 2015; Link and Phelan 1995; Montez and Hayward 2011). In fact, education is

known as a "fundamental cause" of health (Link and Phelan 1995). Higher educational attainment leads to higher income and wealth, which can help individuals to access health-promoting resources, such as access to a healthier diet or a gym membership. Using the NIS data, Akresh and Frank (2008) demonstrated how immigrants with more than 12 years of education have higher odds of reporting excellent health than those with less education. In general, immigrants are positively selected based on educational attainment. Although higher level of education translates into better health for some immigrants, for others it does not guarantee favorable health outcomes. Specifically, for racial/ethnic minority groups who are highly educated, the benefits of education might not provide positive health outcomes This implies that the benefits might be contingent on factors associated with immigrants' exposure to discrimination and social marginalization, which might then be linked to episodes of poorer health outcomes.

Using the 1992–2008 Health and Retirement Study (HRS) longitudinal data, Gubernskaya (2015) found a smaller protective effect of education on self-rated health among the foreign-born who migrated as children versus the native-born, with each additional year of education being associated with 0.092 and 0.128 improvements in self-rated health, respectively. Immigrants with a high school education have 0.72 lower odds of reporting fair/poor health compared to those with less than a high school education (Hamilton and Kawachi 2013). Conversely, Caribbean immigrants might report poorer health because their higher level of education might not reflect their labor force participation and position. Using the National Survey of American Life (NSAL), Lacey and colleagues (2015) found that there are increased odds (AOR = 2.33, $p < 0.01$) of fair or poor self-rated health among Caribbean immigrants who are not in the labor force compared to their employed

counterparts. More empirical data is needed to not only control for the effects of education on health but to examine the direct effects of education on self-rated health.

Childhood Illness

Childhood health can influence immigrants' health outcomes, but it is not known whether this relationship persists into later-life. Generally, childhood poor health accumulates over the life course and might translate into poorer health trajectories (Blackwell, Hayward, and Crimmins 2001; Case, Fertig, and Paxson 2005; Glymour et al. 2008; Haas 2008; Haas 2007; Hayward and Gorman 2004; Warner and Hayward 2006; Montez and Hayward, 2014). Using the Panel Study of Income Dynamics (PSID) and the Health Retirement Survey, Haas (2007) reported that relative to individuals with good childhood health, those who experienced poor childhood health had significantly higher odds of having poor adult self-rated health, with 3.7 odds ratio for men and 4.2 for women. Empirical studies that focus on immigrants' early life events, such as childhood health, and black immigrants' later-life health outcomes are scarce. Using the New Immigrant Survey, Okafor and colleagues (2013) found that African immigrants with good childhood health had 0.22 lower odds of rating their health as good/fair/poor compared to those with poor childhood health. Generally, childhood health is strongly associated with later-life health outcomes.

Age of Migration

Age of migration is useful for understanding health disparities in midlife and older age immigrants. For general health, those who migrated at younger age are expected to experience poorer health outcomes as they age. Results from scholarly work on the effects of age of migration and self-rated health are inconsistent. Those who migrated at an older age

might have less access to socioeconomic resources that could be conducive to better health (Carrasquillo, Carrasquillo, and Shea 2000; Choi 2006b) and greater exposures to health risks in their home countries (Treas and Batalova 2009). On the other hand, those who migrated at older age might also have limited acculturation, which is linked to better health (Kim et al. 2006). Gubernskaya (2015) investigated older immigrants' self-rated health by age at migration, using longitudinal data from the 1992–2008 Health and Retirement Study, and found that Hispanic foreign-born who migrated after age 35 reported worse self-rated health than native-born Hispanics. Conversely, Acevedo-Garcia and colleagues (2010) found that black and Hispanic immigrants who have lived in the U.S. longer had poorer self-rated health. More research is needed to evaluate the impact of age of migration on self-rated health, and specifically for Caribbean immigrants.

Language Acculturation

Acculturation is a process that could provide insight into immigrants' self-rated health disparities. Extensive literature search on acculturation and immigrants' health reveals inconsistent results, and acculturation could be either a risk factor or a protective factor for different immigrant groups. Utilizing nationally representative data, Kimbro and colleagues (2012) found that Mexicans' frequency usage of English at home is positively associated with self-rated health, while Cubans and Puerto Ricans, who are Spanish-dominant, report lower self-rated health, when compared to those who are bilinguals. For some immigrant groups, higher level of acculturation translates into better health outcomes. Using the New Immigrant Survey, Akresh and Frank (2008) found that immigrants' higher level of English fluency increased their odds of reporting excellent health. On the other hand, among Hispanic and black immigrant groups, more acculturated immigrants self-rated health

98

worsens with longer stay in the U.S. (Acevedo-Garcia et al. 2010). Language acculturation could be a protective factor for certain health outcomes and for some immigrant groups. Acculturation seems to operate differently for different health outcomes and different immigrant groups. Therefore, a need exists for scholarly work that disentangles relationships of acculturation and self-rated health among Mexican and Caribbean immigrants.

Chronic Conditions

The presence of chronic conditions is linked to how individuals rate their overall health and several studies have shown that physical and chronic health conditions are predictors of self-rated health. Using the Whitehall II study (1985–88) and Wave 2 of the Gazel study (1990) to study determinants of self-rated health in the UK and France, Singh-Manoux and colleagues (2006) found that physical health variables were the most important in explaining variances in self-rated health. Similar results were observed in the U.S. by Abdulrahim and Ajrouch (2010), employing in-depth interview data from a study on the health of adult Arab immigrants in the Detroit area, they found that those with one or more physical illnesses were more likely to rate their health as poor, compared to those without physical illnesses. Data from the Hispanic Established Population for the Epidemiological Study of the Elderly (EPESE) revealed that older Mexican Americans who had both diabetes and stroke had three times greater odds of reporting fair or poor rated health, adjusted for demographic characteristics and other conditions, compared with subjects without diabetes and stroke (Otiniano et. al. 2003).

Depressive Symptoms

The association between health indicators, such as depressive symptoms, and self-rated health is well established for the general population. For example, a study conducted by Han (2002) revealed that older adults with the high burden of depressive symptoms had a 1.47 times higher risk of poor self-rated health. A recent study using the 2001–2008 National Health and Nutrition Examination Survey showed that individuals instances of COPD with co-morbidities, such as depressive symptoms, are correlated with worse self-rated health (Putcha et al. 2013). However, very few studies have focused on immigrants. Abdulrahim and Ajrouch (2010) have found that Arab immigrants with compromised psychological health were more likely to report their health as poor. So, how do depressive symptoms impact Mexican and Caribbean immigrants' self-rated health?

In line with the above findings, this chapter's aim is to investigate whether these predictors also apply to Mexican and Caribbean immigrants. Specifically, I propose to assess whether demographic characteristics, pre-immigration experiences, and language acculturation are factors that contribute to self-rated health among Mexican and Caribbean immigrants. To conceptualize how these factors shape immigrants' self-rated health, I draw mainly on segmented assimilation and cumulative inequality theories.

METHODS AND DATA

Conceptual Model

Country of Origin	
Demographic Variables Gender Current Age Education	**Self-Rated Health**
Pre-Immigration Experiences Childhood Health Age of Migration	
Language Acculturation	
Health Indicators Chronic Conditions Depressive Symptoms	
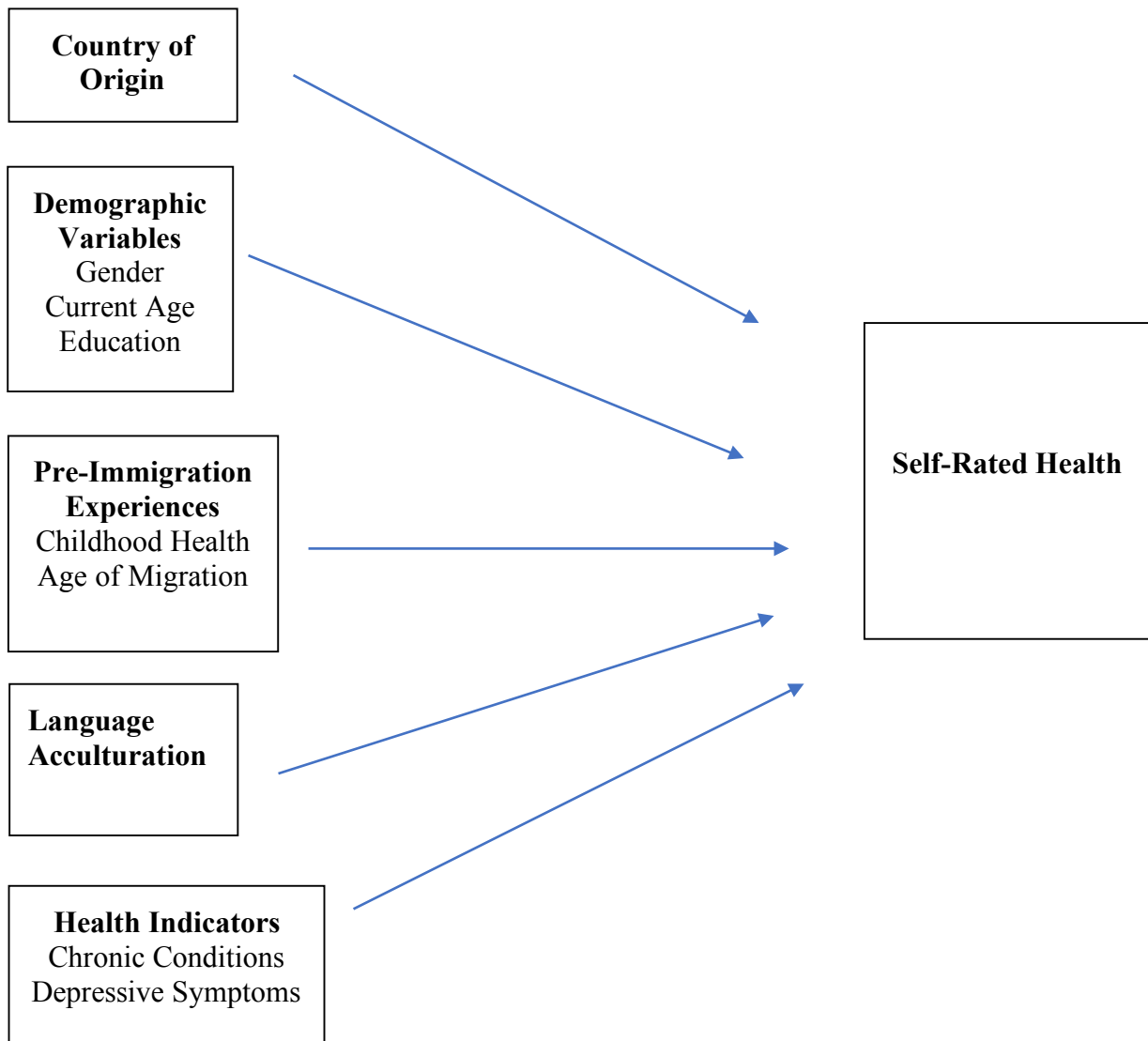
This chapter uses the baseline of the 2003 New Immigrant Survey (NIS) data. The NIS

sampling frame consists of immigrants who have just become legal U.S. permanent residents

between May and November 2003. It is the first nationally representative multi-cohort panel study that administers their survey in several languages to facilitate respondents who were not fluent in English. This is also the only national database that contains questions related to all dependent variables in this dissertation. The NIS-2003 has information on demographic characteristics, migration history, education, language, and health. In this study, only data for Mexican and Caribbean (Haiti, Dominican Republic, Cuba, and Jamaica) immigrants from the adult sample were used (n = 1607).

I use segmented assimilation and cumulative inequality theories to examine whether demographic variables, pre-immigration experiences, language acculturation, and health indicators predict self-rated health. I begin with an examination of descriptive statistics. I then investigate the significant bivariate relationship of predictors and self-rated health. Finally, I enter these variables into the logistic regression models progressively. This chapter's aim is to answer the following research questions: 1) Are there differences in self-rated health based on country of origin and gender? 2) To what extent do pre-immigration experiences predict self-rated health among immigrants? Specifically, did immigrants with poorer childhood health report higher odds of worse self-rated health? 3) What is the role of language acculturation in predicting and explaining self-rated health variation among Mexican and Caribbean immigrants? 4) Do health indicators, such as chronic conditions and depressive symptoms, predict worse self-rated health among immigrants?

Dependent Variable: Self-rated Health

Self-rated health is used as the health outcome to assess immigrants' health. Respondents were asked a standard question: ''How would you rate your overall physical health at the

present time? Would you say it is excellent, very good, good, fair or poor?'' I collapsed the

five categories to form a dichotomous measure where one is assigned for favorable self-rated

health (excellent/very good/good = 1) and zero is assigned for unfavorable self-rated health

(fair/poor = 0). Binary measures of self-rated health are common in social research

(Abdulrahim and Baker 2009; Acevedo-Garcia et al. 2010; Bjornstrom and Kuhl 2014; Haas

2007; Jylhä 2006; Read and Reynolds 2012).

Independent Variables

Country of origin

I specify the country of origin as my key predictor of self-rated health. The NIS asks

respondents: "In what country were you born?" Countries, Haiti, Dominican Republic, Cuba

and Jamaica, are dichotomously coded, with Mexico the reference category.

Gender

I assess the predictor variable of gender on self-rated health. NIS asks respondents: "I need to

ask these questions of everyone, are you male or female?" Gender is dichotomized as male =

0 and female = 1.

Current Age

To understand immigrants' self-rated health status, age is used as one key predictor. NIS asks

respondents: "In what year were you born?" Age is computed by subtracting the birth year,

from 2003, the year of NIS interview (Okafor et al. 2013). Age is kept as a continuous

variable, ranging from 18 to 93.

Education

Education, represented by the number of years of schooling received, is used as an indicator of socioeconomic status, a variable to predict self-rated health. The NIS asks respondents the following question: "How many years of schooling in total have you completed?" I dichotomized education as 0= less than 12 years of schooling, and 1= 12 or more years of schooling.

Childhood Health

To measure childhood health and to highlight its association with self-rated health, I use a 5-point Likert scale question: "Consider your health while you were growing up, from birth to age 16. Would you say that your health during that time was excellent, very good, good, fair, or poor?" The responses are coded as ''excellent'' = 1 to ''poor'' = 5. I recoded the responses as ''excellent/very good'' = 1 and ''good/fair/poor'' = 0. (Okafor et al. 2013).

