UCLA
UCLA Electronic Theses and Dissertations

Title
Acculturation and Suicidal Risk Among Asians and Latinos in California

Permalink
https://escholarship.org/uc/item/4tq4r5cf

Author
Lee, Margaret

Publication Date
2016

Peer reviewed|Thesis/dissertation

eScholarship.org Powered by the California Digital Library
University of California

UNIVERSITY OF CALIFORNIA

Los Angeles

Acculturation and Suicidal Risk Among Asian Americans and Latinos in California

A dissertation submitted in partial satisfaction of

the requirements for the degree Doctor of Philosophy

in Social Welfare

by

Margaret Yea-Sun Lee

2016

© Copyright by

Margaret Yea-Sun Lee

2016

ABSTRACT OF THE DISSERTATION

Acculturation and Suicidal Risk Among Asian Americans and Latinos in California

By

Margaret Yea-Sun Lee

Doctor of Philosophy in Social Welfare

University of California, Los Angeles, 2016

Professor Ailee Moon, Chair

Contemporary empirical studies tend to support the assertion that acculturation is an important correlate of mental health among immigrants. Foreign-born Asians and Latinos have significant mental health advantages, such as lower rates of depression and anxiety, compared to their U.S.-born counterparts. This phenomenon has been referred to as the "immigrant paradox," where foreign nativity serves as a protective factor against psychiatric disorders, despite the stresses often associated with immigrating and settling into a new country.

However, relatively few empirical studies have examined suicidal behavior among Asians and Latinos as it relates to acculturation, and results have been mixed. Given that suicidal ideation and suicide attempts are strongly associated with suicide death, better understanding the relationship between acculturation and suicidal behavior can offer some insight into the demographic patterns of suicide.

Using Joiner's interpersonal theory of suicide, this study utilized pooled data from the 2011-2014 California Health Interview Surveys, a population-based, random-digit dial telephone survey representative of California's households. The analysis, based on interviews with 17,502 Latinos and 7,738 Asian adults over the age of 18, investigated variations in suicidal proclivity among Asian and Latino adults as predicted by three acculturation measures, proportion of life spent in the U.S., English fluency, and generational status, after adjusting for sociodemographic and psychiatric variables. Analysis of weighted lifetime prevalence of suicidal behaviors revealed significant differences in sociodemographic characteristics and acculturation patterns at both the racial and ethnic subgroup level. Multivariate logistic regression analyses also revealed significant heterogeneity between and among racial groups with respect to acculturation. Risk for suicidal behaviors increased with acculturation for both Asians and Latinos, but was not shown to be significant for Koreans or South Americans.

The findings of this study underscore the need to disaggregate racial data when making inferences about suicidal behavior. Clinical interventions and public health efforts should be focused at the ethnic subgroup level and should consider the impact of culture and acculturation on mental health outcomes.

The dissertation of Margaret Yea-Sun Lee is approved.

Alfreda P. Iglehart

Janet C. Mentes

Rosina Becerra

Ailee Moon, Committee Chair

University of California, Los Angeles

2016

Dedication

To my chair, Ailee Moon, you believed in me when I didn't believe in myself, and you gave me the encouragement I needed to press on until the finish line. Thank you for being my champion and for your genuine care for me. And my committee, your encouragement and helpful feedback were of invaluable support to me. I especially want to thank Rosina Becerra and Alfreda Iglehart who were both instrumental in the shaping of my identity and passion as a social worker while I was a Master's student.

To my colleagues at Azusa Pacific University, you have all been my tireless cheerleaders through this doctoral process and I am so excited for this next season of collaborating and journeying together. Special thanks to the best department chair a faculty member could ask for, Mary Rawlings, whose relentless enthusiastic support for me was frankly more than I deserved.

To my friends, there are no words to describe how thankful I am for the ways you have carried me through these years with your endless support, prayers, last minute babysitting, walks around the Rose Bowl, marathon midnight text sessions, eating through Pasadena, and your unconditional love for me, even when I was an MIA stress-ball.

To my family, biological and in-law, so much has transpired since I began my graduate journey and I am so grateful for all the ways you have supported me as I transitioned from single grad student to married working mom. I owe enormous debts of gratitude to my parents whose endless sacrifices enabled me to live the life they dreamed of when they first immigrated to this country.

To my two loves, Bryant and sweet Elise, I can't even write this section without crying. Bryant, thank you for always being my rock and for holding down the fort; the sheer number of sacrifices you have made is incalculable. Elise, your exuberant silliness and zest for life provided the very inspiration I needed to finish this dissertation. You've always known mommy as a grad student and I am so looking forward to more family fun weekends together! To both of you, I dedicate this dissertation.

Table of Contents

List of Tables……vii

Acknowledgements……ix

VITA……x

Chapter I. Introduction…… 1

Background and Problem Statement…… 1

Immigration…… 3

Research Problem…… 5

Related epidemiological studies…… 7

Significance of Study…… 9

Overview of Dissertation…… 11

Chapter 2: Literature Review…… 12

Suicidality…… 12

Global epidemiology of suicidal behavior…… 13

U.S. perspective…… 15

Risk Factors…… 16

Demographic factors…… 16

Psychiatric factors…… 18

Psychosocial and ecological factors…… 19

Veterans…… 20

Protective Factors…… 21

Suicidal Behaviors among Asian Americans…… 21

Suicidal Behaviors among Latinos…… 23

Acculturation…… 24

Measurements of acculturation…… 25

Chapter 3: Theoretical Review…… 31

Suicide Theories…… 31

Beck's hopelessness theory. 33
Schneidman's theory of suicide. 34
Joiner's interpersonal theory of suicide. 34
Suicide theories for immigrants. 37
Culture and Acculturation 38
Conceptual Framework 41
Chapter 4: Research Methodology 43
California Health Interview Survey 43
Research design. 44
Data Collection Methods 46
Sample population. 47
Variables and measures. 49
Data Analysis Strategies 52
Limitations 54
Chapter 5: Results 56
Section 5.1: Descriptive Analysis 56
Section 5.2: Latino Models 62
Section 5.3: Asian Models 73
Chapter 6: Discussion 90
Prevalence of Suicidality 90
Asian suicide prevalence. 91
Latino suicide prevalence. 92
Correlates of Suicidal Ideation and Attempt 94
Sociodemographic characteristics. 94
Acculturation. 95
Implications for Practice 99
Recommendations for Further Research 100
References 104

List of Tables

Table 1 CHIS 2011-2014 Racial/Ethnic Group Samples 49

Table 2 Variables Used to Assess Suicidal Risk 51

Table 3 Sociodemographic Characteristics of the California Health Interview Survey, 2011-2014 57

Table 4 Serious Psychological Distress by Racial Group.. 59

Table 5 Acculturation Variables by Racial Group.. 60

Table 6 Lifetime Prevalence of Suicidal Ideation and Attempt by Race................................... 61

Table 7 Acculturation and Suicide Characteristics of Latinos in California Health Interview Survey, 2011-2014, n = 17, 502.. 64

Table 8 Variables Predicting Lifetime Suicidal Ideation and Suicide Attempt for Latinos 65

Table 9 Pairwise tests for Acculturation Variables Predicting Lifetime Suicidal Ideation and Suicide Attempt for Latinos.. 66

Table 10 Pairwise Tests for Variables Predicting Lifetime Suicidal Ideation and Suicide Attempt for Latinos Subgroups[a]... 68

Table 11 Pairwise Tests for Predicting Lifetime Suicidal Ideation for Latino Subgroups........... 69

Table 12 Pairwise tests for Predicting Lifetime Suicidal Attempt for Latino subgroups............. 69

Table 13 Logistic Regression Analyses for Variables Predicting Lifetime Suicidal Ideation and Suicide Attempt for Mexicans 71

Table 14 74

Table 15 Variables Predicting Lifetime Suicidal Ideation and Suicide Attempt for Asians 76

Table 16 Pairwise tests for Acculturation Variables Predicting Lifetime Suicidal Ideation and Suicide Attempt for Asians 77

Table 17 Logistic Regression Analyses for Variables Predicting Lifetime Suicidal Ideation and Suicide Attempt for Asians 78

Table 18 Pairwise Tests for Predicting Lifetime Suicidal Ideation for Asian Subgroups 79

Table 19 Variables Predicting Lifetime Suicidal Ideation and Suicide Attempt for Chinese 81

Table 20 Pairwise tests for Acculturation Variables Predicting Lifetime Suicidal Ideation and Suicide Attempt for Chinese 83

Table 21 Variables Predicting Lifetime Suicidal Ideation and Suicide Attempt for Japanese 84

Table 22 Pairwise tests for Acculturation Variables Predicting Lifetime Suicidal Ideation and Suicide Attempt for Japanese 85

Table 23 Logistic Regression Analyses for Variables Predicting Lifetime Suicidal Ideation for Koreans 86

Table 24 Variables Predicting Lifetime Suicidal Ideation for Filipinos 88

Table 25 Pairwise tests for Acculturation Variables Predicting Lifetime Suicidal Ideation for Filipinos 89

Table 26 Comparison of Lifetime Prevalence of Suicide Ideation and Attempts by Study 101

Acknowledgements

This dissertation was supported by The Paul & Daisy Soros Fellowship for New Americans and The Okura Mental Health Scholarship for Asian and Pacific Islander Social Workers.