Age of migration

Age of migration can be a predictor of fair or poor self-rated health. To create an age of migration variable, I use the question: "In what month and year did you first leave (country of origin) to live in another country for at least 60 days?" I subtract the year of migration with the year of birth (Okafor et al. 2013). This variable is kept as a continuous variable ranging from 0 to 93 years of age.

Language acculturation

To examine the relationship between language acculturation and self-rated health, I use the question: "How well would you say you speak English?" Responses ranged from 1 = ''very well'' to 4 = ''not at all." This variable is dichotomized into 0 = "not well/not at all'' and 1 = "well/very well" (Okafor et. al., 2013).

Chronic conditions

To measure chronic conditions, respondents were asked: ''Has a doctor ever told you that you have…?'' Respondents had to choose from a list of health problems. I use this question to create an index of chronic conditions, using high blood pressure, diabetes or high blood sugar, and heart problems. I develop a summary score for chronic conditions, ranging from 0 to 3, and then dichotomize it, where one point is assigned for having one or more of these chronic conditions (high blood pressure, diabetes or high blood sugar, and heart problems) and zero point is assigned for not having any chronic health conditions (Read and Reynolds 2012; Okafor et.al 2013).

Depressive symptoms

To measure the effect of depressive symptoms on self-rated health, I use the following question: ''During the past 12 months, was there ever a time when you felt sad, blue, or depressed for two weeks or more in a row?'' A binary depressive symptoms variable is created where 1 is assigned for a "yes" response and zero assigned for "no" responses (Frazier et al. 2014; Huffman et. al. 2006; Montgomery et al. 2014). According to the American Psychiatric Association (2013), these symptoms are major components of depressive disorders diagnosis.

RESULTS

As shown in Table 5.1, out of the sample population of 1607, about 15 percent reported fair or poor self-rated health. About two-thirds of the sample were from Mexico while 9 percent were from Haiti, 10 percent from the Dominican Republic, 9 percent from Cuba, and 7 percent from Jamaica. The sample was 58 percent female and the mean age was 40. About 58 percent of the sample had less than 12 years of education. As for childhood health, just over 5 percent of the immigrants reported having poor or fair childhood self-rated health. The average age of migration was 32 years old while about 30 percent were acculturated in the English language. As for health indicators, 14 percent of the sample had one or more chronic conditions and 18 percent reported having depressive symptoms.

I assessed the bivariate relationship between self-rated health and each of my independent variables of this chapter, using Pearson chi-square tests for significance. As shown in Table 5.2, country of origin was significantly associated with self-rated health, albeit Haitian immigrants had higher levels of fair or poor self-rated health. Gender was also significantly correlated with self-rated health. About 16 percent of female immigrants reported poor or fair self-rated health, compared to 12 percent of men. Age was significantly correlated with self-rated health and older immigrants reported poorer self-rated health. Additionally, 21 percent of immigrants with less than 12 years of education reported fair or poor self-rated health versus 5 percent of those with more than 12 years of education. Childhood health was significantly correlated with self-rated health, with 38 percent of immigrants with a prevalence of fair or poor self-rated health reporting poorer childhood self-rated health, compared to 13 percent with good childhood health. Age of migration was

significantly associated with self-rated health, with those who migrated at an older age reported worse self-rated health. Language acculturation was significantly associated with self-rated health, with about 18 percent of immigrants who were not acculturated reporting worse self-rated health, compared to 6 percent of those who were acculturated. The health indicators, chronic conditions and depressive symptoms, were both significantly correlated with self-rated health. Those with one or more chronic conditions, or who had depressive symptoms, reported having fair or poor self-rated heath at 39 and 23 percent, respectively.

Table 5.3 provides a set of logistic regressions to examine the impact of the country of origin, demographic characteristics, pre-immigration experiences, language acculturation, and health indicators on self-rated health. For Model 1, I included the country of origin, gender, age, and education. For Model 2, I included variables from Model 1 and introduced childhood self-rated health and age of migration. For Model 3, I included Model 1 and 2 variables and language acculturation. Model 4 examined the impact of chronic conditions and depressive symptoms, and included those variables that were included in Models 1, 2, and 3. I discuss each model using the log(odds) coefficients to facilitate interpretation. In the logit model $\log (p/(1-p)) = \alpha + \beta_1 X_1 + \beta_2 X_2 +\ldots\beta_k X_k\ldots$; p is the probability that the event Y occurs, p(Y=1), and p/(1-p) is the odds that Y=1. The logit models to predict fair or poor self-rated health are as follows:

Model 1:

$\log (p/(1-p)) = \alpha + \beta1$ Haiti $+ \beta2$ Dominican Republic $+ \beta3$ Cuba $+ \beta4$ Jamaica $+ \beta5$ female $+ \beta6$ current age $+ \beta7$ education

Model 2:

log (p/(1-p)) = α + β1 Haiti + β2 Dominican Republic + β3 Cuba + β4 Jamaica

+ β5 female + β6 current age + β7 education + β8 childhood health

+ β9 age of migration

Model 3:

log (p/(1-p)) = α + β1 Haiti + β2 Dominican Republic + β3 Cuba + β4 Jamaica

+ β5 female + β6 current Age + β7 education + β8 childhood health

+ β9 age of migration + β10 language acculturation

Model 4:

log (p/(1-p)) = α + β1 Haiti + β2 Dominican Republic + β3 Cuba + β4 Jamaica

+ β5 female + β6 current Age + β7 education + β8 childhood health

+ β9 age of migration + 10 language acculturation

+ β11 chronic conditions + β12 depressive symptoms

The slope coefficient (β) is interpreted as the change in the log odds of Y as X increases by 1

unit. To aid interpretation, the results are reported as odds ratio: Odds (Y=1) = exp (α + $\beta_1 X_1$

+ $\beta_2 X_2$ +…+ $\beta_k X_k$).

Model 1, a baseline model, includes the country of origin, and demographic

characteristics. Table 5.3 presents the odds ratio (OR) from a logistic regression predicting

the odds of fair or poor self-rated health based on the country of origin, gender, age, and

education. The results in Model 1 indicated that the country of origin was not a significant

predictor of fair or poor self-rated health, when adjusted for age, gender, and education.

Supplemental analysis (see Appendix 6) revealed that education might be acting as a

108

confounding factor, since at the bivariate level, country of origin's coefficients were significantly associated with self-rated health. When the education variable was removed from Model 1, country of origin coefficients for Cuba and Jamaica were significant at *p*-value .01 and .05, respectively. Cuban and Jamaican immigrants were the most educated with 74 percent of Cuban immigrants and 62 percent of Jamaican immigrants having 12 years or more of schooling, compared to 33 percent of Mexican immigrants (see Table 2.1). When education is accounted for, the significant differences in self-rated health between the immigrants from the different countries disappeared.

The odds of fair or poor self-rated health among female immigrants were 1.28 times *(p*-value < .10) higher than male immigrants' odds, net of country of origin, age, and education. Each additional year of age increased the odds of fair or poor self-rated health by 1.05 times, while controlling for country of origin, gender, age, and education. Immigrants with 12 years or more of schooling had .35 times lower odds of reporting poor or fair self-rated health, compared to those with less than 12 years of schooling, net of covariates. When looking at demographic variables and self-rated health among Mexican and Caribbean immigrants, being a woman, older in age, and less educated were strong predictors of having reported fair or poor self-rated health. Model 1 partially answered my first research question and I found that there were significant differences in immigrants' reports of self-rated health based on gender but not on country of origin, while adjusting for age and education. Supplemental analysis (Appendix 6) revealed that when country of origin and gender were entered in the model and age and education were removed, there were significant differences in the reporting of fair or poor self-rated health between Cuban and Jamaican immigrants,

compared to Mexican immigrants. In fact, Cuban and Jamaican immigrants had .45 and .43 times, respectively, lower odds of reporting fair or poor self-rated health.

Model 2 examined country of origin and the demographic variables in Model 1, while also examining pre-immigration experiences. As shown in Table 5.3, in Model 2, when pre-immigration experiences were introduced, the country of origin variables remained not statistically significant. However, female immigrants' odds of fair or poor self-rated health increased in significance and magnitude when pre-immigration factors were considered. Compared to male immigrants, female immigrants had a 1.44 times higher odds of reporting fair or poor self-rated health, adjusted for country of origin, age, education, and pre-immigration experiences. It should be noted that the female coefficients increased by 16 percentage points with the addition of pre-immigration experiences (comparing Model 1 and Model 2). This suggests that perhaps pre-immigration experiences were suppressing a female health effect. As for age, older immigrants reported higher odds of fair or poor self-rated health. The odds remained significant and the changes and its magnitude was negligible. The coefficients for age and education did not change much in Model 2 from Model 1.

As for pre-immigration factors in Model 2, childhood health and age at migration were strongly associated with fair or poor self-rated health. Compared to immigrants with good childhood health, those with poor childhood health had 5.24 (p-value < .001) times higher odds of reporting fair or poor self-rated health, net of country of origin, demographic characteristics, and age at migration. Age of migration was a significant predictor of reporting fair or poor self-rated health, with odds of less than 1, meaning each additional year of age at migration decreased the odds by .99 times. That is, immigrants who migrated at

older age had lower odds of reporting fair or poor self-rated health, controlling for country origin, demographic characteristics, and childhood health.

In summary, Model 2 answered my second research question, which asked: to what extent do pre-immigration experiences impact self-rated health among immigrants? Specifically, do immigrants with poorer childhood health have higher odds of reporting worse self-rated health? The pre-immigration experiences were significant predictors of self-rated health, net of country of origin and demographic characteristics, with childhood health being a strong predictor of fair or poor self-rated health at p-value <.001. Immigrants with favorable childhood health reported lower odds of worse self-rated health, adjusted for country of origin and demographic characteristics

Model 3 assessed the impact of language acculturation on self-rated health, accounting for country of origin, demographic characteristics, and pre-immigration experiences. Country of origin variable's significance remained the same in Model 3 as in Models 1 and 2. The significant predictors of self-rated health were gender, age, education, childhood health, age at migration, and language acculturation. Female immigrants had 1.39 times higher odds of reporting fair or poor self-rated health compared to their male counterparts, adjusting for country of origin, age, education, pre-immigration experiences, and language acculturation. Older immigrants reported higher odds of self-rated health where each additional year of age increased the odds of fair or poor self-rated health by 1.6 times, net of country of origin, gender, pre-immigration experiences, and acculturation. Poor childhood health increased the odds of reporting poor health by 5.14 times while accounting for country of origin, demographic characteristics, age at migration, and language acculturation. Odds and significance of age at migration was similar to Model 2. Immigrants

with 12 or more years of education reported .40 times lower odds of poor self-rated health, compared to those with less than 12 years of education, net of country of origin, demographic characteristics, childhood health, and language acculturation. Immigrants who were acculturated had .58 times lower odds of worse self-rated health; which answered my third research question: what is the role of language acculturation in predicting and explaining self-rated health variation among Mexican and Caribbean immigrants? While adjusting for country of origin, demographic characteristics, and pre-immigration experiences, immigrants who were acculturated had significantly lower odds of fair or poor self-rated health.

Model 4, the full model, examined the impact of health indicators on self-rated health, while adjusting for country of origin, demographic characteristics, pre-immigration experiences, and acculturation. No changes in results were noted for the country origin variables in this latest model. However, gender went from significant to marginally significant (OR= 1.31, p-value=.11), when health indicators were introduced, net of country of origin, demographic characteristics, pre-immigration experiences, and acculturation. Given that chronic conditions and depressive symptoms were strongly associated with self-rated health and women reported worse health, this suggested that overrepresentation of immigrant women with poor health in the sample resulted in their higher odds of reporting fair or poor self-rated health (see Chapters 3 and 4). Health indicators acted as mediators to the gender and self-rated health relationship, and their introduction in Model 4 resulted in a marginal decline in immigrant women's health disadvantage. Another finding in Model 4 is that the effects of age, pre-immigration experiences, and acculturation were comparable to Models 2 and 3.

Among immigrants with chronic conditions and depressive symptoms, their odds of poor self-rated were significantly higher. Specifically, immigrants with one or more chronic conditions had 3 times higher odds of reporting fair or poor self-rated health, net of country of origin, demographic variables, pre-immigration factors, language acculturation, and depressive symptoms. The odds of fair or poor self-rated health among immigrants with depressive symptoms were 1.75 times higher than among those without depressive symptoms, net of covariates in Model 4. Model 4 provided insights into my fourth research question into whether health indicators, such as chronic conditions and depressive symptoms, predicted worse self-rated health. The results from Model 4 revealed that health indicators were significant predictors of poor self-rated health and in the expected direction, poorer health status translated into worse self-rated health. It is worth noted that in supplemental analyses of country-by-country comparison that there were no significant differences in the odds of fair or poor self-rated health between all the countries (Appendix 7).

DISCUSSION AND CONTRIBUTION

In this study, I examined four explanations—demographic characteristics, pre-immigration factors, language acculturation, and health indicators—for disparities in self-rated health among Mexican and Caribbean immigrants, using a sample size of 1607. This study contributed several main findings.

The country of origin was not a significant predictor of fair or poor of self-rated health in the logistic regressions, net of covariates. There is also a discrepancy between immigrants' reports of self-rated health and chronic conditions (see Table 2.1). Some immigrants, especially Cuban and Jamaican immigrants, reported lower levels of poor self-

rated health compared to their high levels of chronic conditions, while Mexican, Haitian, and

Cuban immigrants reported higher levels of fair or poor self-rated health. One major

explanation might be related to a methodological issue that has been raised in immigrants'

self-rated health studies (Abdulrahim and Baker 2009; Angel and Guarnaccia 1989; Franzini

and Fernandez-Esquer 2004; McMullen and Luborsky 2006). The self-rated question is

"How do you rate your overall physical health at the present time?" The understanding of

this survey question by various immigrant groups might be contingent on different linguistic

and cultural interpretations, and research carried out in languages other than English, such as

this one, might be lacking complete conceptual equivalence for all five possible responses,

fair, poor, good, very good, and excellent. For example, the word fair can be translated as

normal health in Spanish (Angel and Guarnaccia 1989). The equivalent for good and fair in

Haitian Creole can have the same meaning as *pa mal*, which literally translates as "not bad."

In their research of Mexicans in Texas, Franzini and Fernandez-Esquer (2004) found

evidence of possible linguistic artifact and cultural interpretation of the self-rated question;

compared to English-speakers, Spanish-speaking Mexican immigrants with better physical

health reported worse self-rated health. Additionally, some groups might be rating their

health unfavorably because of cultural norms of not being boastful of one's health

(Abdulrahim and Baker 2009). Conversely, in my qualitative research of Latina and

Caribbean immigrant grandmothers, I found that some of the grandmothers with multiple

chronic conditions would rate their health favorably (Abdul-Malak 2016). Some of my

participants expressed gratitude for being alive and being religious; and for them having the

comfort of religion in their lives constitutes wellness, regardless of their physical health. The

validity of self-rated health as a health measure among different immigrants should be explored further.

This study's findings reveal greater variation in self-rated health based on gender among Mexican and Caribbean immigrants. Women immigrants reported significantly higher odds of fair and poor self-rated health. For example, while accounting for demographic characteristics, pre-immigration experiences, and language acculturation, women immigrants had 39 percent higher odds of reporting fair or poor self-rated health compared to male immigrants. This is consistent with several studies that found that immigrant women have worse self-rated than their male counterparts (Erving 2011; Read and Reynolds 2012). This suggests that the gender-self-rated health relationship is very complex. There appears to be a suppressing effect where the magnitude of the relationship between female immigrants and self-rated health increased when pre-immigration experiences were included in the analysis. On the other hand, there was also a mediating effect when health indicators were accounted for in the analysis, where the gender coefficient decreased and became only marginally significant. In other words, the relationship between gender and self-rated health is best captured when accounting for pre-immigration experiences (childhood health and age of migration), acculturation, and health indicators (chronic conditions and depressive symptoms).

Immigrants' pre-immigration experiences were significant predictors of self-rated health, consistent with the cumulative inequality theory proposition. Immigrants with poor childhood health had significantly greater odds of reporting fair or poor self-rated health. This is consistent with cumulative inequality theory that childhood health is a major predictor of later-life health outcomes.

With respect to acculturation, I found some evidence consistent with segmented assimilation theory suggesting that immigrants' integration into the host country helped explain health disparities. Language acculturation has a protective effect against poor self-rated health. Those who had higher English proficiency, which could be a measure of integration, had lower odds of reporting fair or poor self-rated health. Previous scholarly works support this finding (Akresh and Frank 2008; Kimbro, Gorman, and Schachter 2012; Okafor et al. 2013). Health indicators had a detrimental effect on immigrants' self-rated health. Immigrants who reported having one or more chronic conditions had greater odds of reporting their health as fair or poor, as did immigrants who had depressive symptoms.

In summary, my major objective has been to investigate the relationship between country of origin, gender and self-rated health. This study enhances our understanding of immigrant health disparities and demonstrates how immigrants from the Caribbean and Latin America have divergent self-rated health outcomes. It reveals that the differences in health might be based on gender. The salient finding from this study is that gender disparities in health remain strong, even after considering pre-immigration experiences and acculturation.

LIMITATIONS

This chapter is subject to certain limitations. First, some variables had small sample sizes and therefore caution should be taken for generalization. Second, even though self-rated health measure is a valid predictive measure of morbidity, little is known about its validity among different immigrant groups. Concern has been raised over its meaning among different ethnic groups (Finch et al. 2002). Third, the use of health indicators, chronic conditions and depressive symptoms as predictors of self-rated health, might be subject to endogeneity. It

has been documented that there might be a reciprocal relationship of self-rated health with

mental health (Kosloski et al. 2005). Using analyses of data from the RAND version of the

HRS Kosloski and colleagues (2005) found that depressive symptoms had little effect on

self-rated health while depressive symptoms had an effect on self-rated health, net of chronic

conditions and physical limitations.

Chapter 6: Conclusion and Future Research

In this study, my purpose was to explore the healthy migrant effect across different immigrant groups. Specifically, I used the theoretical frameworks of segmented assimilation and cumulative inequality to investigate how chronic conditions, depressive symptoms and self-rated health, are impacted by factors related to immigrants' demographic characteristics, pre-immigration experiences and language acculturation. These theoretical frameworks guided the analyses of all three data chapters. My overarching research question is: what is the relationship between the country of origin, gender, and immigrants' health outcomes, while specifically comparing Mexican and Caribbean immigrants?

SUMMARY OF FINDINGS

Immigrants and Chronic Conditions

In Chapter 3, I conducted multiple data analyses to investigate the disparities of chronic conditions among immigrants from Mexico and the Caribbean through the lens of segmented assimilation and cumulative inequality theories. My findings revealed that some Caribbean immigrants reported higher level of chronic conditions than Mexican immigrants did: Cuban and Jamaican immigrants had significantly higher odds of reporting chronic conditions. Immigrants with poor childhood health showed higher odds of reporting chronic conditions. Immigrants with poor childhood health had 1.86 times the odds of reporting chronic conditions compared to those who did not have poor childhood health. There were no significant differences in the odds of having chronic conditions based on the acculturation level. The association between the country of origin and chronic conditions was mediated by gender only for Cuban immigrants.

118

One possible explanation for Cuban and Jamaican immigrants' higher level of chronic conditions might be that they are more likely to be diagnosed due to their higher socioeconomic status and greater access to health care. In general, Cubans have better access to health care than other groups both in Cuba and in the U.S. Cuba has one of the more robust health care systems in the Americas, where primary care is emphasized (Campion and Morrissey 2013; Cooper, Kennelly, and Orduñez-Garcia 2006). Additionally, Cuban immigrants are more likely to have health insurance in the U.S. because of their immigration and socioeconomic status. It is possible that Cuban immigrants are more likely to have been diagnosed with one of the listed chronic conditions, compared to the other immigrants in my sample, especially when compared with Haitian and Dominican Republic immigrants who have limited access to health care. Cuban and Jamaican immigrants have the highest level of education in the sample (see Table 2.1) and they are more likely to report chronic conditions. So, are more highly educated immigrants more likely to be diagnosed with chronic conditions? Jamaicans' immigration to the U.S. and the UK has been called a "brain drain" (Healy and Stepnick 2017: 401). Jamaican immigrants' higher level of chronic conditions might be due to selection bias and more specifically, to diagnosis bias. That is, Cuban and Jamaican immigrants in my sample had higher level of education and therefore might have better chance of been diagnosed with a chronic condition compared to Mexican, Haitian, and Dominican Republic immigrants in the lower socioeconomic status.

Consistent with segmented assimilation and the cumulative inequality theory propositions, the country of origin and early life events do appear to shape immigrants' later life health outcomes. My analyses demonstrated that immigrants coming from some

countries in the Caribbean and with poor childhood health were more likely to report chronic conditions than those who did not.

Immigrants and Depressive Symptoms

I examined the impact of several factors on depressive symptoms among Mexican and Caribbean immigrants in Chapter 4. Results from logistic regression models on a sample of 1539 respondents from the New Immigrant Survey provide evidence that the country of origin, gender, age, childhood health, and age of migration are associated with having depressive symptoms. Immigrants from the Dominican Republic and Cuba reported higher level of depressive symptoms when compared to Mexican immigrants.

When it comes to disparities in depressive symptoms among Mexican and Caribbean immigrants, Dominican immigrants' higher odds of depressive symptoms might be explained through their pre-immigration experiences. And the lower level of depressive symptoms among Haitians might be due to positive selection of Haitian migrants. Haitians who migrate might be healthier, thus explaining their lower level of depressive symptoms. Cubans immigrants' higher level of depressive symptoms could stem from the harsh political situations that they left back home. Many Cubans leave family behind in Cuba and are unable to go back. This type of situation can engender feelings of sadness and depressive symptoms.

My findings regarding gender and depressive symptoms are consistent with most scholarly works, which find that women tend to have higher levels of depressive symptoms than men do. My results showed that women had elevated odds of reporting depressive symptoms. When I allowed the association between country of origin and depressive symptoms to differ for women and men, I found the gender differences only exist for Cuban immigrants. As for pre-immigration experiences, childhood health and age of migration are

120

significant predictors of depressive symptoms. The levels of depressive symptoms are linked to pre-immigration factors such as poor childhood health and age of migration.

Drawing on segmented assimilation and the cumulative inequality theories, Chapter 4 sheds some light on the mental health of understudied Caribbean immigrant groups in comparison with Mexican immigrants, and goes beyond the pan-ethnic grouping of immigrants. It isolated some Caribbean countries and compared them to Mexican immigrants.

Immigrants and Self-Rated Health

The major objective of Chapter 5 was to investigate the relationship between the country of origin, gender and self-rated health. There were four major findings: First, I found evidence that gender is a significant predictor of self-rated health disparities. This chapter drew attention to the differences of self-rated health between Mexican and Caribbean women and men immigrants. I found that immigrant women had higher odds of reporting fair or poor self-rated health, and the magnitude and the significance increased when I considered their pre-immigration experiences and language acculturation. However, women were not significantly different from men once the health indicators were included. Second, another important finding was how pre-immigration experiences, such as childhood health, were major predictors of fair or poor self-rated health. Immigrants with poor childhood health had greater odds of fair or poor self-rated health. Third, immigrant's language acculturation was a significant predictor of self-rated health. Immigrants who were acculturated had lower odds of reporting fair or poor self-rated health. Fourth, health indicators were significant and in the expected directions, and immigrants with chronic conditions and depressive symptoms had higher odds of fair or poor self-rated health.

Consistent with segmented assimilation and cumulative inequality theories, Chapter 5 highlights how immigrants from the Caribbean and Latin America have divergent self-rated health outcomes. The salient finding from this chapter is that gender disparities in health remained strong even after considering pre-immigration experiences and language acculturation.

Gender and Health

One of the consistent findings of this research has been that Mexican and Caribbean immigrant women fare worse on all health outcomes compared to their male counterparts. Looking at immigrant women's demographic characteristics, pre-immigration experiences, and language acculturation provides some insights into the reasons why they reported more chronic conditions, depressive symptoms, and fair or poor self-rated health. For example, immigrant women in my sample were older, less educated, migrated at an older age, and were less acculturated. As illustrated in Table 6.1, only 39 percent of the women had at least 12 years of education, compared to 45 percent of their male counterparts. Education is a key predictor of health. Immigrants who are less educated are more likely to report chronic conditions (Morales et al. 2014), depressive symptoms (Im et al. 2015; Wilmoth and Chen 2003), and poor self-rated health (Akresh and Frank 2008; Gubernskaya 2015; Hamilton and Kawachi 2013). Immigrant women's worse health outcomes might be due to their lower level of education.

As seen in table 6.1, immigrant women migrated at an average age of 34 compared to 30 years for male immigrants. Only 25 percent of the immigrant women were acculturated versus 38 percent of male immigrants. It is possible that women are joint migrants and therefore are not benefitting from the advantages of the healthy migrant effect. In sum, it

could be that immigrant women's socioeconomic standing is putting them at a health disadvantage compared to their male counterparts. Overall, Mexican and Caribbean immigrant women's demographic characteristics, early life events, and integration in the U.S. are factors that contributed to their worse health outcomes.

STUDY LIMITATIONS AND FUTURE RESEARCH

Despite some notable findings contributing to the literature, a few limitations are noted and future research should address these limitations to expand our understanding of health disparities among Mexican and Caribbean immigrants. Immigrants' health involves a complex interplay of pre-immigration factors and their integration in the host country. Therefore, new research designs are needed to attend to these factors. Based on the limitations of this research, I proposed some recommendations for future research.

First, the cross-sectional nature of the data did not allow me to assess temporal relationship. In particular, when looking at depressive symptoms and self-rated health as health outcomes, it is possible that immigrants' current health status shaped their perception of their pre-immigration experiences. That is, if they currently feel depressed or find that their current health is less than ideal, their views on their past experiences might be clouded by their current situation. Research into the interplay of pre-immigration experiences and current situation should be longitudinal in nature in order to establish temporal and causal effects. A proposed study could follow immigrants from a young age from their home countries and follow them over times in their host countries.

Second, the number of respondents from Haiti, Dominican Republic, and Jamaica were relatively small when compared to respondents from Mexico[10]. As a result, my margin of error may have increased. Therefore, caution should be taken in generalizing the results. These new immigrants coming from the Caribbean are growing in number in the U.S., and more data collection is needed to determine their health status. Future studies would benefit from having a larger sample size.

Third, I was not able to control for race which could have provided insights into immigrants' divergent health outcomes. Segmented assimilation theory emphasizes that immigrants' racial identities play an important role in their integration into the U.S. society. Given the racialized nature of U.S. society, discrimination and racism might play a crucial role in immigrants' general health. Additionally, racial identity among Hispanic immigrants in the U.S. is complex and varied. Immigrants from similar backgrounds might identify themselves along different racial lines. About 25 percent of Hispanics identified themselves as blacks and another 25 percent as indigenous, while the other 50 percent identified along different racial categories. About half of Hispanics reported that they have faced discrimination and racism (Krogstad and Lopez, 2016), and depression has been linked with discrimination (Mereish et al 2016). I was unable to measure race in this study, which could provide some insight into depressive symptoms outcomes. Future research should account for

---

[10] Mexican immigrants were chosen as the reference group because most of the scholarly works on healthy migrant effect have been based on them. Additionally, they were the least educated in my sample.

race. In the U.S., race continues to be a determining factor of health status and the health disparities noted in this current research could be as a result of discrimination and racism.

Fourth, access to health care is an important factor in determining health outcomes. I was not able to evaluate respondent's' access to health care, which is an important variable given that health insurance coverage differs greatly among immigrant groups. It could be that Haitians' lack of access to healthcare might be a hindrance to being diagnosed with chronic conditions. Future research investigating health outcomes could account for health care access, specifically the types of health insurance and coverage that immigrants possess.

Fifth, immigrants' current socioeconomic status was not accounted for in the form of wealth, such as income and assets. Income is a robust measure of socioeconomic status, but the income variable in the NIS data was unsuitable for analysis, because of high missing values for my sample. Future research could use income as a measure of immigrants' current socioeconomic status.