All streams run to the sea, but the sea is not full;

to the place where the streams flow, there they continue to flow.

Ecclesiastes 1:7

VITA

EDUCATION

MSW	University of California, Los Angeles Department of Social Welfare	2006
BA	University of California, Los Angeles	2002
	Majors: Sociology and Asian American Studies Minor: Afro-American Studies	

AWARDS, FELLOWSHIPS, AND HONORS

Okura Mental Health Scholarship for Asian and Pacific Islander Social Workers 2016
Paul and Daisy Soros Fellowship for New Americans 2010
David & Marianna Fischer Scholarship 2005
Summa Cum Laude 2002
Phi Beta Kappa 2002

RESEARCH EXPERIENCE

Research Assistant
UCLA Center for the Study of Public Mental Health 2011-2013

Research Analyst
Los Angeles County Department of Mental Health 2007-2010

Research Assistant
UCLA Center for Civil Society 2005-2006

ACADEMIC APPOINTMENT

Assistant Professor 2013- present
Department of Social Work, Azusa Pacific University

SERVICE

Los Angeles County Suicide Prevention Network Advisory Committee 2010-2015

.

Chapter I. Introduction

Background and Problem Statement

Suicide is a serious and growing public health concern that causes profound suffering and loss to individuals and communities across the United States. In 2013, 41,149 people died by suicide, making suicide the tenth leading cause of death in the United States. For the past 25 years, the suicide rate has been gradually increasing, reaching an all-time high of 12.6 suicide deaths per 100,000 Americans in each of the years 2012 and 2013, which is approximately three times the death rate from HIV/AIDS (3.7) and two times that from homicide (5.1), and is higher than the death rate from car accidents (12.0) (Centers for Disease Control and Prevention, 2013).

Suicide is a devastating tragedy in terms of the lives lost, making enormous emotional impacts on families, friends, and communities. Beyond the emotional toll, the economic burden of suicide is spread throughout various systems, including hospitals, primary care, mental health, and corrections. The cost to society is estimated to be 26.7 billion in combined medical and work loss costs (Marcotte, 2003). Each suicide represents a cost of approximately $1.2 million in medical expenses and lost productivity.

The causes of suicide are complex and are influenced by an array of biological, psychological, social, environmental, and cultural risk factors. However, the empirical literature consistently finds that the strongest risk factor for a completed suicide is having previously attempted suicide (Kessler, Borges, & Walters, 1999; Nock, Borges, Bromet, Cha, Kessler, & Lee, 2008). A suicide attempt is defined as self-inflicted harm with the intent to end life. Although the suicide attempt rate is double the suicide rate, many people suffer from serious and oftentimes lifelong injuries after a suicide attempt such as brain damage or organ failure.

Annually, approximately 500,000 individuals require emergency department treatment following an attempted suicide (Centers for Disease Control and Prevention, 2013).

Relevant demographic risk factors also influence suicidal behavior. Adults aged 45 to 64 have the highest risk of completed suicide, with a rate of 19.1 out of every 100,000 individuals, followed by adults aged 85 and older (18.6). Suicide is also the third leading cause of death among persons aged 15 to 34, with a rate of 10.3 out of every 100,000 individuals. Suicide rates also vary by gender; men have higher rates of suicide completion whereas women have higher rates of suicide attempt.

Suicide is also closely associated with psychiatric illness. Studies using psychological autopsies reviewing available medical records of the deceased help to explain clinical correlates of suicidal behavior. Over 90% of individuals who die by suicide have a diagnosable psychiatric illness at the time of death, usually depression or substance abuse, or both (Arsenault-Lapierre, Kim, & Turecki, 2004; Cavanagh, Carson, Sharpe, & Lawrie, 2003). Approximately 60% of all suicides occur in persons with a mood disorder such as depression, and the rest occur in persons with various other psychiatric conditions, including schizophrenia, alcoholism, substance abuse, and personality disorders. However, most psychiatric patients never attempt suicide.

The suicide rate varies dramatically across ethnic groups. In 2013, the highest suicide rate was among Whites (14.2), followed by American Indians and Alaska Natives (11.7), Asian Americans (5.8), Latinos (5.7), and Blacks (5.4) (Centers for Disease Control and Prevention, 2013). Although White Americans have the highest suicide rate, disaggregating the data for non-White groups reveals elevated suicide rates when controlling for sociocultural factors such as immigrant status, socialization, and ethnic identity (Leong & Leach, 2007). Furthermore, suicide prevention strategies based on White-majority samples are not necessarily generalizable to other

racial/ethnic groups and should therefore include considerations of the unique cultural needs at the ethnic group level (Leong & Leach, 2007).

Although demographic characteristics and a history of suicidal behavior are identified as key risk variables, they explain only a small percentage of variance, and therefore do not provide enough information to meaningfully determine who is at elevated suicidal risk. Risk factors for suicide related to interpersonal relationships in the broader social context may be especially salient for immigrant groups acculturating to mainstream society. Due to increasing numbers of immigrants and the foreign-born population, the anticipated shift of the racial and ethnic composition of the U.S. in coming decades suggests that Asians and Latinos will comprise a growing percentage of the nation's suicides.

Immigration.

The American population has been reshaped by the surge of immigration from Asian and Latin American countries in recent decades and will continue to change as immigrants assimilate and create growing communities. The U.S. attracts about 20% of the world's international migrants (Pew Research Center, 2013). According to a 2015 Pew Research Center report, the majority of current Asians and Latinos in the U.S. are foreign-born, approximately 75% and 66%, respectively. In 1965, only 5% of the U.S. population was comprised of the foreign-born whereas 14% of the U.S. population is foreign-born as of 2015. As these immigrants assimilate and have children, Asian and Latino communities will undergo exponential growth, accounting for 93% of U.S. population growth over the next 30 years.

By 2055, the U.S. will have no racial or ethnic majority group. Whites will make up 48% of the population, Latinos 23%, Blacks, 13%, and Asians 12%. This is in contrast to the demographic composition in 2014 of 62% Whites, 17% Latinos, 13% Blacks, 5% and Asians

(U.S. Census, 2014). Furthermore, in 2055, first and second generation immigrants will still account for 37% of the U.S. population (Pew Research Center, 2015).

While the future exponential growth of the Asian and Latino communities can partly be explained by continued immigration, the majority of the growth will be due to the growing population of second-generation Americans, the U.S.-born children of immigrants. According to a 2013 Pew Research Report, Asians and Latinos make up about 70% of adult immigrants and 50% of second-generation adults. Many second-generation Americans are coming into adulthood and hold similar residential patterns as first-generation adults, with the majority living in the Western United States (Pew Research Center, 2013).

California, in particular, has had the highest number of new immigrants every year since 1976 (Pew Research Center, 2013). With more than 10 million immigrants, California has more immigrants than any other state, with approximately 25% of the nation's foreign-born population. By comparison, New York, the state with the second-highest concentration of immigrants, has approximately 4 million immigrants. The vast majority of the California's immigrants come from Asian and Latin American countries, comprising 37% and 53% of the immigrant population, respectively. Over half of the immigrants originate from three countries: Mexico (4.3 million), the Philippines (812,000), and China (760,800) (U.S. Census, 2013).

First generation immigrants in the U.S. are faced with the difficult task of settling into a new culture with different values, norms, and practices. However, second-generation immigrants who are born in the U.S. face unique challenges as they negotiate between the cultures of their country of origin and the U.S. and may feel pressured to either conform to the culture of their heritage or to assimilate into mainstream culture (Berry, 1997). A majority of second-generation Asians and Latinos identify by either their ancestral country of origin (e.g.,

Mexican; Korean) or by a pan-ethnic or pan-racial term (e.g. Latino, Asian), whereas only 37% of second-generation Latinos and 27% of Asians describe themselves as “an American” (Pew Research Center, 2013).

Research Problem

The purpose of this study is to examine factors associated with suicidal ideation and suicide attempts, both widely empirically-validated risk factors of completed suicide, in a large representative sample of Asian Americans and Latinos in California. Multivariat logistic regression will be used to examine how suicidal behaviors, operationalized in this study as suicidal ideation and attempt, are associated with measures of acculturation including proportion of life spent in the U.S., English fluency, and generational status.

Much of the extant literature on suicidal behavior among Asian and Latino communities uses adolescent and university student samples and focus on variables such as mental health outcomes, substance abuse, and aggression that are known to confer risk in a variety of populations (Cavanagh et al., 2003). Studies that have used samples based in the UK (Bhugra, Baldwin, Desai, Jacob, 1999), Canada (Kennedy, Parhar, Samra, & Gorzalka, 2005), and the US (Hovey & King, 1997; Hovey, 2000; Kposawa, McElvain, & Breult, 2008) indicate that lower levels of acculturation are associated with higher suicidal behavior. These studies point to the actual process of immigration as particularly stressful to immigrants because of the many life changes that result from the transition to a new country, such as the disruption of the social environment and support systems, as well as the adaptation to a new culture and language. If settling into a new country is not successfully navigated, it may confer possible risks to one’s mental health. Studies have shown that the challenges that results from having to rapidly assimilate and integrate into American society results in high levels of stress (Hovey & King,

1997; Sorensen & Shen, 1996), contributing to increased risk for suicide (Wadsworth & Kubrin, 2007).

Other studies, however, contradict these findings, and demonstrate that foreign-born immigrants have lower rates of suicidal behavior than their native-born counterparts (Borges et al., 2009**;** Fortuna et al, 2007; Pena et al, 2008; Sorensen et al., 1996; Sorensen et al, 1998; Wadsworth et al, 2007). In other words, foreign-born immigrants are not only mentally healthier, but they are also physically healthier than their U.S.-born counterparts. This phenomenon, known as the "healthy immigrant effect", suggests that the health of immigrants just after migration is significantly better than that of the native-born. One explanation attributes this to the process of acculturation in which recent immigrants begin to adapt to the American mainstream lifestyle (Hyman, 2004). An alternative hypothesis is that because immigrants are exposed to the same common environmental factors as native-born Americans, health outcomes converge with the native-born with increased years lived in the U.S. (Stephen et al., 1994**).** The public health literature consistently demonstrates that foreign-born immigrants have better health outcomes than native-born second generation immigrants across a variety of measures including chronic diseases (McDonald & Kennedy, 2004**),** diabetes (Afable-Munsuz et al., 2013), obesity (Abraido-Lanza & Florez, 2005; Gordon-Larsen et al., 2003), and mortality (Markides & Eschbach, 2011; Singh & Siahpush, 2001**).** Since the majority of Asians in the U.S. are foreign-born, scholars posit that acculturation levels will play a key role in understanding suicidal behaviors in this population. There have been very few epidemiological studies examining the relationship between nativity status and suicide among Asian Americans, and the few that exist indicate mixed results.

Related epidemiological studies.

In a study using the National Latino and Asian American Survey (NLAAS) and the corresponding National Comorbidity Survey Replication, both of which were conducted between 2002 and 2003, with a combined sample size of 15,180, U.S. nativity combined with age at immigration was found to have no association with suicidal ideation or attempt for Asians, but was found to have a positive association for foreign-born Hispanic immigrants who immigrated at age 13 or older. It is worth noting that when this study adjusted its models for psychiatric distress, correlates associated with acculturation either lost their significance or resulted in a reduced odds ratio, indicating the importance of adjusting for psychiatric distress when developing models studying suicidal behavior (Borges et al., 2012).

Another study using NLAAS also found a positive association between acculturation and suicidal risk. According to Fortuna et al., parental U.S. nativity (either one or both) was found to be predictive of both suicidal ideation and attempt, and English fluency was predictive of suicidal ideation for Latinos (2007). However, this study did not reveal statistical differences between Mexicans, Puerto Ricans, Cubans, or other Latinos, nor did it develop a model for determining suicidal correlates for each ethnic subgroup.

A corresponding NLAAS study for Asians using the same dataset did not find U.S. nativity (the only acculturation measure used) to be a significant predictor of either ideation or attempt **(**Cheng et al, 2010**)**. Another NLAAS study examining Asians by Duldulao et al. found an association between nativity and suicidal behaviors using a non-adjusted bivariate model, but did not find an association when employing a multivariate model (Duldulao et al., 2009).

Perez-Rodriguez and her colleagues using data from the 2004-2005 National Epidemiologic Survey of Alcohol and Related Conditions (NESARC) to study Latinos, found an

increase in suicidal ideation and attempts for acculturation using the following measures: native-born, longer time spent in the U.S., younger age at migration, English fluency, lower Latino composition of social network, and lower Latino ethnic identification (2014). However, these results are not adjusted for psychiatric distress, which is the most predictive correlate of suicidal behavior.

Other studies show contradicting evidence, with recent immigrants either having similar rates of mood and anxiety disorders as the U.S.-born (Alegria et al., 2006; Noh & Kasper, 2003; Torres, 2010**)** or depression among the elderly (Mui & Kang, 2006**).**

This study will draw from Durkheim's (1897/1951) seminal theory of suicide as well as Joiner's interpersonal theory for suicide (2005), both of which suggest that a lack of interpersonal integration and connectedness is predictive of suicidality. Researchers have since corroborated these theories by proposing that a low sense of belonging and the resulting feelings of not being understood are associated with increased suicidal ideation and attempt (Boardmann, Grimbaldeston, Handley, Jones, & Willmott, 1999; Conner, Britton, Sworts & Joiner, 2007; Joiner et al.; 2009). Using this theoretical framework, it is hypothesized that Asian and Latino immigrant communities experience higher suicidal risk as they assimilate into American culture because successive generations of immigrants experience a higher sense of isolation and cultural conflict. They must develop a sense of themselves as part of the broader American community, but because of the stresses associated with not feeling tied to their culture of heritage and not feeling truly "American," acculturated Asians and Latinos therefore are at a higher suicide risk. The acculturative process may bring about feelings of conflict or stress and thereby confer risk for suicidal behaviors.

Due to the contradictory findings in past studies examining the relationship between acculturation and suicidal behavior, this study seeks to evaluate this relationship among Asians and Latinos in California, using a significantly larger sample size than previous studies. To explore the relationship between these variables, three indicators for acculturation are used: proportion of life spent in the U.S., English fluency, and generational status.

To better understand the complex nature of these relationships, three research questions are proposed:

(1) Is there an association between proportion of life spent in the U.S. (categorized as 0 to 30%, 30-70%, or more than 70%) and suicidal ideation and suicide attempt?

(2) Is there an association between level of English fluency (native speaker, non-native speaker but speaks English well or very well, non-native speaker and speaks English not well or not well at all) and suicidal ideation and suicide attempt?

(3) Is there an association between generational status (1st generation, 2nd generation, 2.5 generation, and 3rd generation) and suicidal ideation and suicide attempt?

Significance of Study

Each suicide represents a tragic and premature death of an individual and has a continuing ripple effect resulting in a dramatic social economic burden for individuals, families, and communities. It is important to consider suicide not only through a biomedical lens of individual-level risk factors, but also in terms of the complex social and ecological relationships between individuals and their environment. Understanding the prevalence and demographic patterns of suicidal behavior in immigrant communities provides important information that can assist in the development and evaluation of culturally-competent prevention strategies.