Sixth, health behavior is a major predictor of health status. My data did not allow me to control for modifiable lifestyles that could impact health status, such as diet and exercise, which are major contributors to chronic conditions. I propose that a future research should consider immigrants' health behaviors to see their impact on health outcomes.

Seventh, using language proficiency to measure acculturation might not truly capture immigrants' acculturation level. With the constraint presented in the NIS data, I could not develop an acculturation scale. A future research should look into other measures of acculturation such as time spent in the U.S. and cultural behavior.

Eight, this research was only conducted on documented immigrants. Mexican immigrants constitute 52% of undocumented immigrants in the U.S. (Krogstad, Passel, and

Cohn 2016). Undocumented immigrants are less likely to have health insurance coverage and more likely to have precarious work and living situations. Therefore, if they were included in this research, the findings could have been different. Perhaps the results could have revealed worse health outcomes among these immigrant groups. A future research should take into consideration undocumented immigrants and their health status.

CONTRIBUTION

Notwithstanding these limitations, this dissertation makes substantial contributions to the literature on health disparities of Mexican and Caribbean immigrants. It examines the long neglected study of the health status of Caribbean immigrants, which constitutes 50 percent of black immigrants in the U.S and are increasing in number (Thomas 2012). I find the following contributions to be worth noted.

First, this study took a broad approach by examining three different health outcomes; chronic conditions, depressive symptoms, and self-rated health. This holistic approach reveals great variation of immigrants' reporting of different health outcomes. For example, there is a discrepancy in immigrants' reports of chronic conditions and fair or poor self-rated health. Cultural interpretation of self-rated health question might be playing a role.

Second, my findings challenge the work of earlier researchers, who have generally assumed that all immigrants are healthy. Many studies of immigrants' health grouped immigrants by region of origin or racial/ethnic groups, with some studies of Hispanic immigrants grouping Cuba, Mexico, and other Caribbean countries under the Hispanic umbrella. For example, Acevedo-Garcia and colleagues (2010) compared different immigrant groups' health status and listed Mexico, Puerto Rico, Cuba, El Salvador,

Dominican Republic, and "Other Latin America/Caribbean" under the category of Hispanics and reported their health status. These types of studies miss the variation in health outcomes among different nationalities as noted in this current study. This study underscores the importance of accounting for the national heterogeneity among immigrant groups when presenting health status. My analysis focuses on specific countries in the Caribbean, which allows me to comprehensively examine the healthy migrant effect across different immigrant groups while comparing them to Mexicans, a group from which this paradox is derived. The healthy migrant effect hides a great deal of variation in immigrant health. My analysis showed that immigrants from the same global region have different health outcomes. For example, Haitian and Dominican immigrants are from the same island but have divergent health outcomes. Another example, Dominican Republic immigrants report significantly higher odds of depressive symptoms than Haitian immigrants do. Haitian and Jamaican immigrants are racialized as blacks but report different odds of fair or poor self-rated health.

Third, my findings contribute to the premises of both theories. Segmented assimilation theory posits that the newer immigrants have divergent health outcomes. In fact, my findings reveal great variation in health outcomes among my sample. Cumulative inequality theory emphasizes the importance of early life events. My results show that early childhood health are major predictors of chronic conditions, depressive symptoms, and chronic conditions and age of migration is a major predictor of depressive symptoms and self-rated health.

Fourth, my analysis focuses on these specific countries, for which there is a scarcity of empirical data. This research also shows widening gender health disparities among these new immigrants. By demonstrating health disparities among immigrants from similar

geographical region, this study is a starting point to further explore the health status of Caribbean immigrants, an emerging important demographic group. With further studies, such as this one, policy makers can identify immigrant groups that are most vulnerable to poor physical and mental health. For example, interventions should aim at decreasing the widening gender health disparities. Particularly, immigrant women should be provided access to health services and economic opportunities.

Table 2.1 Percentage (mean) Distribution of Chronic Conditions, Depressive Symptoms, Poor Self-Rated Health, Gender, Age, Education, Childhood Health, Age of Migration, Language Acculturation by Country of Origin N=1607

	Mexico	Haiti	Dominican Republic	Cuba	Jamaica
One or more Chronic Conditions	14	19	12	16	16
Depressive Symptoms	17	10	20	29	16
Fair/Poor Self-Rated Health	16	17	13	8	8
Female	60	58	57	50	55
Age (mean)	40	43	42	39	37
At least 12 years of school	33	50	46	74	63
Poor Childhood Health	7	2	3	3	4
Age at Migration (mean)	30	38	40	35	31
Language Acculturation	29	22	7	23	99

Data is from the 2003 New Immigrant Survey

Table 3.1. Percent (mean) Distributions and Frequencies of Sample Characteristics n=1613

Outcome Variables	%	n
Hypertension	11.22	181
Diabetes	5.27	85
Heart Problems	1.05	17
Chronic Conditions		
None	85.74	1383
1 or more	14.26	230
Country of Origin		
Mexico	65.78	1061
Haiti	8.80	142
DR	10.04	162
Cuba	8.74	141
Jamaica	6.63	107
Demographic Variables		
Gender		
Male	41.91	676
Female	58.09	937
Current Age (mean)	40.07	
Education		
Less than 12 years	58.40	935
12 years and up	41.60	666
Pre-immigration Experiences		
Childhood Self-Rated Health		
Fair/Poor	6	423
Good/Very Good/Excellent	17.85	288
Age of Migration (mean)	32.27	
Language Acculturation		
Yes	30.07	485
No	69.93	1128

Data is from the 2003 New Immigrant Survey

Table 3.2. Bivariate Relationships Between Chronic Conditions and Focal Variables N=1613

	Chronic Conditions ≥1	p-value
Country of Origin		.3730
Mexico	13.67	
Haiti	19.01	
DR	11.73	
Cuba	15.60	
Jamaica	15.89	
Demographic Variables		
Gender		.0121*
Female	16.12	
Male	11.69	
Current Age (mean)	54.00	.000***
Education		.000***
Less than 12 years	18.03	
12 years and up	8.96	
Pre-immigration Experiences		
Childhood SRH		0.2794
Excellent/Very Good/good	14.03	
Fair/poor	18.18	
Age at Migration	46.43	.000***
Language Acculturation		.000***
Yes	8.66	
No	16.67	

Data is from the 2003 New Immigrant Survey. Asterisks indicate significant chi-squared at the following levels: [†]P-Value ≤ .10   *P-Value ≤ .05   **P-Value ≤ .01   ***P-value ≤ .001

Table 3.3. Logistic Regression Models of Immigrants' Chronic Conditions n=1613

	Model 1 OR	Model 2 OR	Model 3 OR	Model 4 OR
Country of origin (Ref:Mexico)				
Haiti	1.21	1.25	1.25	1.56
DR	.73	.76	.75	.85
Cuba	1.56†	1.61†	1.59†	2.80**
Jamaica	1.68†	1.73*	1.90†	2.59†
Demographic Characteristics				
Female	1.37*	1.40*	1.39*	1.73*
Current Age	1.07***	1.07***	1.07***	1.07***
At least 12 years of Schooling	.97	.98	1.01	1.00
Pre-immigration Experiences				
Poor Childhood Health		1.79†	1.79*	1.86†
Age of Migration		1.00	1.00	1.00
Language Acculturation			.88	.91
Interactions				
Haiti*Female				.72
DR*Female				.86
Cuba*Female				.36*
Jamaica*Female				.60

Data is from the 2003 New Immigrant Survey. Asterisks indicate significant chi-squared at the following levels: †P-Value ≤ .10   *P-Value ≤ .05   **P-Value ≤ .01   ***P-value ≤ .001
OR= Odds Ratios

132

Table 4.1. Percent (mean) Distributions and Frequencies of Sample Characteristics n=1539

Variables	%	n
Depressive Symptoms		
None	81.35	1252
Yes	18.65	287
Country of Origin		
Mexico	65.98	1000
Haiti	9.10	140
DR	10.01	154
Cuba	9.10	140
Jamaica	6.82	105
Demographic Variables		
Gender		
Female	57.89	891
Male	42.11	648
Age (mean)	39.42	
Education		
Less than 12 years	57.63	887
12 years and up	42.37	652
Pre-immigration Experiences		
Childhood SRH		
Fair/Poor	5.72	88
Good/Very Good/Excellent	94.28	1451
Age of migration (mean)	31.50	
Language Acculturation		
Yes	31.04	474
No	68.96	1053

Data is from the 2003 New Immigrant Survey

133

Table 4.2. Bivariate Relationships Between Depressive Symptoms and Focal Variables n=1539

	Depressive Symptoms	p-value
Country of Origin	(%)	0.0009***
Mexico	18.20	
Haiti	10.00	
DR	21.43	
Cuba	29.29	
Jamaica	16.19	
Demographic Variables		
Gender		0.0006***
Female	21.55	
Male	14.66	
Age (mean)	40.62	.1530
Education		0.3285
Less than 12 years	19.50	
12 years and up	17.48	
Pre-immigration Experiences		
Childhood SRH		0.0155*
Poor	28.41	
Good	18.06	
Age of Migration (mean)	31.47	.9777
Language Acculturation		.07301[†]
Yes	16.01	
No	19.85	

Data is from the 2003 New Immigrant Survey. Asterisks indicate significant chi-squared at the following levels: [†]P-Value ≤ .10   *P-Value ≤ .05   **P-Value ≤ .01   ***P-value ≤ .001

Table 4.3. Logistic Regression Models of Immigrants' Depressive Symptoms n=1539

	Model 1 OR	Model 2 OR	Model 3 OR	Model 4 OR
Country of origin (Ref:Mexico)				
Haiti	.50*	.60†	.60†	.99
DR	1.26	1.63*	1.59*	1.62*
Cuba	2.01***	2.54**	2.55**	3.75**
Jamaica	.94	1.09	1.24	2.09†
Demographic Characteristics				
Female	1.63***	1.73***	1.70***	2.04***
Current Age	1.01***	1.03***	1.03***	1.03***
At least 12 years of education	.86	.86	.90	.90
Pre-immigration Experiences				
Poor Childhood Health		1.93***	1.91*	1.97†
Age of Migration		.98***	.97***	.97***
Language Acculturation			.82	.83
Interactions				
Haiti*Female				.46
Dominican Republic*Female				1.00
Cuba*Female				.50*
Jamaica*Female				.43

Data is from the 2003 New Immigrant Survey. Asterisks indicate significant chi-squared at the following levels: †P-Value ≤ .10   *P-Value ≤ .05   **P-Value ≤ .01   ***P-value ≤ .001
OR= Odds Ratios

Table 5.1. Percent (mean) Distributions and Frequencies of Sample Characteristics n=1607

Variable	%	n
Self-Rated Health (Poor)	14.56	234
Country of Origin		
Mexico	66.84	1058
Haiti	8.71	140
DR	10.08	162
Cuba	8.77	141
Jamaica	6.60	106
Demographic Variables		
Gender		
Female	58.18	935
Male	41.82	672
Age (mean)	40.05	1607
Education		
Less than 12 years	58.49	
12 years and up	41.51	
Pre-immigration Experiences		
Childhood SRH		
Fair/Poor	5.48	88
Good/Very Good/Excellent	94.52	1519
Education		
Less than 12 years	58.49	
12 years and up	41.51	
AGE of Migration (mean)	32.19	
Acculturation (language)		
Yes	30.18	485
No	69.82	1122
Health Indicators		
Chronic Condition ≥ 1	14.19	228
Depressive Symptoms	17.86	287

Data is from the 2003 New Immigrant Survey

Table 5.2. Bivariate Relationships Between Fair or Poor Self-Rated Health and Focal Variables n=1607

	Self-Rated Health	p-value
Country of Origin		.0184*
Mexico	16.26	
Haiti	16.71	
Dominican Republic	12.96	
Cuba	7.80	
Jamaica	7.55	
Demographic Variables		
Gender		.0105*
Female	16.47	
Male	11.90	
Age (mean)	40.03	.000***
Education		<.0001***
Less than 12 years	21.49	
12 years and up	4.80	
Pre-immigration Experiences		
Childhood SRH		<.0001***
Poor	37.50	
Good	13.23	
Age of Migration (mean)	43.4	<.0001***
Acculturation (language)		<.0001***
Yes	5.57	
No	18.45	
Health Indicators		
Chronic Condition ≥ 1	39.47	<.0001***
Depressive symptoms	22.65	<.0001***

Data is from the 2003 New Immigrant Survey. Asterisks indicate significant chi-squared at the following levels: [†]P-Value ≤ .10   *P-Value ≤ .05   **P-Value ≤ .01   ***P-value ≤ .001

Table 5.3. Logistic Regression Models of Fair or Poor Self-Rated Health of Immigrants n=1607.