There are reasons to believe that certain cultural factors may have special predictive utility for immigrant populations. Rogers and Soyka (2004) have criticized standardized White Eurocentric approaches to working with suicidal individuals with little regard to considerations of diversity. The American Psychological Association's (2003) most current practice guideline for the assessment and treatment of suicidal behavior states that "the approach to the suicidal patient is common to all individuals regardless of diagnoses and clinical presentation" (pp. 7-8). Rogers and Soyka have argued that standardized clinical strategies have the potential to result in adverse outcomes for non-White clients and negatively impact the relationship between the client and the clinician. There is therefore a need for more research efforts to increase the knowledge related to working with ethnically and culturally diverse clients exhibiting suicidal behaviors (Leach, 2014; Leong & Leach, 2010).

Despite the evidence that suicide deaths may be preventable, understanding culturally-related risk factors unique to immigrant populations has yet to become a high-priority concern for policymakers. The development of prevention and intervention efforts that are a good cultural fit for Asians and Latinos will depend on an understanding of modifiable risk and protective factors. This study seeks to provide mental health practitioners with an understanding of the concepts of acculturation as an influencing force in the mental health of Latinos and Asians in the United States.

Overview of Dissertation

Chapter 1 provides the background to the study and a context for understanding suicide among Asian and Latino immigrant communities.

Chapter 2 first summarizes the epidemiological literature on the scope of suicide, providing a description of risk and protective factors. It next describes correlates of suicidal behavior among Asian and Latino communities. It also provides a definition of acculturation and how it contributes to determiningmental health outcomes.

Chapter 3 discusses the theoretical bodies of literature related to suicide and acculturation, providing a conceptual review of the immigrant paradox as it relates to immigration and health and mental health.

Chapter 4 discusses the research methodology involved in the study, including a brief background of the California Health Interview Survey, a data analysis plan, and limitations of the study.

Chapter 5 presents the results of the analyses.

Chapter 6 discusses major findings, implications for practice, and recommendations for further research.

Chapter 2: Literature Review

Suicidality

The Institute of Medicine defines suicide as a "fatal self-inflicted destructive act with explicit or inferred intent to die" and defines suicidal behavior as "all suicide-related behaviors and thoughts including completing or attempting suicide, suicidal ideation or communications" (Goldsmith et al., 2002, p. 27). It is worth noting that scholars and practitioners encourage the phrase "completing suicide" or "dying by suicide" instead of "committing suicide" since the act of suicide is most often the outcome of a process of debilitation whereas using the language of "committing" infers an act of criminality (Crone, 1996; Dear, 2011; Silverman, 2011).

For every completed suicide, about 25 attempts are made, with 2-5% of the U.S. population attempting suicide during their lifetime (Kessler, Borges, & Walters, 1999; Van Orden, Witte, Kelly, et al., 2010). The most salient risk factor to consider in determining an individual's risk of making a suicide attempt or dying by suicide is a previous suicide attempt (Beck et al., 1999; Brown et al., 2000; Gould et al., 2003; Kessler et al., 1999). A suicide attempt is associated with a 38-fold increase in suicide risk, a rate that is higher than any psychiatric disorder associated with suicide. Suicide risk is also highest during the first year after a suicide attempt (Nordstrom, Samuelsson, & Asberg, 2007).

Studies show that as much as 14% of the population thinks about committing suicide during their lifetime (Kessler et al., 1999). Suicidal ideation increases the likelihood of suicide attempt and death by suicide (Kessler et al., 1999; Borges et al., 2008; Nock et al., 2008). This thought process of killing oneself is known as "suicidal ideation" and is best conceptualized as occurring on a continuum of increasing clinical significance, with higher ideation scores having more predictive utility for suicide attempts or completed suicides (Posner et al., 2008; Silverman,

2006). The least severe type of suicidal ideation occurs when an individual wishes for death, but has no specific thoughts about wanting to kill him or herself. The next level of severity may include thoughts of killing oneself, but without any intent to act on these thoughts or any specific plan to carry out these thoughts. More severe forms of suicidal ideation are those that involve an intent to act on these thoughts with or without a specific plan to do so. The most severe form of suicidal ideation includes both intent and a specific plan, typically involving access to means to carry out the plan.

Global epidemiology of suicidal behavior.

Worldwide, suicide was ranked the 14th leading cause of death globally in 2002, and is projected to increase by 50% and become the 12th leading cause of death by year 2030 (Mathers & Loncar, 2006), according to the first global report on suicide prevention published by the World Health Organization (WHO) in 2014.

Globally, the rate of suicide has risen steadily since the 1950s, with an estimated 804,000 million people dying by suicide in 2012, representing an annual global suicide rate of 11.4 per 100,000 population (WHO, 2014). Across countries, suicide rates tend to be stable over time, but between countries, rates vary tremendously, with countries like South Korea (28.9), Sri Lanka (28.8) and Lithuania (28.2) having the highest rates and countries like Saudi Arabia (.4) and Kuwait (.09) with the lowest rates.

Demographic characteristics, including age, gender, race, marital status, and economic status all influence suicidal behavior, and tend to be consistent across countries. Males have a higher suicide rate in every country except China, where women have a rate of 33.5 versus 24.2 for men. For men, the suicide rate increases with age whereas, with women, the suicide rate varies with the level of economic development of the country (Ji & Becker, 2001; Pearson,

Phillips, He, & Ji, 2011). For the wealthiest nations, female suicide rates tend to peak in middle age whereas, in poor countries, they increase with age. Furthermore, higher suicide rates are significantly associated with lower marriage rates and higher divorce rates (Stack, 1990).

Suicides in East Asia account for a disproportionately high number of suicides worldwide, approximately 60% of the global total (World Health Organization, 2006). Additionally, many Asian countries do not maintain accurate mortality data due to inconsistent or unreliable forms of reporting. Many families may not report a suicide due to the social stigma attached to suicide (Wei & Chua, 2009). Keeping these limitations in mind, there is a wide variation in the reported suicide rate among Asian countries. According to the World Health Organization (2012), South Korea, with a suicide rate of 28.9 (per 100,000), consistently ranks as having either the top or one of the top suicide rates globally (alongside Lithuania and Guyana). South Korea has had the highest suicide rate in the industrialized world for the last 11 consecutive years and is the only country in the Organization for Economic Cooperation and Development (OECD), comprised of 34 of the wealthiest countries (excluding China), that has seen a rising suicide rate since 1991, whereas all other 33 countries have seen a falling rate (OECD, 2014). Japan and China have similarly high rates of 28.2 and 22.2, respectively. In comparison, the U.S. suicide rate is 12.1. Conversely, countries in the Southeast Asian region of the world report significantly lower suicide rates, with Vietnam reporting a rate of 5.0 and the Philippines reporting a rate of 2.9.

Given the preponderance of high suicide rates in East Asian countries, scholars have posited the East Asian culture’s emphasis on family and collectivism, and the resulting shame that occurs when these two values are threatened or made vulnerable (e.g., when a father loses

his job and is unable to provide for his family), as a possible risk factor for suicide (Kim, 2002; Wei & Chua, 2008).

In Latin American countries, suicide rates are significantly lower than in East Asian countries and are even lower than in the U.S. Of the six Latin American countries with large immigrant communities in the U.S., the suicide rates are as follows: El Salvador (20.2), Cuba (11.4), Guatemala (8.7), Honduras (5.5) and Mexico (4.2) (World Health Organization, 2012). However, the validity of suicide data may be limited, as in Asian countries, by reporting inconsistencies. Despite the relatively low suicide rates in Latin American countries, suicide rates are increasing among adolescents (Pritchard & Hean, 2008) and older adults (Shah, 2007; Wagner, Gallo, Delva, 1999).

U.S. perspective.

In the US, 11 persons in every 100,000 complete suicide annually (Centers for Disease Control, 2013). Several factors are well known to increase suicide among this population, with the presence of personality disorders being associated with a seven times greater risk for suicide than in the general population (Harris & Barraclough, 1997). Males commit suicide at a rate three to four times greater than females (Simon, 2006), and the highest suicide rates for women occur among White females between 40 and 44 years old (Kochanek, Murphy, Anderson, & Scott, 2004). Despite the low rates of suicide among women in the U.S., they tend to have two of the most significant suicide risk factors, that is, depression and suicide attempts.

In 2012, an estimated 9.0 million adults (3.9 percent) had serious thoughts of suicide, with adults between the ages of 18 and 25 (7.2 percent) having the highest percentage, followed by persons aged 26 to 49 (4.2 percent), and then by persons aged 50 and older (2.4 percent) (National Survey on Drug Use and Health, 2012).

Risk Factors

Risk factors typically act cumulatively to increase a person's vulnerability towards suicidal behavior. Studies have shown the importance of the interplay between psychological, social, and cultural factors in determining an individual's suicidal risk. Suicide risk can be influenced by an individual's own level of vulnerability or resilience and is rarely precipitated by a single cause or stressor, but by a combination of various risk factors. At the same time, the presence of simultaneous risk factors does not necessarily always lead to suicidal behavior. The variability of suicide rates between different racial and ethnic groups indicates the significant role culture has in both increasing risk of and/or protection from suicidal behavior. Suicide rates also vary by country of origin, with higher rates among those who are minorities or who experience discrimination (Farrelly, 2015).

Demographic factors.

The highest suicide rates have historically been among the oldest Americans. Many older adults have undiagnosed depression, which can be intensified by the trauma of losing a spouse, the stress of living with a chronic illness, or the loneliness that comes with decreased social interactions. Adolescents and young adults also have increased risk of suicide, particularly when substance abuse is involved (Walsh & Costigan, 2015).

In terms of gender, nearly 80% of people who die by suicide are males, whereas the majority of lifetime attempters of suicide are females (Canetto & Lester, 1995; Moscicki, 1998). In fact, cross-cultural studies consistently demonstrate that males have a higher suicide rate than women in every country except China (Hansen & Pritchard, 2008; Nordentoft & Branner, 2008). In the U.S., males die by suicide at a rate of three to four times that of females (Moscicki, 1998). In 2007, suicide was the seventh leading cause of death for males and the 15th leading cause of

death for females (National Institute of Mental Health, 2010). Females aged 45-65 are at the highest risk of suicide (Hu et al., 2008).

Single persons are at an especially high risk. Individuals who are divorced, separated, or widowed have suicide rates four to five times higher than those who are married. Marriage serves as a protective factor against suicide risk by decreasing social isolation and engendering a sense of responsibility toward others. An exception to this rule is provided by young married couples in high-conflict or violent marriages, who have increased risk for suicide (Kposowa, 2000).

As mentioned earlier, Whites have the highest rate of suicide in the U.S. (14.2 per 100,000 people), followed by American Indians and Alaska Natives (11.7), Asian Americans (5.8), Latinos (5.7), and Blacks (5.4) (Centers for Disease Control and Prevention, 2013). Variations in suicide rates within different racial and ethnic groups also change over the lifespan, with the highest suicide rates occurring in older adults over the age of 65 among Whites, Latinos, and Asians (Beautrais, 2002). In contrast, suicide rates peak during adolescence and young adulthood for Native Americans and African Americans (Nock, 2006). In several studies using samples of college students, Asians report higher levels of suicidal ideation than White students (Brener, Hassan, & Barrios, 1999; Chang, 1998) and are 1.6 times more likely to seriously consider a suicide attempt (Kisch, Leino, & Silverman, 2005).

Lesbian, gay, bisexual, and transgender (LGBT) individuals have a higher risk of suicidal behavior when compared to heterosexual individuals. In a systematic review of twenty-five population-based studies, King et al. (2008) found that gay/bisexual males had a four times higher rate of lifetime suicidal attempt than their heterosexual counterparts, whereas lesbian women had a two times higher rate. Also in contrast to the heterosexual population for which

suicidal ideation is a strong predictor of suicidal behavior, suicidal ideation among the LGBT population does not appear to be a reliable predictor.

Psychiatric factors.

A psychiatric disorder is present in up to 90% of people who die by suicide (American Psychiatric Association, 2003; Rihmer, 2007). According to Rihmer (2007), individuals who attempt or die by suicide typically have at least one DSM-IV axis I disorder, most frequently major depressive disorder (57-86%), followed by substance use disorders (26-55%), and then schizophrenia (6-13%).

Mood disorders, such as depression or bipolar disorder, are the most commonly found diagnoses in psychological autopsy studies of completed suicides for all age groups. Substance abuse disorders, especially alcohol abuse, have also been substantiated in the literature as significant risk factors.

Comorbidity, which occurs when an individual meets the criteria for more than one psychiatric diagnosis, has been identified as a significant predictor over and above individual disorders among people who attempt suicide (Nock, Hwang, Sampson, & Kessler, 2009). Mood disorders that co-occur with alcohol and substance abuse disorders increase the likelihood of suicidal behavior (Brent, Perper, Mortiz, et al., 2010; Kessler et al., 1999; Moscicki, 2001). Schizophrenia and borderline personality disorder, comorbid with a mood disorder and a substance abuse disorder, present the highest risk (Moscicki, 2001).

The suicide literature has also demonstrated that suicide risk co-occurs with numerous psychiatric constructs such as hopelessness (Brown, Beck, Steer, & Grisham, 2000), impulsivity (Kingsbury, Hawton, Steinhardt, & James, 1999), neuroticism (Chioqueta, 2005; Roy, 2003),

introversion (Roy, 2003; Yen & Siegler, 2003), and low self-esteem (Brezo, Paris, Tremblay, et al. 2005; Wilburn & Smith, 2005).

Psychosocial and ecological factors.

A variety of social and ecological influences interact to shape an individual's risk for suicide, including social isolation, stress, and negative life events. The communities that people live in and their relationships with others have important associations with suicide risk factors as they interact with individual-level correlates such as depression and hopelessness. Environmental risk factors such as high conflict or violent family relationships and a lack of social supports all contribute to increased suicide risk (Compton, Thompson, & Kaslow, 2005; Dube, Anda, Felitti, Chapman, Williamson, & Giles, 2001; Yang and Clum, 1994). Many empirical studies have associated suicidal behavior with feelings of despair, loneliness, disconnection, and social exclusion (Joiner, 1996).

Stressful life events often precede a suicide or suicide attempt (Gould, Fisher, Parides, Flory, & Shaffer, 1996). Psychological autopsy studies of people who have died by suicide reveal that the majority of the deceased have experienced at least one adverse life event within one year of death, usually concentrated in the last few months (Foster, 2011). Common stressful life events among people who commit suicide include the loss of a loved one, unemployment, bankruptcy, the loss of one's home, or the loss of a loved one (Cheng, Chen, Chen, Jenkins, 2000).

Experiences of trauma and/or abuse have also been found to increase suicidal risk. The association between childhood sexual abuse and suicide has been clearly established in a number of studies (Davidson, Hughes, George, & Blazer, 1996; Mina & Gallop, 1998; Molnar, Shade, Kral, & Watters, 1998; Ystgaard, Hestetun, Loeb, & Mehlum, 2004). Family violence, abuse,

and neglect are also predictive of suicidal behavior, especially when these events occur in childhood (Dube et al., 2001; Gould, Fisher, Parides, Flory, & Shaffer, 1996).

Societal-level factors include lack of access to health care providers or medications, having access to lethal means of suicide such as ease of firearm purchase, and being exposed to unsafe media portrayals of suicide (Mann, Apter, Bertolote, et al., 2005).

Regional variations in U.S. suicide rates indicate that environmental conditions unique to specific regions can help to elucidate the impact of the environment on one's mental health status. Rural areas of the U.S. have a higher proportional share of the country's suicides, with Montana, Utah, and Alaska having the highest rates (Lester, 1995; Shrira & Christenfeld, 2010). Regional disparities in suicide rates have been linked to geographic variables such as economic indicators, permissive gun control laws, alcohol sales, crime rates, divorce rates, and low population density (Gruenewald, Ponicki, & Mitchell, 1995; Kaplan & Geling, 1998; Kunce & Anderson, 2000).

Veterans.