	Model 1 OR	Model 2 OR	Model 3 OR	Model 4 OR
Country of origin (Ref:Mexico)				
Haiti	.85	.99	1.00	.93
Dominican Republic	.74	.90	.86	.85
Cuba	.74	.86	.83	.70
Jamaica	.64	.73	1.14	.94
Demographic Variables				
Female	1.28†	1.44*	1.39*	1.31
Current Age	1.05***	1.06***	1.06***	1.05***
< 12 years of Schooling	.35***	.36***	.40***	.40***
Pre-immigration Experiences				
Poor Childhood Health		5.24***	5.14***	4.75***
Age at Migration		.99†	.98*	.99†
Language Acculturation			.58*	.60†
Health Indicators				
Chronic Condition ≥ 1				3.00***
Depressive Symptoms				1.75**

Data is from the 2003 New Immigrant Survey. Asterisks indicate significant chi-squared at the following levels: †P-Value ≤ .10   *P-Value ≤ .05   **P-Value ≤ .01   ***P-value ≤ .001
OR= Odds Ratios

Table 6.1 Percentage (mean) Distribution of Chronic Conditions, Depressive Symptoms, Poor Self-Rated Health, Country of Origin, Age, Education, Childhood Health, Age of Migration, Language Acculturation by Gender N=1607

	Female	Male
One or more Chronic Conditions	16	12
Depressive Symptoms	21	14
Fair/Poor Self-Rated Health	19	14
Mexico	60	40
Haiti	58	42
Dominican Republic	57	43
Cuba	50	50
Jamaica	55	45
Age (mean)	41	39
At least 12 years of school	39	45
Poor Childhood Health	5	6
Age at Migration (mean)	34	30
Language Acculturation	25	38

Data is from the 2003 New Immigrant Survey

APPENDICES

Appendix 1

Supplemental Analysis of Odds Ratios of Chronic Conditions		
	Adjusted for gender	Adjusted for gender and age
Country of origin (Ref:Mexico)		
Haiti	$1.50^{\dagger}$	1.20
Dominican Republic	.85	.73
Cuba	1.22	$1.54^{\dagger}$
Jamaica	1.22	$1.67^{\dagger}$
Demographic Variables		
Female	1.47**	$1.37^{\dagger}$
Current Age		1.07***
Data is from the 2003 New Immigrant Survey. Asterisks indicate significant chi-squared at the following levels: $^{\dagger}P$-Value $\leq .10$ *P-Value $\leq .05$ **P-Value $\leq .01$ ***P-value $\leq .001$		

Appendix 2

p-value for Country by Country Comparison of Chronic Conditions			
	Haiti	Dominican Republic	Cuba
Haiti			
Dominican Republic	.1552		
Cuba	.4491	**.0389***	
Jamaica	.3255	**.0382**	.6822
Data is from the 2003 New Immigrant Survey. Asterisks indicate significant chi-squared at the following levels: [†]*P*-Value ≤ .10 *P-Value ≤ .05 **P-Value ≤ .01 ***P-value ≤ .001			

Appendix 3

Supplemental Analysis of Odds Ratios of Depressive Symptoms		
	Adjusted for gender	Adjusted for gender and age
Country of origin (Ref:Mexico)		
Haiti	.50*	.49*
Dominican Republic	1.25	1.24
Cuba	1.97***	1.97***
Jamaica	.89	.90
Demographic Variables		
Female	1.67***	1.63***
Current Age		1.01
Data is from the 2003 New Immigrant Survey. Asterisks indicate significant chi-squared at the following levels: [†]P-Value ≤ .10 *P-Value ≤ .05 **P-Value ≤ .01 ***P-value ≤ .001		

Appendix 4

Odds Ratios of Immigrants' Depressive Symptoms: Testing Suppressor Effect for Dominican Republic Immigrants n=1539				
	Model 1	Adjusted for Childhood health and age of migration	Adjusted for Childhood health	Adjusted for age of migration
Country of Origin (Ref: Mexico)				
Haiti	.50*	.60†	.60†	.56*
DR	1.26	1.63*	1.40	1.54*
Cuba	2.01***	2.54**	2.50**	2.29**
Jamaica	.94	1.09	1.09	1.01
Demographic Characteristics				
Female	1.63***	1.73***	1.70***	1.73***
Current Age	1.01***	1.03***	1.02***	1.03***
At least 12 years of education	.86	.86	.86	.87
Pre-immigration Experiences				
Poor Childhood Health		1.93***	1.92***	
Age of Migration		.98***		.98***
Data is from the 2003 New Immigrant Survey. Asterisks indicate significant chi-squared at the following levels: †*P*-Value ≤ .10 *P-Value ≤ .05 **P-Value ≤ .01 ***P-value ≤ .001				

Appendix 5

p-value for Country by Country Comparison of Depressive Symptoms			
	Haiti	Dominican Republic	Cuba
Haiti			
Dominican Republic	**.0050****		
Cuba	<**.0001*****	.1056	
Jamaica	**.0770**[†]	.5067	**.0529***
Data is from the 2003 New Immigrant Survey. Asterisks indicate significant chi-squared at the following levels: [†]*P*-Value ≤ .10 *P-Value ≤ .05 **P-Value ≤ .01 ***P-value ≤ .001			

Appendix 6

Supplemental Analysis of Odds Ratios of Fair or Poor Self-Rated Health			
	Adjusted for gender	Adjusted for gender and age	Adjusted for gender, age, and education
Country of origin (Ref:Mexico)			
Haiti	.97	.74	.85
Dominican Republic	.78	.67	.74
Cuba	.45**	.50*	.74
Jamaica	.43*	.48†	.64
Demographic Variables			
Female	1.42*	1.44†	1.28†
Current Age		1.05***	1.05***
At least 12 years of Schooling		.	.35***
Data is from the 2003 New Immigrant Survey. Asterisks indicate significant chi-squared at the following levels: †P-Value ≤ .10 *P-Value ≤ .05 **P-Value ≤ .01 ***P-value ≤ .001			

Appendix 7

p-value for Country by Country Comparison of Fair/Poor Self-Rated Health			
	Haiti	Dominican Republic	Cuba
Haiti			
Dominican Republic	.8229		
Cuba	.5214	.6456	
Jamaica	.9769	.8527	.6056
Data is from the 2003 New Immigrant Survey. Asterisks indicate significant chi-squared at the following levels: [†]P-Value ≤ .10 *P-Value ≤ .05 **P-Value ≤ .01 ***P-value ≤ .001			

BIBLIOGRAPHY

Abdul-Malak, Ynesse. 2016. "Health and Grandparenting among Caribbean and Latin American Immigrant Women in the U.S."in *Grandparenting in the US.*, edited by M. Harrington Meyer and Y. Abdul-Malak. New York: Baywood Publishing.

Abdulrahim, Sawsan and Kristine Ajrouch. 2010. "Social and Cultural Meanings of Self-Rated Health: Arab Immigrants in the United States." *Qualitative Health Research* 20(9):1229-1240.

Abdulrahim, Sawsan and Wayne Baker. 2009. "Differences in Self-Rated Health by Immigrant Status and Language Preference among Arab Americans in the Detroit Metropolitan Area." *Social Science & Medicine* 68(12):2097-2103.

Abraido-Lanza, A. F., B. P. Dohrenwend, D. S. Ng-Mak and J. B. Turner. 1999. "The Latino Mortality Paradox: A Test of the "Salmon Bias" and Healthy Migrant Hypotheses." *American Journal of Public Health* 89(10):1543-1548.

Abraido-Lanza, Ana F., Maria T. Chao and Karen R. Florez. 2005. "Do Healthy Behaviors Decline with Greater Acculturation?: Implications for the Latino Mortality Paradox." *Social Science & Medicine (1982)* 61(6):1243.

Acevedo-Garcia, Dolores, Lisa M. Bates, Theresa L. Osypuk and Nancy McArdle. 2010. "The Effect of Immigrant Generation and Duration on Self-Rated Health among US Adults 2003–2007." *Social Science & Medicine* 71(6):1161-1172.

Adler, Nancy E. and Judith Stewart. 2010. "Health Disparities Across the Lifespan: Meaning, Methods, and Mechanisms." *Annals of the New York Academy of Sciences* 1186(1):5-23.

Adler, Nancy, Archana Singh-Manoux, Joseph Schwartz, Judith Stewart, Karen Matthews and Michael G. Marmot. 2008. "Social Status and Health: A Comparison of British Civil

Servants in Whitehall-II with European-and African-Americans in CARDIA." *Social Science & Medicine* 66(5):1034-1045.

Akresh, I. R. and R. Frank. 2008. "Health Selection among New Immigrants." *American Journal of Public Health* 98(11):2058-2064.

Akresh, Ilana R., D. P. Do and Reanne Frank. 2016. "Segmented Assimilation, Neighborhood Disadvantage, and Hispanic Immigrant Health." *Social Science & Medicine* 149:114-121.

Alba, Richard and Victor Nee. 1997. "Rethinking Assimilation Theory for a New Era of Immigration." *International Migration Review*:826-874.

Alegria, Margarita, Glorisa Canino, Patrick E. Shrout, Meghan Woo, Naihua Duan, Doryliz Vila, Maria Torres, Chih-nan Chen and Xiao-Li Meng. 2008. "Prevalence of Mental Illness in Immigrant and Non-Immigrant U.S. Latino Groups." *The American Journal of Psychiatry* 165(3):359-369. Retrieved Jan 6, 2017 (http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2712949/). doi: 10.1176/appi.ajp.2007.07040704.

Alegria, Margarita, Glorisa Canino, Frederick S. Stinson and Bridget F. Grant. 2006. "Nativity and DSM-IV Psychiatric Disorders among Puerto Ricans, Cuban Americans, and Non-Latino Whites in the United States: Results from the National Epidemiologic Survey on Alcohol and Related Conditions." *Journal of Clinical Psychiatry* 67(1):56-65.

Alegria, Margarita, Norah Mulvaney-Day, Maria Torres, Antonio Polo, Zhun Cao and Glorisa Canino. 2007. "Prevalence of Psychiatric Disorders Across Latino Subgroups in the United States." *American Journal of Public Health* 97(1):68-75.

American Psychiatry Association. 2013. "Depressive Disorders."in *Diagnostic and Statistical Manual of Mental Disorders (5th Edition).*"Depressive Disorders." Washington, DC: American Psychiatric Association.

Amuedo-Dorantes, Catalina, Annie Georges and Susan Pozo. 2010. "Migration, Remittances, and Children's Schooling in Haiti." *The Annals of the American Academy of Political and Social Science* 630(1):224-244.

Angel, R. and P. J. Guarnaccia. 1989. "Mind, Body, and Culture: Somatization among Hispanics." *Social Science and Medicine* 28(12):1229-1238.

Angel, Ronald J., Jacqueline L. Angel, Carlos D. Venegas and Claude Bonazzo. 2010. "Shorter Stay, Longer Life: Age at Migration and Mortality among the Older Mexican-Origin Population." *Journal of Aging and Health*:0898264310383567.

Antecol, Heather and Kelly Bedard. 2006. "Unhealthy Assimilation: Why do Immigrants Converge to American Health Status Levels?" *Demography* 43(2):337-360.

Bjornstrom, Eileen E. and Danielle C. Kuhl. 2014. "A Different Look at the Epidemiological Paradox: Self-Rated Health, Perceived Social Cohesion, and Neighborhood Immigrant Context." *Social Science & Medicine* 120:118-125.

Blackwell, Debra L., Mark D. Hayward and Eileen M. Crimmins. 2001. "Does Childhood Health Affect Chronic Morbidity in Later Life?" *Social Science & Medicine* 52(8):1269-1284.

Bleich, Sara N., Marian P. Jarlenski, Caryn N. Bell and Thomas A. LaVeist. 2012. "Health Inequalities: Trends, Progress, and Policy." *Annual Review of Public Health* 33(1):7-40.

Boardman, Jason D., Jarron M. S. Onge, Richard G. Rogers and Justin T. Denney. 2005. "Race Differentials in Obesity: The Impact of Place." *Journal of Health and Social Behavior* 46(3):229-243.

Braveman, Paula, Susan Egerter and David R. Williams. 2011. "The Social Determinants of Health: Coming of Age." *Annual Review of Public Health* 32.

Breslau, Joshua, Gihherme Borges, Yolanda Hagar, Daniel Tancredi and S. Gilman. 2009. "Immigration to the USA and Risk for Mood and Anxiety Disorders: Variation by Origin and Age at Immigration." *Psychological Medicine* 39(07):1117-1127.

Campion, Edward W. and Stephen Morrissey. 2013. "A Different Model—medical Care in Cuba." *New England Journal of Medicine* 368(4):297-299.

Capps, R., ME Fix, J. Ost, J. Reardon-Anderson and JS Passel. 2005. "The Health and Well-Being of Young Children of Immigrants.", Retrieved 4/13/, 2013. (http://www.urban.org/publications/311139.html).

Carlisle, Shauna K. 2012. "Nativity Differences in Chronic Health Conditions between Nationally Representative Samples of Asian American, Latino American, and Afro-Caribbean American Respondents." *Journal of Immigrant and Minority Health* 14(6):903-911.

------. 2014. "Disaggregating Race and Ethnicity in Chronic Health Conditions: Implications for Public Health Social Work." *Social Work in Public Health* 29(6):616-628.

------. 2015. "Perceived Discrimination and Chronic Health in Adults from Nine Ethnic Subgroups in the USA." *Ethnicity & Health* 20(3):309-326.

Carrasquillo, O., A. I. Carrasquillo and S. Shea. 2000. "Health Insurance Coverage of
Immigrants Living in the United States: Differences by Citizenship Status and Country of
Origin." *American Journal of Public Health* 90(6):917-923.

Castro, Felipe G., Flavio F. Marsiglia, Stephen Kulis and Joshua G. Kellison. 2010.
"Lifetime Segmented Assimilation Trajectories and Health Outcomes in Latino and Other
Community Residents." *American Journal of Public Health* 100(4):669-676.

Centers for Disease Control and Prevention. 2014. *National Diabetes Statistics Report:
Estimates of Diabetes and Its Burden in the United States, 2014.* Atlanta, GA: .

Central Intelligence Agency. 2017. *Jamaica. The World FactBook.* Washington: DC: Central
Intelligence Agency.

Central Intelligence Agency. 2016a. *Haiti. The world FactBook.* Washinton: DC: Central
Intelligence Agency.

Central Intelligence Agency. 2016b. *Mexico. I The World FactBook.* Washington, DC:
Central Intelligence Agency.

Central Intelligence Agency. 2017. *Dominican Republic. The World FactBook.* Washington:
DC: Central Intelligence Agency.

Chapman, Daniel P., Geraldine S. Perry and Tara W. Strine. 2005. "The Vital Link between
Chronic Disease and Depressive Disorders." *Prev Chronic Dis* 2(1):A14.

Cho, Youngtae, W. P. Frisbie, Robert A. Hummer and Richard G. Rogers. 2004. "Nativity,
Duration of Residence, and the Health of Hispanic Adults in the United States1."
International Migration Review 38(1):184-211.

Choi, S. H. 2012. "Testing Healthy Immigrant Effects among Late Life Immigrants in the
United States: Using Multiple Indicators." *Journal of Aging and Health* 24(3):475-506.

Choi, Sunha. 2006. "Insurance Status and Health Service Utilization among Newly-Arrived Older Immigrants." *Journal of Immigrant and Minority Health* 8(2):149-161.

Colón-López, Vivian, Mary N. Haan, Allison E. Aiello and Debashis Ghosh. 2009. "The Effect of Age at Migration on Cardiovascular Mortality among Elderly Mexican Immigrants." *Annals of Epidemiology* 19(1):8-14.

Cooper, Richard S., Joan F. Kennelly and Pedro Orduñez-Garcia. 2006. "Health in Cuba." *International Journal of Epidemiology* 35(4):817-824. Retrieved Mar 23, 2017 (https://academic.oup.com/ije/article-abstract/35/4/817/686547/Health-in-Cuba). doi: 10.1093/ije/dyl175.