According to the U.S. Department of Defense, veterans account for 20% of deaths by suicide in the U.S. and veterans who fought in Afghanistan and Iraq are at a higher risk of suicide than are veterans from previous wars, with suicide rates doubling between 2005 and 2009 (2015). Veterans are particularly at high risk for suicide due to the high prevalence of depressive disorders and comorbid psychiatric conditions. According to the Veterans Health Study, significant depressive symptoms among veterans are 2 to 5 times higher than the general U.S. population (Hankin, Spiro, Miller, Kazis, 1999).

Protective Factors

Protective factors are conditions that promote resiliency and thereby decrease the risk of suicidal behavior. Individual-level correlates of resiliency include having access to coping and problem solving skills, having articulated reasons to live, and having moral or religious objections to suicide. Interpersonal-level correlates of resiliency include having healthy and close relationships, connectedness to social institutions, having children, and having supportive relationships with health care providers. Community-level factors include the availability of safe and supportive school and neighborhood environments as well as the availability of accessible health and mental health care (Malone et al., 2000)

Suicidal Behaviors among Asian Americans

Asian Americans have a suicide rate of 5.8 suicides per 100,000. Suicide is the 8th leading cause of death for Asian Americans, whereas it is the 11th leading cause of death for all racial groups combined (Murphy et al., 2015). There is only one study with suicide data for different Asian subgroups. This study used data from the National Center for Health Statistics and found that of the six largest Asian subgroups in the U.S., Koreans had the largest proportional number of suicides (636 between 2003 and 2011), followed by Japanese (265), Vietnamese (392), Chinese (735), Filipinos (487) and South Indians (550) (Hastings, 2015).

In one of the most comprehensive epidemiological studies of Asian American suicide, Asians were found to have an overall rate of 8.8% for lifetime suicidal ideation and 2.5% for lifetime suicide attempt (Cheng et al, 2010). Differentiation in prevalence rates for suicidal ideation show that U.S.-born Asians and young adults aged 18-24 years have an especially elevated risk. However, there was not a significant variation by gender, ethnic origin, level of education, or poverty level. Asian women aged 65-84 have the highest suicide rate among

similar-aged women across all racial groups (Heron, 2011). Those who were never married had substantially higher rates of suicidal ideation (17.9%) compared to those who were married (5.7%) or those who were divorced, separated, or widowed (9%) (Cheng et al., 2010). In addition, high levels of family conflict and perceived discrimination were also associated with increased suicidal ideation and suicide attempt (Cheng et al., 2010). And yet despite the rapid growth of the Asian American population across the country, there is a paucity of empirical epidemiological research on Asian American suicidal behavior (Leong, Leach, Yeh, & Chou, 2007).

Whereas White suicide behaviors tending towards older males, Asian American females between the ages of 15 and 34 are particularly vulnerable and have one of the highest suicide rates among all racial/ethnic groups of females (Cheng et al., 2010). They are at greater risk to die by suicide compared to elderly Asians (Duldulao et al., 2009) and they exhibit more suicidal behaviors than their male counterparts (Cheng et al., 2010). Hahm et al. (2013) found a prevalence of lifetime suicidal ideation among this age group of women to be 17.6 percent and for suicidal attempt, 7.1 percent, which are substantially higher than in the general population (8.4 and 2.4 percent, respectively). The rate of completed suicide among Asian women aged 15 to 24 years increased by 9.6% from 2000 to 2009 (National Center for Health Statistics, 2012).

The majority of studies examining suicide behaviors among Asian Americans have used samples of college students and reveal a contradictory picture. Epidemiological studies using large community samples revealed that Asian college students were approximately one and a half times more likely than White students to attempt suicide (Brenner, Hassan, & Barrios, 1999; Kisch, Leino, & Silverman, 2005; Muehlenkamp et al., 2005), while other studies reveal no

significance differences between the suicide rates of Asian and White students (Choi, Meininger, & Roberts, 2006).

Suicidal Behaviors among Latinos

Latinos account for 17.9% of the U.S. population and have a suicide rate of 5.7 per 100,000, compared to a rate of 12.63 for non-Latinos of all ages. According to the American Association of Suicidology (2012), the highest-risk group among Latinos are males aged 80-84 with a rate of 21.9 per 100,000. The suicide rate for adolescents aged 15-19 is 6.0, compared to 8.1 for all non-Latino adolescents. Even though Latino youth have lower suicide rates than those of other groups, self-reports of suicidal ideation and attempts are substantially higher, with 15.4% of Latino adolescents having seriously considering attempting suicide in the previous twelve months, a rate that is higher than that for other non-Latino groups (Canino & Roberts, 2001; Substance Abuse and Mental Health Services Administration, 2003). Female Latino adolescents are twice as likely to plan or attempt suicide as African American or White American female adolescents (CDC, 2000; Paz, Reinhard, Kuebbeler, Contreras, & Sanchez, 2015).

Many studies have found an association between acculturation (typically measured as nativity) and suicidal behavior, across a number of representative samples of Latinos (Canino & Roberts, 2001; Singh & Hiatt, 2006; Pena et al., 2008; Sorensen and Shen, 1996). However, while some studies have linked lower levels of acculturation with higher levels of suicidal risk (Hovey & King, 2006; Hovey & Magana, 2003; Fortuna et al., 2007; Wadsworth & Kubrin, 2007), these studies have tended to focus on aspects of acculturative stress such as the challenges of assimilating into a new culture as a primary risk factor (Shoval, Schoen, Vardi, & Zalsman, 2007). The loss of familiar social networks and the inability to maintain social ties with family

and friends upon immigration have been suggested as a particular risk factor related to the acculturative process (Sorensen & Shen, 1996).

Other studies, particularly larger epidemiological studies, have found an association between increased acculturation levels and suicidal risk (Fortuna et al., 2007; Perez-Rodriguez et al., 2014; Zayas et al., 2009). Some cultural correlates that have been suggested to help explain increased suicidality are familial conflict (Fortuna et al., 2007), unhealthy copying skills (Gutierrez, Rodriguez, & Garcia, 2001), and substance abuse (Cuellar & Curry, 2007).

A study by Wadsworth & Kubrin (2007) compared suicide rates between native-born and foreign-born Latinos and found that while foreign-born Latinos had higher rates overall, the difference was conditioned by the relative size of the Latino community in the U.S. Suicide risk for the foreign-born increased compared to the native-born when the relative size of the foreign-born population decreased. Wadsworth and Kurbrin suggest that large Latino immigrant ethnic enclaves help to buffer against the feelings of alienation and isolation that immigrants may feel while settling into a new country.

One feature of Latino culture that may contribute to increased suicide risk is an emphasis on *fatalismo*, or fatalism, a general belief that the course of fate cannot be changed and that life events are beyond one's control (Hovey & King, 1997). Fatalistically accepting life's seemingly intractable problems has been cited as a potential risk factor for suicide in the Latino community (Range et al., 1999).

Acculturation

Acculturation has been defined as a transition in which people gradually accommodate and eventually take on the attitudes, values, and cultural behaviors of the host culture in order to help them function in the dominant culture (Phinney, 1990; Duan & Vu, 2000). At the

individual level, it involves changes in a person's norms, values, and behaviors. At the group level, social structures and institutions adapt to norms in the host culture, and cultural patterns adapt to new customs. Acculturation is a both cultural and psychological change process and can take anywhere from years to centuries to evolve (Berry, 2005).

Measurements of acculturation.

Researchers have used acculturation to predict or explain health or mental health disparities with the assumption that people choose or reject behavioral choices based on their cultural attitudes and beliefs. Measurements of acculturation levels are used to quantify the extent to which individuals have adopted mainstream attitudes and behavioral patterns, which are then correlated with health or mental health outcomes like diabetes or depression. Findings from acculturation studies in the public health literature suggest that immigrants may be exposed to different risk factors or may adopt unhealthy behaviors as they acculturate into mainstream society.

Acculturation was originally conceptualized as a unidirectional process of assimilation from not acculturated (total immersion in culture of origin) to completely acculturated (total immersion in the mainstream culture) (Phinney, 1990). Acculturation involves the loss of one's original cultural paradigms as one adopts mainstream cultural norms and values. Identification with the two cultures is mutually exclusive, and adapting to the host culture is dependent on not identifying with the culture of origin (Berry, 1997; Castro, 2003; Bourhis, Moise, Perreault, & Senecal, 1997). Biculturalism is located at the midpoint between original and mainstream culture along the continuum and classifies a one-way process for assimilation (Bourhis, Moise, Perreault, & Senecal, 1997). But the unidimensional model fails to account for the complexities involved in the assimilation experience, including but not limited to a consideration of the

immigrant group's culture in the host society. The model also assumes that individuals readily give up their ethnic identities as they acculturate into the dominant culture (Clark and Hofses, 1998).

In an effort to more accurately reflect the complexity of change inherent within acculturation, Berry (1980) proposed a bidimensional model with the extent of cultural maintenance and the intensity of cultural involvement and suggests that the acquisition of a new culture is an independent process from maintaining one's original culture. His framework focuses on acculturation at both the individual level (maintaining one's identity and characteristics) and group level (maintaining relationships with one's cultural community). Cultural maintenance is the degree to which an individual values and adheres to his or her culture of origin. Immigrants tend to adopt one of four possible strategies for acculturation: (a) *assimilation*, the complete acquisition of the new culture due to a preference for the mainstream culture rather than for the culture of origin; (b) *integration*, embracing and valuing both cultures by maintaining one's ethnic distinctiveness while having positive relationships within mainstream culture; (c) *separation*, maintenance of the culture of origin through rejection or avoidance of the new culture; and (d) *marginalization*, rejection of both cultures (either voluntarily or involuntarily) (Berry, 1997; Berry, 2003; Pinney, Horenczyk, Liebkind, & Vedder, 2001).

Immigration contexts serve as powerful modifiers of the acculturation experience. Individuals volitionally adapt to their preferred acculturation strategy, provided that they have some degree of control. However, successful adaption also depends on the policies and practices of the host culture. Environmental factors, such as discrimination or institutional racism, may influence the acculturation trajectory towards separation or marginalization strategies (Berry,

2005; Suarez-Orozco, Carhil, & Chuang, 2011), which can then influence one's health or mental health outcomes (Alegria et al., 2007).

Marin (1996) developed a stratified acculturation model, which frames acculturation on three different levels: (a) *superficial,* exemplified, for example, by accepting food from the mainstream society; (b) *intermediate,* adopting behaviors that are central to a person's social life including language use, media preferences, and the selection of friends and spouses; and (c) *significant,* adopting the beliefs, values, and norms of the host culture.

These aforementioned acculturation models provide a theoretical ground for describing the internal identity changes that individuals negotiate as they adjust to a new cultural context. Because identity formation is rooted in relations with others who share similar cultural values and knowledge, the experience of acculturating into a new culture involves a period of identity transition and change.

Due the complex multidimensional nature of acculturation, researchers have developed acculturation scales comprised of a series of questions that generate an acculturation score. The most common domains assessed in these scales include nativity, language use, ethnic identity classification, ethnic behaviors, media use, ethnic social relations, and years lived in the U.S. (Hunt, Schneider, Comer, 2004). However, some scholars question the utility of acculturation scales due to the lack of theoretical basis employed in scale design as well as a lack of consistency and rigor (Abraido-Lanza et al., 2006; Hunt, Schneider, Comer, 2004; Zane and Mak, 2003).

Researchers have also used proxy measures to describe and understand the acculturative process. Proxy measures are variables that capture aspects of the complex phenomenon of acculturation and are widely used as indicators of acculturation in population studies. The most

commonly used proxy measures for acculturation are language use, nativity, and length of residence in the U.S., all of which assume that acculturation can be approximated by the amount of exposure to the mainstream culture (Abraido-Lanza et al., 2006). In a systematic review of 48 studies using proxy measures, 46% used linguistic preference, 41% used nativity, 34% used length of residence in the host country, 15% used language of interview, 11% used generational status, and 9% used age at immigration (Thompson & Hoffman-Goetz, 2009). However, some scholars have criticized the use of proxies to measure acculturation because of their lack of precision (Hunt et al., 2004).

Linguistic preference.

Linguistic preference is the most commonly used measurement of acculturation across all studies using proxy measures. Two studies employing factor analysis demonstrated that linguistic preference explains most of the measured variation in acculturation (Coronado et al., 2005; Cuellar et al., 1980). In a large epidemiological study of Latinos, a higher degree of English-language preference was associated with a linear increase in lifetime risk for suicidal ideation and attempts (Perez-Rodriguez, Baca-Garcia, Oquendo, Wang, Wall, Liu, & Blanco, 2014).

Nativity.

Nativity status is also one of the mostly commonly used measurement proxies of acculturation. A wide body of research has documented an association between nativity status and mental health outcomes (Liu, Benner, Lau, & Kim, 2009; Romero et al., 2006). There have been approximately 10 studies that have examined the relationship between nativity status and suicidal behavior among Asians and Latinos, and results have generally been mixed. Of the 10 studies, seven indicate that U.S.-born Asians (Duldulao et al., 2009) and Latino (Borges et al.,

2009; Fortuna et al, 2007; Pena et al., 2008; Sorensen et al., 1996) are at higher suicidal risk than their native-born counterparts . In addition, three studies find no significant relationship between nativity status and suicidal behavior for Asians (Kennedy et al., 2005; Kposowa et al., 2008) or Latinos (Zayas et al., 2009).

Length of stay in the U.S.

Length of stay in the U.S. is another proxy measure for acculturation, but because it is a continuous variable, it is not subject to the same constraints as the categorical variable of nativity status. For example, an individual born in Mexico who migrated to the U.S. during infancy would technically qualify as “less” acculturated compared a U.S.-born counterpart when using nativity status, but could have a high level of acculturation. In one study examining California death records, no significant relationship was found between nativity and suicide, but a linear association was found between number of years lived in the U.S. and suicide risk. Immigrants who lived in the U.S. for less than 10 years were over four times as likely to commit suicide as those who lived in the U.S. for 20 years or more (Kposowa et al., 2008). In another study by Lau, Jernewall, Zane, & Myers (2002), an acculturation measure which included length of stay and linguistic preference demonstrated that Asians who were less acculturated (e.g., with fewer years lived in the U.S.) were at a higher risk of suicidality.

Generational status.

There are currently no studies examining at least three generations of immigrants (i.e., immigrants, their children, and their grandchildren) and risk for suicide, which can be attributed to the relatively low number of third generation immigrants of Asian and Latino heritage. In fact, most epidemiological studies of acculturation and mental health do not measure generational status. However, it is worth nothing that Alegria and her colleagues (2007) found

that third-generation immigrants have a higher risk for psychiatric disorders even in comparison to their second-generation U.S.-born counterparts, whereas foreign-born immigrants have the lowest risk.

Chapter 3: Theoretical Review

Suicide Theories

Throughout history, scholars have studied suicide across the disciplines. Historians have studied suicide as a response to social humiliation, moral retribution, demonic possession, or just plain madness (Weaver & Wright, 2008). Scholars in the 18th century began to study suicide by demystifying the pervasive moral perspectives of Christian thinkers during the Middle Ages (Minois, 2001). Since then, in an attempt to understand the function and scope of suicide, environmental and psychosocial factors have been studied at length in order to understand what specific factors play a role in determining the causal pathways for suicide.

Reviews of major theories of suicide typically begin with the seminal work of French sociologist Emile Durkheim, commonly referred to as the father of modern sociology and a pioneer into the scientific study of suicide. In his landmark study published in 1857, Durkheim argues that the constructs of social integration and social control helped to explain national and regional variations in suicide rates in post-industrial societies. He contends that social forces and limited social integration had significant explanatory power for the variation in suicide rates. In other words, if individuals lack strong bonds with their surrounding social environment (low belonging), it will lead to hopelessness and meaningless, thereby leading to elevated suicidal risk (1857/1951).

Durkheim posited that differentiated suicide rates were not simply the sum of individual suicide rates due to individual factors, but "with its own unity, individuality and consequently its own nature- a nature, furthermore, dominantly social" (p. 46). He argued that because some societies have a collective inclination toward suicide, societies should provide opportunities for

individuals to socially integrate and examine the social structures or environmental conditions that may precipitate social isolation (1857/1951).