Dallo, Florence J. and Luisa N. Borrell. 2006. "Self-Reported Diabetes and Hypertension among Arab Americans in the United States." *Ethnicity and Disease* 16(3):699.

Derose, K. P., J. J. Escarce and N. Lurie. 2007. "Immigrants and Health Care: Sources of Vulnerability." *Health Affairs* 26(5):1258-1268.

Dieujuste, Colette. 2016. "The Concept of Stigma in Mental Illness as Applied to Haitian Americans." *International Nursing Review* 63(2):200-207.

Eaton, William W. and Roberta Garrison. 1992. "Mental Health in Mariel Cubans and Haitian Boat People." *The International Migration Review* 26(4):1395-1415. Retrieved Jan 6, 2017 (http://www.jstor.org/stable/2546888). doi: 10.2307/2546888.

ECOSOC. 2009. "Annual Ministerial Review: National Voluntary Presentations of Bolivia, China , Jamaica, Japan, Mali, Sri Lanka, Sudan ".

Elo, Irma T., Neil K. Mehta and Cheng Huang. 2011. "Disability among Native-Born and Foreign-Born Blacks in the United States." *Demography* 48(1):241-265.

Erving, C. L. 2011. "Gender and Physical Health: A Study of African American and
Caribbean Black Adults." *Journal of Health and Social Behavior* 52(3):383-399.

Fang, Jing, Shantha Madhavan and Michael H. Alderman. 1996. "The Association between
Birthplace and Mortality from Cardiovascular Causes among Black and White Residents of
New York City." *New England Journal of Medicine* 335(21):1545-1551.

Ferraro, K. F. and J. A. Kelley-Moore. 2001. "Self-Rated Health and Mortality among Black
and White Adults: Examining the Dynamic Evaluation Thesis." *The Journals of
Gerontology.Series B, Psychological Sciences and Social Sciences* 56(4):195.

Ferraro, K. F. and T. P. Shippee. 2009. "Aging and Cumulative Inequality: How does
Inequality Get Under the Skin?" *The Gerontologist* 49(3):333-343.

Ferraro, Kenneth F., Tetyana P. Shippee and Markus H. Schafer. 2009. "Cumulative
inequality theory for research on aging and the life course." Pp. 413-433 in , edited by V.L.
Bengtson, D. Gans, N.M. Putney and M. Silverstein.Springer New York.

Finch, B. K., B. Kolody and W. A. Vega. 2000. "Perceived Discrimination and Depression
among Mexican-Origin Adults in California." *Journal of Health and Social Behavior*
41(3):295-313.

Franzini, Luisa and Maria E. Fernandez-Esquer. 2004. "Socioeconomic, Cultural, and
Personal Influences on Health Outcomes in Low Income Mexican-Origin Individuals in
Texas." *Social Science & Medicine* 59(8):1629-1646.

Frazier, Lorraine, Jennifer Sanner, Erica Yu, Stanley G. Cron and F. G. Moeller. 2014.
"Using a Single Screening Question for Depressive Symptoms in Acute Coronary
Syndrome Patients." *The Journal of Cardiovascular Nursing* 29(4):347.

Frenk, Julio, Jaime Seplveda, Octavio Gmez-Dants and Felicia Knaul. 2003. "Evidence-Based Health Policy: Three Generations of Reform in Mexico." *The Lancet* 362(9396):1667-1671.

Gee, Gilbert C., Andrew Ryan, David J. Laflamme and Jeanie Holt. 2006. "Self-Reported Discrimination and Mental Health Status among African Descendants, Mexican Americans, and Other Latinos in the New Hampshire REACH 2010 Initiative: The Added Dimension of Immigration." *American Journal of Public Health* 96(10):1821-1828.

Gibbs, Tresha A., Mayumi Okuda, Maria A. Oquendo, William B. Lawson, Shuai Wang, Yonette F. Thomas and Carlos Blanco. 2013. "Mental Health of African Americans and Caribbean Blacks in the United States: Results from the National Epidemiological Survey on Alcohol and Related Conditions." *American Journal of Public Health* 103(2):330-338.

Glymour, M. M., Mauricio Avendaño, Steven Haas and Lisa F. Berkman. 2008. "Lifecourse Social Conditions and Racial Disparities in Incidence of First Stroke." *Annals of Epidemiology* 18(12):904-912.

González, Hector M., Wassim Tarraf, Keith E. Whitfield and William A. Vega. 2010. "The Epidemiology of Major Depression and Ethnicity in the United States." *Journal of Psychiatric Research* 44(15):1043-1051. Retrieved Jan 9, 2017 (http://www.sciencedirect.com/science/article/pii/S0022395610000932). doi: 10.1016/j.jpsychires.2010.03.017.

Goodman, Elizabeth and Robert C. Whitaker. 2002. "A Prospective Study of the Role of Depression in the Development and Persistence of Adolescent Obesity." *Pediatrics* 110(3):497-504.

Gordon, Milton M. 1964. *Assimilation in American Life: The Role of Race, Religion, and National Origins.*

Grieco, Elizabeth M., Yesenia D. Acosta, de la Cruz, G Patricia, Christine Gambino, Thomas Gryn, Luke J. Larsen, Edward N. Trevelyan and Nathan P. Walters. 2012. "The Foreign-Born Population in the United States: 2010." *American Community Survey Reports*.

Gubernskaya, Zoya. 2015. "Age at Migration and Self-Rated Health Trajectories After Age 50: Understanding the Older Immigrant Health Paradox." *The Journals of Gerontology Series B: Psychological Sciences and Social Sciences* 70(2):279-290.

Haas, Steven. 2008. "Trajectories of Functional Health: The 'long Arm'of Childhood Health and Socioeconomic Factors." *Social Science & Medicine* 66(4):849-861.

Haas, Steven A. 2007. "The Long-Term Effects of Poor Childhood Health: An Assessment and Application of Retrospective Reports." *Demography* 44(1):113-135.

Hamilton, Tod G. 2014. "Do Country-of-Origin Characteristics Help Explain Variation in Health among Black Immigrants in the United States?" *Social Science Quarterly* 95(3):817-834.

Hamilton, Tod G. and Ichiro Kawachi. 2013. "Changes in Income Inequality and the Health of Immigrants." *Social Science & Medicine* 80:57-66.

Han, Beth. 2002. "Depressive Symptoms and Self-Rated Health in Community-Dwelling Older Adults: A Longitudinal Study." *Journal of the American Geriatrics Society* 50(9):1549-1556.

Hayward, Mark D. and Bridget K. Gorman. 2004. "The Long Arm of Childhood: The Influence of Early-Life Social Conditions on Men's Mortality." *Demography* 41(1):87-107.

155

Healey, Joseph F. and Andi Stepnick. 2017. *Diversity and Society.*Los Angeles ; London ;
New Delhi ; Singapore ; Washington, DC ; Melbourne: SAGE.

Heron, Melonie P., Robert F. Schoeni and Leo Morales. 2003. *Health Status among Older
Immigrants in the United States.*Population Studies Center, University of Michigan.

Hiott, Ann, Joseph G. Grzywacz, Thomas A. Arcury and Sara A. Quandt. 2006. "Gender
Differences in Anxiety and Depression among Immigrant Latinos." *Families, Systems, &
Health* 24(2):137.

Huffman, Jeff C., Felicia A. Smith, Mark A. Blais, Marguerite E. Beiser, James L. Januzzi
and Gregory L. Fricchione. 2006. "Rapid Screening for Major Depression in Post-
Myocardial Infarction Patients: An Investigation using Beck Depression Inventory II
Items." *Heart* 92(11):1656-1660.

Hummer, Robert, Jennifer Melvin, Connor Sheehan and Ying—Ting Wang. 2013.
"Race/Ethnicity, Mortality, and Longevity." Pp. 131-151 in *Handbook of Minority Aging.*,
edited by K. Whitfield and T. Baker.Springer Publishing Company.

Idler, Ellen L. 1992. "Self-Assessed Health and Mortality: A Review of Studies."
International Review of Health Psychology 1:33-54.

Idler, Ellen L. and Yael Benyamini. 1997. "Self-Rated Health and Mortality: A Review of
Twenty-Seven Community Studies." *Journal of Health and Social Behavior*:21-37.

Idler, Ellen L. and Stanislav V. Kasl. 1995. "Self-Ratings of Health: Do they also Predict
Change in Functional Ability?" The Journals of Gerontology Series B: Psychological
Sciences and Social Sciences 50(6):S353.

Im, Eun-Ok, Sun J. Chang, Wonshik Chee, Eunice Chee and Jun J. Mao. 2015. "Immigration Transition and Depressive Symptoms: Four Major Ethnic Groups of Midlife Women in the United States." *Health Care for Women International* 36(4):439-456.

Jasso, Guillermina, Douglas S. Massey, Mark R. Rosenzweig and James P. Smith. 2004a. "Immigrant Health: Selectivity and Acculturation." *Critical Perspectives on Racial and Ethnic Differences in Health in Late Life*:227-266.

------. 2004b. "The US New Immigrant Survey: Overview and Preliminary Results Based on the New-Immigrant Cohorts of 1996 and 2003.".

Jasso, Guillermina and Mark R. Rosenzweig. 1982. "Estimating the Emigration Rates of Legal Immigrants using Administrative and Survey Data: The 1971 Cohort of Immigrants to the United States." *Demography* 19(3):279-290.

Jimenez, Daniel E., Margarita Alegría, Chih-nan Chen, Domin Chan and Mara Laderman. 2010. "Prevalence of Psychiatric Illnesses in Older Ethnic Minority Adults." *Journal of the American Geriatrics Society* 58(2):256-264. Retrieved Jan 9, 2017 (http://onlinelibrary.wiley.com/doi/10.1111/j.1532-5415.2009.02685.x/abstract). doi: 10.1111/j.1532-5415.2009.02685.x.

Jylhä, Marja. 2006. "Self-Rated Health showed a Graded Association with Frequently used Biomarkers in a Large Population Sample." *Journal of Clinical Epidemiology* 59(5):471; 471.

Kandula, Namratha R., Margaret Kersey and Nicole Lurie. 2004. "Assuring the Health of Immigrants: What the Leading Health Indicators Tell Us." *Annu.Rev.Public Health* 25:357-376.

Katon, Wayne J. 2003. "Clinical and Health Services Relationships between Major

   Depression, Depressive Symptoms, and General Medical Illness." *Biological Psychiatry*

   54(3):216-226. Retrieved Jan 6, 2017

   (http://www.sciencedirect.com/science/article/pii/S0006322303002737). doi:

   10.1016/S0006-3223(03)00273-7.

Kaufman, Jason. 2004. "Endogenous Explanation in the Sociology of Culture." *Annual*

   Review of Sociology:335-357.

Keyes, Corey L. M. 2009. "The Black–White Paradox in Health: Flourishing in the Face of

   Social Inequality and Discrimination." *Journal of Personality* 77(6):1677-1706.

Kim, M., G. Van Wye, B. Kerker, L. Thorpe and T. R. Frieden. 2006. "The Health of

   Immigrants in New York City." *New York: New York City Department of Health and*

   Mental Hygiene.

Kimbro, Rachel T., Bridget K. Gorman and Ariela Schachter. 2012. "Acculturation and Self-

   Rated Health among Latino and Asian Immigrants to the United States." *Social Problems*

   59(3):341-363.

Kosloski, Karl, Donald E. Stull, Kyle Kercher and Daniel J. Van Dussen. 2005.

   "Longitudinal Analysis of the Reciprocal Effects of Self-Assessed Global Health and

   Depressive Symptoms." *The Journals of Gerontology Series B: Psychological Sciences*

   and Social Sciences 60(6):P303.

Krogstad, Jens M., Jeffrey S. Passel and D'Vera Cohn. 2016. *5 facts about Illegal*

   Immigration in the U.S. Retrieved Apr 14, 2017 (http://www.pewresearch.org/fact-

   tank/2016/11/03/5-facts-about-illegal-immigration-in-the-u-s/).

Kwag, Kyung H., Yuri Jang and David A. Chiriboga. 2012. "Acculturation and Depressive

    Symptoms in Hispanic Older Adults: Does Perceived Ethnic Density Moderate their

    Relationship?" *Journal of Immigrant and Minority Health* 14(6):1111; 1111.

Lacey, Krim K., Karen P. Sears, Ishtar O. Govia, Ivy Forsythe-Brown, Niki Matusko and

    James S. Jackson. 2015. "Substance use, Mental Disorders and Physical Health of

    Caribbeans at-Home Compared to those Residing in the United States." *International*

    Journal of Environmental Research and Public Health 12(1):710-734. Retrieved Jan 13,

    2017 (http://www.mdpi.com/1660-4601/12/1/710). doi: 10.3390/ijerph120100710.

Latham, Kenzie. 2015. "The "Long Arm" of Childhood Health: Linking Childhood

    Disability to Late Midlife Mental Health." *Research on Aging* 37(1):82-102. Retrieved Jan

    10, 2017 (http://journals.sagepub.com/doi/abs/10.1177/0164027514522276). doi:

    10.1177/0164027514522276.

Lee, J. W. and M. Marmot. 2005. "Social Determinants of Health Inequalities." *Lancet*

    365(9464):1099-1104.

Lee, Jennifer and Min Zhou. 2014. "The Success Frame and Achievement Paradox: The

    Costs and Consequences for Asian Americans." *Race and Social Problems* 6(1):38-55.

Lincoln, Karen D., Linda M. Chatters, Robert J. Taylor and James S. Jackson. 2007. "Profiles

    of Depressive Symptoms among African Americans and Caribbean Blacks." *Social Science*

    & Medicine 65(2):200-213. Retrieved Jan 23, 2017

    (//www.sciencedirect.com/science/article/pii/S0277953607000871). doi:

    10.1016/j.socscimed.2007.02.038.

Link, Bruce G. and Jo Phelan. 1995. "Social Conditions as Fundamental Causes of Disease."
Journal of Health and Social Behavior:80-94.

Luo, Ye and Linda J. Waite. 2005. "The Impact of Childhood and Adult SES on Physical,
Mental, and Cognitive Well-being in Later Life." *The Journals of Gerontology Series B:
Psychological Sciences and Social Sciences* 60(2):S101.

Markides, Kyriakos S. and Karl Eschbach. 2005. "Aging, Migration, and Mortality: Current
Status of Research on the Hispanic Paradox." *The Journals of Gerontology Series B:
Psychological Sciences and Social Sciences* 60(Special Issue 2):S75.

------. 2011. "Hispanic paradox in adult mortality in the United States." Pp. 227-240 in
International handbook of adult mortality."Hispanic paradox in adult mortality in the
United States."Springer.

Marmot, Michael G. and Richard G. Wilkinson. 2006. *Social Determinants of Health.*Oxford
University Press, USA.

Massey, D. S. (2011). The new immigrant survey and research on american stratification.
Social Science Research, 40(5), 1287.

McGuire, Thomas G. and Jeanne Miranda. 2008. "New Evidence regarding Racial and
Ethnic Disparities in Mental Health: Policy Implications." *Health Affairs* 27(2):393-403.

McKenna, Matthew T., Catherine M. Michaud, Christopher J. Murray and James S. Marks.
2005. "Assessing the Burden of Disease in the United States using Disability-Adjusted Life
Years." *American Journal of Preventive Medicine* 28(5):415-423.

McMullen, C. K. and M. R. Luborsky. 2006. "Self-Rated Health Appraisal as Cultural and
Identity Process: African American Elders' Health and Evaluative Rationales."
Gerontologist 46(4):431-438.

Mereish, Ethan H., Hammad S. N'cho, Carlton E. Green, Maryam M. Jernigan and Janet E.

Helms. 2016. "Discrimination and Depressive Symptoms among Black American Men:

Moderated-Mediation Effects of Ethnicity and Self-Esteem." *Behavioral Medicine*

42(3):190-196.

Miranda, Jeanne, Juned Siddique, Thomas R. Belin and Laura P. Kohn-Wood. 2005.

"Depression Prevalence in Disadvantaged Young Black Women." *Social Psychiatry and*

Psychiatric Epidemiology 40(4):253-258.

Montez, Jennifer K. and Mark D. Hayward. 2011. "Early life conditions and later life

mortality." Pp. 187-206 in *International handbook of adult mortality*."Early life conditions

and later life mortality."Springer.

Montgomery, Michelle A., Charlotte T. Jackson and Elizabeth A. Kelvin. 2014.

"Premigration Harm and Depression: Findings from the New Immigrant Survey, 2003."

Journal of Immigrant and Minority Health 16(5):773-780.

Morales, Leo S., Yvonne N. Flores, Mei Leng, Nomie Sportiche, Katia Gallegos-Carrillo and

Jorge Salmern. 2014. "Risk Factors for Cardiovascular Disease among Mexican-American

Adults in the United States and Mexico: A Comparative Study." *Salud Pblica De Mxico*

56(2):197-205.

Mozaffarian, Dariush, Emelia J. Benjamin, Alan S. Go, Donna K. Arnett, Michael J. Blaha,

Mary Cushman, Sarah De Ferranti, Jean P. Desprs, Heather J. Fullerton and Virginia J.

Howard. 2015. "Executive Summary: Heart Disease and Stroke Statistics—2015 Update."

Circulation 131(4):434-441.

Nwosu, Chiamaka and Jeanne Batalova. 2014. *Immigrants from the Dominican Republic in the United States.* Retrieved Jan 30, 2017 (http://www.migrationpolicy.org/article/foreign-born-dominican-republic-united-states).

OECD. 2016. *OECD Reviews of Health Systems: Mexico 2016.*Paris: OECD Publishing.

OECD Health Statistics. 2014. *How does Mexico Compare.*2014.

Okafor, Maria-Theresa C., Olivia D. Carter-Pokras, Sandra J. Picot and Min Zhan. 2013. "The Relationship of Language Acculturation (English Proficiency) to Current Self-Rated Health among African Immigrant Adults." *Journal of Immigrant and Minority Health* 15(3):499-509.

Okafor, Maria-Theresa C., Olivia D. Carter-Pokras and Min Zhan. 2014. "Greater Dietary Acculturation (Dietary Change) is Associated with Poorer Current Self-Rated Health among African Immigrant Adults." *Journal of Nutrition Education and Behavior* 46(4):226-235.

Ornelas, India J. and Krista M. Perreira. 2011. "The Role of Migration in the Development of Depressive Symptoms among Latino Immigrant Parents in the USA." *Social Science & Medicine* 73(8):1169-1177.

Ortega, Alexander N., Robert Rosenheck, Margarita Alegria and Rani A. Desai. 2000. "Acculturation and the Lifetime Risk of Psychiatric and Substance use Disorders among Hispanics." *The Journal of Nervous and Mental Disease* 188(11):728-735.

Otiniano, Max E., Xianglin L. Du, Kenneth Ottenbacher and Kyriakos S. Markides. 2003. "The Effect of Diabetes Combined with Stroke on Disability, Self-Rated Health, and Mortality in Older Mexican Americans: Results from the Hispanic EPESE." *Archives of Physical Medicine and Rehabilitation* 84(5):725-730.

Oza-Frank, Reena and K. M. V. Narayan. 2008. "Overweight and Diabetes Prevalence among US Immigrants." *American Journal of Public Health* 100(4):661-668.

Pan American Health Organization/ World Health Organization. 2012. *Jamaica. Health of the Americas.* Washington: DC: PAHO/WHO.

Pan American Health Organization/World Health Organization. 2012. *Dominican Republic. Health of the Americas.* Washington: DC: PAHO/WHO.

------. 2013. *Haiti. Health in the Americas.* Washington, DC: WHO/PAHO.

Park, Y., K. M. Neckerman, J. Quinn, C. Weiss and A. Rundle. 2008. "Place of Birth, Duration of Residence, Neighborhood Immigrant Composition and Body Mass Index in New York City." *International Journal of Behavioral Nutrition and Physical Activity* 5(1):19.

Patel, Kushang V., Karl Eschbach, Laura A. Ray and Kyriakos S. Markides. 2004. "Evaluation of Mortality Data for Older Mexican Americans: Implications for the Hispanic Paradox." *American Journal of Epidemiology* 159(7):707-715.

Phelan, Jo C., Bruce G. Link, Ana Diez-Roux, Ichiro Kawachi and Bruce Levin. 2004. ""Fundamental Causes" of Social Inequalities in Mortality: A Test of the Theory." *Journal of Health and Social Behavior* 45(3):265-285.

Pollitt, Ricardo, Kathryn Rose and Jay Kaufman. 2005. "Evaluating the Evidence for Models of Life Course Socioeconomic Factors and Cardiovascular Outcomes: A Systematic Review." *BMC Public Health* 5(1):7.

Portes, Alejandro and Ruben G. Rumbaut. 2014. *Immigrant America: A Portrait.* Univ of California Press.

Portes, Alejandro and Min Zhou. 1993. "The New Second Generation: Segmented
Assimilation and its Variants." *The Annals of the American Academy of Political and
Social Science* 530(1):74-96.

Pratt, L. A. and D. J. Brody. 2014. *Depression in the U.S. household population, 2009–2012.
NCHS data brief, no 172.* Hyattsville, MD: National Center for Health Statistics.

Pudrovska, T. and B. Anikputa. 2014. "Early-Life Socioeconomic Status and Mortality in
Later Life: An Integration of Four Life-Course Mechanisms." *The Journals of
Gerontology.Series B, Psychological Sciences and Social Sciences* 69(3):451-460.

Putcha, Nirupama, Milo A. Puhan, Nadia N. Hansel, M. B. Drummond and Cynthia M.
Boyd. 2013. "Impact of Co-Morbidities on Self-Rated Health in Self-Reported COPD: An
Analysis of NHANES 2001–2008." *COPD: Journal of Chronic Obstructive Pulmonary
Disease* 10(3):324-332.

Ra, Chaelin K., Youngtae Cho and Robert A. Hummer. 2013. "Is Acculturation always
Adverse to Korean Immigrant Health in the United States?" *Journal of Immigrant and
Minority Health* 15(3):510-516.

Read, Jen'nan G., Michael O. Emerson and Alvin Tarlov. 2005. "Implications of Black
Immigrant Health for US Racial Disparities in Health." *Journal of Immigrant Health*
7(3):205-212.

Read, Jen'nan G. and Megan M. Reynolds. 2012. "Gender Differences in Immigrant Health
the Case of Mexican and Middle Eastern Immigrants." *Journal of Health and Social
Behavior* 53(1):99-123.

Riosmena, Fernando, Rebeca Wong and Alberto Palloni. 2013. "Migration Selection, Protection, and Acculturation in Health: A Binational Perspective on Older Adults." *Demography* 50(3):1039-1064.

Roger, Véronique L., Alan S. Go, Donald M. Lloyd-Jones, Robert J. Adams, Jarett D. Berry, Todd M. Brown, Mercedes R. Carnethon, Shifan Dai, Giovanni de Simone and Earl S. Ford. 2011. "Heart Disease and Stroke Statistics—2011 Update1. about 1. about these Statistics2. American Heart Association's 2020 Impact Goals3. Cardiovascular Di." *Circulation* 123(4):e209.

Roshania, Reshma, K. M. V. Narayan and Reena Oza-Frank. 2008. "Age at Arrival and Risk of Obesity among US Immigrants." *Obesity* 16(12):2669-2675.

Ruiz, Ariel G., Jie Zong and Jeanne Batalova. 2015. *Immigrant Women in the United States.* Migration Policy Institute.

Rumbaut, Ruben G. 1994. "The Crucible within: Ethnic Identity, Self-Esteem, and Segmented Assimilation among Children of Immigrants." *International Migration Review*:748-794.

Shai, Donna and Ira Rosenwaike. 1987. "Mortality among Hispanics in Metropolitan Chicago: An Examination Based on Vital Statistics Data." *Journal of Chronic Diseases* 40(5):445-451.

Silberman, Roxane, Richard Alba and Irne Fournier. 2007. "Segmented Assimilation in France? Discrimination in the Labour Market Against the Second Generation." *Ethnic and Racial Studies* 30(1):1-27.

Singh, G. K. and B. A. Miller. 2004. "Health, Life Expectancy, and Mortality Patterns among

    Immigrant Populations in the United States." *Canadian Journal of Public Health.Revue*

    Canadienne De Sante Publique 95(3):I14.

Singh, Gopal K. and Mohammad Siahpush. 2001. "All-Cause and Cause-Specific Mortality

    of Immigrants and Native Born in the United States." *American Journal of Public Health*

    91(3):392.

Singh-Manoux, Archana, Pekka Martikainen, Jane Ferrie, Marie Zins, Michael Marmot and

    Marcel Goldberg. 2006. "What does Self Rated Health Measure? Results from the British

    Whitehall II and French Gazel Cohort Studies." *Journal of Epidemiology and Community*

    Health 60(4):364-372.

The World Bank. 2017. *Jamaica Overview.* Washington: DC: The World Bank.

Thomas, Kevin J. 2012. "A Demographic Profile of Black Caribbean Immigrants in the

    United States." *Washington, DC: Migration Policy Institute*. Retrieved 3/2/16

    (http://www.migrationpolicy.org/research/CBI-demographic-profile-black-caribbean-

    immigrants).

Torres, Lucas. 2010. "Predicting Levels of Latino Depression: Acculturation, Acculturative

    Stress, and Coping." *Cultural Diversity and Ethnic Minority Psychology* 16(2):256-263.

    Retrieved Jan 6, 2017

    (http://libezproxy.syr.edu/login?url=http://search.ebscohost.com/login.aspx?direct=true&d

    b=pdh&AN=2010-07475-018&site=ehost-live). doi: 10.1037/a0017357.

Treas, Judith and Jeanne Batalova. 2009. "Immigrants and aging." Pp. 365-394 in

    International handbook of population aging."Immigrants and aging."Springer.

Vega, William A., Michael A. Rodriguez and Alfonso Ang. 2010. "Addressing Stigma of Depression in Latino Primary Care Patients." *General Hospital Psychiatry* 32(2):182-191.

Vermeulen, Hans. 2010. "Segmented Assimilation and Cross-National Comparative Research on the Integration of Immigrants and their Children." *Ethnic and Racial Studies* 33(7):1214-1230.

Verner, Dorte. 2008. *Making Poor Haitians Count-Poverty In Rural And Urban Haiti Based On The First Household Survey For Haiti.* Washington, DC: World Bank Policy Research Working Paper Series.

Vidal, de H., Jessica Martone, Lina Muñoz and Susan Grossman. 2011. "Family Cohesion and Social Support: Protective Factors for Acculturation Stress among Low-Acculturated Mexican Migrants." *Journal of Poverty* 15(4):403-426.

Villa, Valentine M., Steven P. Wallace, Sofya Bagdasaryan and Maria P. Aranda. 2012. "Hispanic Baby Boomers: Health Inequities Likely to Persist in Old Age." *The Gerontologist* 52(2):166-176.

Viruell-Fuentes, Edna A. and Flavia C. Andrade. 2016. "Testing Immigrant Social Ties Explanations for Latino Health Paradoxes: The Case of Social Support and Depression Symptoms." *Journal of Latino/Latin American Studies* 8(1):77-92.

Viruell-Fuentes, Edna A., Ninez A. Ponce and Margarita Alegra. 2012. "Neighborhood Context and Hypertension Outcomes among Latinos in Chicago." *Journal of Immigrant and Minority Health* 14(6):959-967.

Warner, D. F. and M. D. Hayward. 2006. "Early-Life Origins of the Race Gap in Men's Mortality." *Journal of Health and Social Behavior* 47(3):209-226.

WHO. 2011. *Haitian health care: a follow-up.* Washington: DC: .

WHO. 2015a. *Cardiovascular diseases (CVDs).* World Health Organization.

WHO. 2015b. *Diabetes.*World Health Organization.

WHO. 2015c. *Dominican Republic: WHO Statistical Profile.* Washington: DC: WHO.

Wilkinson, Lindsay R. 2016. "Financial Strain and Mental Health among Older Adults
    during the Great Recession." *The Journals of Gerontology Series B: Psychological
    Sciences and Social Sciences* 71(4):745-754. Retrieved Jan 13, 2017
    (http://psychsocgerontology.oxfordjournals.org/content/71/4/745). doi:
    10.1093/geronb/gbw001.

Williams, D. R. 2002. "Racial/Ethnic Variations in Women's Health: The Social
    Embeddedness of Health." *Journal Information* 92(4).

Williams, David R. 2005. "The Health of U.S. Racial and Ethnic Populations." *The Journals
    of Gerontology* 60B:53-62.

Williams, David R., Hector M. González, Harold Neighbors, Randolph Nesse, Jamie M.
    Abelson, Julie Sweetman and James S. Jackson. 2007a. "Prevalence and Distribution of
    Major Depressive Disorder in African Americans, Caribbean Blacks, and Non-Hispanic
    Whites: Results from the National Survey of American Life." *Archives of General
    Psychiatry* 64(3):305-315. Retrieved Jan 9, 2017
    (http://jamanetwork.com/journals/jamapsychiatry/fullarticle/482214). doi:
    10.1001/archpsyc.64.3.305.

Williams, David R., Rahwa Haile, Hector M. González, Harold Neighbors, Raymond Baser
    and James S. Jackson. 2007b. "The Mental Health of Black Caribbean Immigrants: Results
    from the National Survey of American Life." *American Journal of Public Health* 97(1):52-
    59. Retrieved Jan 9, 2017

(http://ajph.aphapublications.org/doi/full/10.2105/AJPH.2006.088211). doi:
10.2105/AJPH.2006.088211.

Wilmoth, Janet M. and Pei-Chun Chen. 2003. "Immigrant Status, Living Arrangements, and
Depressive Symptoms among Middle-Aged and Older Adults." *The Journals of
Gerontology. Series B, Psychological Sciences and Social Sciences* 58(5):305
(http://www.ncbi.nlm.nih.gov/pubmed/14507941). doi: 10.1093/geronb/58.5.S305.

Yoon, S. S., C. D. Fryar and MD Carroll. 2015. *Hypertension prevalence and control among
adults: United States, 2011–2014.* Hyattsville, MD: CDC.

Zhou, M. 1997. "Growing Up American: The Challenge Confronting Immigrant Children
and Children of Immigrants." *Annual Review of Sociology*:63-95.

Zhou, Min. 2012. "Segmented Assimilation and the American Experience of Asian
Immigrant Children." Pp. 383-409 in *Oxford Handbook of the Politics of International
Migration.*, edited by M.R. Rosenblum and D.J. Tichenor.'Oxford University Press'.

Zong, Jie and Jeanne Batalova. 2016. *Caribbean Immigrants in the United States.* Retrieved
Mar 13, 2017 (http://www.migrationpolicy.org/article/caribbean-immigrants-united-states).

Zsembik, Barbara A. and Dana Fennell. 2005. "Ethnic Variation in Health and the
Determinants of Health among Latinos." *Social Science & Medicine* 61(1):53-63.

Ynesse Abdul-Malak
Adjunct Professor and Doctoral Candidate (Expected Completion May 2017), Syracuse University, Department of Sociology

Contact   Syracuse University
                     309 Lyman Hall
                     Syracuse, NY 13244-1020
                     Phone: (315) 460-5147
                     Fax: (315) 443-9098
                     yabdulma@syr.edu

Education
2011-   Ph.D. Student, Sociology, Syracuse University, Syracuse, NY.
2011-2013   MA. Sociology, Syracuse University, Syracuse, NY.
2006-08   MPH. Epidemiology and Biostatistics Concentration. American
               University of Beirut (AUB). Beirut, Lebanon.
2002-06   B.S., Environmental Health, American University of Beirut, Beirut,
               Lebanon.
1997-2000   A.A.S, Registered Nurse. Regents College. Albany, NY

Employment History
2015-   Faculty Visitor, Syracuse University Project Advance (SUPA),
               Syracuse, NY
2015-   Adjunct Professor, Department of Sociology at Syracuse University,
               NY
2014-2015   Research Assistant of the Aging Studies Institute and Department of
               Sociology at Syracuse University, NY
2012-2014   Teaching Assistant, Department of Sociology, Syracuse University,
               Syracuse, NY.
2008-2011   Research Scientist/Coordinator, Research Foundation of Upstate
               Medical University Syracuse, NY.
2006-2007   Research Assistant, American University of Beirut, Beirut, Lebanon.
2000-2002   Nursing Supervisor- St. Elizabeth Ann's Health Care and
               Rehabilitation Center, Staten Island, NY.
1994-2000   Licensed Practical Nurse- St. Elizabeth Ann's Health Care and
               Rehabilitation Center, Staten Island, NY.

Publications
Books
In Progress   Harrington Meyer, Madonna and **Abdul-Malak**, *Grandparenting Children
               with Disabilities.* Under contract with Springer Publications

2016   Harrington Meyer, Madonna and **Abdul-Malak**, Ynesse
editors. *Grandparenting in the U.S.* Baywood Publishing.

Articles and Chapters

2016   Abdul-Malak, Ynesse. "Health and Grandparenting among Caribbean and Latin American Immigrant Women in the U.S." In Madonna Harrington Meyer and **Abdul-Malak**, Ynesse (eds) *Grandparenting in the US.* Baywood Publishing

2016   Harrington Meyer, Madonna and Ynesse **Abdul-Malak**. "Overview of Grandparenting in the U.S." In Madonna Harrington Meyer and Abdul-Malak, Ynesse (eds), *Grandparenting in the U.S.* Baywood Publishing

2014   Meszaros, ZS, **Y Abdul-Malak**, DJ Zaccarini, TO Ajagbe and I. Coman.. "Smoking Severity and Functional MRI Results in Schizophrenia: A Case-Series." *Journal of Addiction and Research Therapy* 5(189):2.

2013   Mészáros, Z.S **Abdul-Malak, Y.,** Dimmock, J.A, Wang, R., Ajagbe T.O., Batki S. L.: Varenicline Treatment Of Alcohol And Nicotine Dependence In Schizophrenia: A Randomized, Placebo-Controlled Pilot Trial. *The Journal of Clinical Psychopharmacology*, 33(2):243-247.

2012   Abdulrahim Sawsan, **Abdul-Malak,** Ynesse. The Well-Being Of Migrant Women: Between Agency And Restraint. In: Jabbour, Samer, Rita Giacaman, Marwan Khawaja and Iman Nuwayhid. *Public health in the Arab world: toward a multidisciplinary perspective*. Cambridge University Press.

2012   Hicks S.D., Lewis L., Ritchie J., Burke P., **Abdul-Malak Y**., Adackapara N., Canfield K., Gentile K.L., Meszaros Z.S., Middleton F.A. Evaluation Of Cell Proliferation, Apoptosis, And DNA-Repair Genes As Potential Biomarkers For Ethanol-Induced CNS Alterations. *BMC Neuroscience* 13:128-141.

2011   Meszaros, Z. S., J. A. Dimmock, R. Ploutz-Snyder, S. V. S. Chauhan, **Y. Abdul-Malak**, F. A. Middleton and S. L. Batki. 2011. Accuracy Of Self-Reported Medical Problems In Patients With Alcohol Dependence And Co-Occurring Schizophrenia Or Schizoaffective Disorder. *Schizophrenia research*, 132(2); 190-193

2011   Meszaros, Z. S., J. A. Dimmock, R. J. Ploutz-Snyder, **Y. Abdul-Malak**, L. Leontieva, K. Canfield and S. L. Batki. 2011. Predictors of Smoking Severity in Patients with Schizophrenia and Alcohol Use Disorders. *The American Journal on Addictions* 20(5); 462-467.

Refereed Presentations

Forthcoming **Abdul-Malak, Ynesse.** "Depressive Symptoms among Mexican and Caribbean Immigrants" SSSP 2017 Montreal, Canada, August 2017

Forthcoming **Abdul-Malak, Ynesse. "**Cultural and Gendered Expectations of Latin American and Caribbean Grandmothers in the U.S." IAGG 2017 World Congress, San Franscisco, July 23rd , 2017

2016 Meszaros, Lewis, Wang, **Abdul-Malak,** Batki, and Middleton. "The Power of Assessment: Changes in Alcohol Consumption after Comprehensive Research Assessment of Alcohol Use." Poster, presented at the 27th Annual Meeting of the American Academy of Addiction Psychiatry (Bonita Springs, FL), December.

2016 **Abdul-Malak, Ynesse**. "Chronic Conditions Among Mexican and Caribbean Immigrants." 2016 Gerontological Society of America, Annual Meeting, New Orleans, November.

2016 **Abdul-Malak, Y** and Madonna, Harrington Meyer. "Emotional Health Impact of Invisible Care Work: Grandparenting Children with Disabilities." *Care work and precarious labor in the global economy.* 2016 SSSP Annual Meeting. Seattle, August.

2015 Harrington Meyer Madonna and **Abdul-Malak, Y**. "Single-Headed Families' Economic Vulnerability and Reliance on Social Programs," with Madonna Harrington Meyer, 2015 Gerontological Society of America Annual Meeting, Orlando, November

2015 **Abdul-Malak, Ynesse** . "Health and Grandparenting among Immigrant Women in U.S." CRITICAL DIALOGUE: Lifting the Veil on Grandparenting in the 21st Century - in the 2015 SSSP Annual Meeting. Chicago, August.

2014 **Abdul-Malak, Ynesse** "Health and Grandmothering among Latin and Caribbean Women in the U.S." Society for Longitudinal and Life Course Studies conference in Lausanne, Switzerland October 9-11

2014 **Abdul-Malak, Ynesse**. "Health Impacts of Invisible Care Work: Immigrant Grandparents from the Caribbean and Latin America." Paper presented at the annual meeting of the Eastern Sociological Society, February 21st, 2014, Baltimore, MD.

2012 Meszaros, **Abdul-Malak,** Y., Dimmock, J., Wang, D., and Batki, S. "Varenicline Treatment of Alcohol and Nicotine Dependence in Schizophrenia: Problems Encountered in a Pilot Trial." Poster, presented at the 22nd Annual Meeting of the American Academy of Addiction

Psychiatry (Scottsdale, AZ), 12/2011, abstract published in American Journal on Addictions 2012, Vol. 21, No.4 page 393, No.36.

2011   Meszaros, Z.S., Dimmock, J.A., **Abdul-Malak**, Y., Ploutz-Snyder, R., Batki, S.L.: "Alcohol use is associated with impaired decision-making in schizophrenia and schizoaffective disorder" Poster, presented at the 21th Annual Meeting of the American Academy of Addiction Psychiatry (Boca Raton, FL), 12/2010, abstract published in American Journal on Addictions, 2011, Vol. 20, No.4, page 376, No.7.

Invited Publications

2016   **Abdul-Malak,** Ynesse and Rebecca Wang. "Immigration, Life Course, and Aging." In *Gerontology: Changes, Challenges, and Solutions*, edited by Madonna Harrington Meyer and Elizabeth Daniele

2015   Harrington Meyer, Madonna and Ynesse **Abdul-Malak**, ""Single-Headed Family Economic Vulnerability and Reliance on Social Programs*." Public Policy & Aging Report* 25.3 (2015): 102-106. doi: 10.1093/ppar/prv013

Invited Presentation

2017   Ynesse Abdul-Malak. "Publishing in Grad Schools." Future Professional Program, Sociology Department at Syracuse University, 3/06/2017

2016   Ynesse Abdul-Malak. "Chronic Conditions among Mexican and Caribbean Immigrants." ASI at Syracuse University Brown Bag Series, 11/04/2016

2015   Ynesse Abdul-Malak. "Stay Organized for Comprehensive Exams and Proposal Defense." MGSOP orientation, 8/30/2015

2015   Ynesse Abdul-Malak "Childhood and Adolescent Development: Cultural Perspectives," Chair. Second Annual All-University Graduate Research Symposium program, March 20th

2015   "Setting Aside Time for Service," with Andrew London, Future Professorial Program (FPP), March 16th.

2014   "Identify Suitable Research Questions." Syracuse University Multicultural Graduate Student Orientation Program, August 22nd.

2014   Abdul-Malak, Ynesse. "Health and Grandparenting among Caribbean and Latin American Immigrant Women in the U.S." Paper presented at the Interdisciplinary Graduate Research Symposium at Syracuse University, March 22nd.

Teaching Experience

Fall 2015-   Adjunct Professor SOC/WGS 248 Ethnic Inequalities and Intergroup Relations

Spring 2014   Teaching Assistant. SOC 606 Quantitative Methods

Spring 2014   Teaching Assistant. SOC 101 Introduction to Sociology

Fall 2013   Guest Lecturer, SOC/364 Aging and Society. "*Immigrant Grandmothers: Health and Caring for Grandchildren*."

Fall 2013   Instructor/Teaching Assistant. SOC/WGS 305 Sex and Gender

| Spring 2013 | Teaching Assistant. SOC 606 Quantitative Methods |
| Fall 2012 | Teaching Assistant. SOC/WGS 364 Aging and Society |

Department Service
Syracuse University, Syracuse, New York

2016 -	**Member**, Search Committee for Race Scholar, Sociology department
2014	**Volunteer**, Cantor Conference in Lubin House, NYC January 16th.
2013	**Elected Membe**r, Sociology Graduate Committee
2013	**Member**, Search Committee for Environmental Sociologist

Community Service
2016-	**Executive Board Member**, Good Life Youth Foundation. Syracuse, NY
2016-	**Mentor/Host Family** A Better Chance Organization, Manlius, NY
2015-2016	**Mentor**, Danforth Middle School, Syracuse City School District
2014 -2016	**Mentor,** Seymour School, Syracuse City School District
2013-2016	**Mentor**, Haiti-Syracuse University Exchange Program
2012-2015	**Mentor**, Syracuse University Multicultural Graduate Student Orientation Program (MGSOP)
2011-2012	**Mentor**, Say Yes to Education at Syracuse University

Awards and Honors
2016	Honorable Mention, Ford Foundation Dissertation Fellowship
2015	Outstanding Teaching Assistant (OTA) Award, Syracuse University
2014	Syracuse University Graduate School Organization Travel Award
2013	Syracuse University Graduate School Organization Summer Research Award
2011-2012	McNair fellow
2002-2006	Dean's Honor List.

Professional Memberships
American Sociological Association
Eastern Sociological Society
Gerontological Society of America
The Society for the Study of Social Problems

Languages

- Haitian Creole – Native Language
- French – speak fluently and read/write with high proficiency
- Arabic – speak with basic competence