Durkheim's theory of social integration will be used to guide the exploration of culturally-related variables that have the potential to influence one's level of connectedness to his or her social environment. Contemporary inquiries looking at predictive variables for suicide have largely supported Durkheim's social integration theory (Arria et al., 2009; Boardman Grimbaldeston, Handley, Jones & Willmott, 1999; Conner, Britton, Sworts & Joiner, 2008; Joiner et al., 2009).

Low belonging, conceptualized as the sense that one does not "fit" with one's environment, may be one of the most important risk factors for suicide (Lee & Robbins 2005). In a study of college students, Williams and Galliher (2006) used structural path analyses to test several models of depression and self-esteem using the variables of social support, social competence, and social connectedness. They concluded that the conceptualization of social connectedness, as defined by a sense of belonging, might be a separate construct from social support. Bryan, Morrow, Anestis, and Joiner (2010) suggest that low belonging, as opposed to past suicidal behaviors, may be particularly significant and useful for practitioners to use to assess suicidal risk. Low belonging predicts suicidal ideation even when controlling for depression (Arria et al., 2009; Joiner et al., 2009) and risk for suicide is positively associated with low belongingness (Stravynski & Boyer, 2001).

In the last century, Durkheim's theory has been considered the classical theoretical framework for suicide. A number of studies, mostly drawing on data from industrialized Western societies, have since empirically tested hypotheses derived from Durkheim's theory and have generally supported his proposition that low social integration leads to suicide (Baller &

Richardson, 2002; Burr, Hartman, Matteson, 1999; Dervic, Oquendo, Grunebaum, et al., 2004; Kposowa, 2000; Maris, 1969; Maris,1981).

Since Durkheim formulated his classic social integration theory of suicide, there have been relatively few modifications to his theoretical explanations of suicide. Psychoanalytic theories drawing from Freud became popular in the early 20th century, but empirical studies in recent decades have found vulnerabilities in these theoretical models due to difficulties in generating testable hypotheses (Joiner, 2005). Contemporary models of suicide are conceptualized from a cognitive-behavioral lens, focusing in particular on thinking patterns that are conducive to the development of suicidal behavior. Two of the most influential theories for suicide have been developed out of a cognitive-behavioral paradigm: Beck's hopelessness construct and Shneidman's psychache construct (Beck, 1979; Shneidman,1998).

Beck's hopelessness theory.

Aaron Beck proposed a prominent cognitive theory of suicide that emphasizes the construct of "hopelessness" as crucial to explaining why people die by suicide. Individuals experiencing a high degree of hopelessness, as measured by the Beck Hopelessness Scale, derived out of Beck's research on depression, have negative expectations about the future. Hopelessness is defined as a set of cognitive schemas involving negative expectations about the future in relation to oneself and others (Beck, 1979; Minkhoff, Bergman, Beck, 1973). Individuals experiencing a high degree of hopelessness tend to have an expectation that either highly desired events will not occur or that highly aversive outcomes will occur while also believing that there is nothing they can do to change the situation.

Schneidman's theory of suicide.

Edwin Shneidman (1998), the founder of the American Association of Suicidology, posited that *psychache*, a term used to describe psychological pain, explains suicidal behavior because of an individual's need to escape the unbearable and "unceasing flow of painful consciousness" (p.13). According to Shneidman, psychache can become so overwhelming that death by suicide is the only way to relieve the pain.

Joiner's interpersonal theory of suicide.

Thomas Joiner (2005), considered one of the leading contemporary scholars in suicidology, developed the "interpersonal theory of suicide," which has generated significant attention in suicidology due to its robust empirical support. Joiner's theory builds upon the works of Durkheim, Beck, and Shneidman while identifying the conceptual weaknesses in each of these aforementioned theories. According to Joiner, Beck's theory of hopelessness and Schneidman's theory of psychache are both vague and lack the precision needed to understand what suicidal individuals are hopeless about or why they experience psychache. Furthermore, neither Beck nor Shneidman adequately articulate a mechanism through which one crosses the threshold for having the lethal capability to exhibit suicidal behavior. Many people experience hopelessness or psychache, but a small portion of these people die by suicide (Joiner, 2005).

Joiner's interpersonal theory focuses on two key relevant constructs: perceived burdensomeness and failed belongingness, both of which engender a *desire* for suicide. Perceived burdensomeness refers to when an individual feels that his or her life presents a burden to family, friends, and/or the broader society. Contrary to the common myth that suicide is ultimately a selfish act due to the negative social and emotional repercussions experienced by family and friends following a suicide, Joiner asserts that suicidal individuals perceive their

existence as being burdensome to others, and therefore believe that loved ones and/or society are ultimately better off without them (Joiner, 2005).

Joiner postulates that perceived burdensomeness, while a necessary condition for the desire for suicide to develop, is not sufficient to explain why individuals become suicidal. In addition to perceived burdensomeness, individuals who also experience failed belongingness, a construct which draws heavily from Durkheim's emphasis on low integration, experience elevated suicide risk. Failed belongingness refers to "the experience that one is alienated from others and not an integral part of a family, circle of friends, or other valued groups" (Joiner, 2005, p. 117). Joiner also refers to this concept as "thwarted connectedness," and explains how individuals who lack meaningful connection to others (even if the lack is only perceived) experience a profound sense of social alienation.

Although Joiner's interpersonal theory is relatively new to the field, it has already been substantiated by a large body of empirical tests (Conner, Britton, Sworts & Joiner, 2007; Ribeiro & Joiner, 2009; Van Orden et al., 2008; Van Orden, Witte, Gordon, Bender & Joiner 2008; Van Orden, Lynam, Hollar, & Joiner, 2006; Joiner et al., 2002). Studies have tested both constructs independently and have found each are independently associated with suicidal desire, although the interaction of the two states significantly increases risk.

Joiner further suggests that an individual is at highest suicide risk when he or she has the desire for suicide, conceptualized as the convergence of failed belongingness and perceived burdensomeness, while simultaneously having the capability to act on that desire. The capacity for suicide increases when one has enough past experiences involving pain or fearsome experiences to have habituated to the fear and pain associated with death. Those who have previous suicide attempts are empirically at highest risk for suicide completion, because these

individuals have habituated themselves to the experiences of fear and pain and thus have a lowered instinct for self-preservation (Brown, Beck, Steer, & Grisham, 2000; Joiner et al., 2005). This habituation results in a higher tolerance for pain and an increased fearlessness in the face of death. It can also help to at least partially explain why certain occupations with frequent exposure to physically painful experiences, such as police officers, combat soldiers, firefighters, and physicians, have higher suicide rates (Hawton, Clements, Sakarovitch, Simkin, & Deeks, 2001; Joiner, 2005).

Most interestingly, empirical tests of the interpersonal model have found its measures to outperform even key risk factors long identified in suicide research as contributing to suicide risk including depression, hopelessness, and borderline personality features. In a study by Huth-Bocks, Kerr, Ivey, Kramer, and King (2007), the roles of failed belongingness and burdensomeness were identified as having stronger predictive validity than suicidal ideation, depression, and hopelessness in a sample of hospitalized adolescents. In 2009, Joiner and his colleagues tested the interpersonal theory and its three-way interaction for the first time in two representative community samples, the first a sample of 815 young adults assessed for major depression and the second a sample of 313 individuals receiving treatment for severe suicidal behavior.

The advances made in the last ten years since Joiner's theory was developed have opened new doors into the field's understanding of suicidal behavior. Given the theory's relatively recent entrance into the study of suicide and its ability to withstand significant scientific scrutiny, it has opened many potential avenues of future research as it gets tested in differentiated and diverse social, cultural, and occupational samples. The theory's design around interpersonal

relationships may hold particular relevance to collectivist cultures due to the norms and values that regard one's self-concept as primarily interdependent within group membership.

Suicide theories for immigrants.

While theory-building research on suicide among immigrants is scant, a few conceptual models have been proposed by researchers in order to explain the phenomenon of increasing risk of suicide with increasing levels of acculturation for immigrants, otherwise known as "the immigrant paradox." Pena and his colleagues (2008) examined the literature and articulated three models to help explain this relationship: (1) The Protective Culture Model, (2) The Intergenerational Acculturation Conflict Model, and (3) The Resilient Immigrant Model.

The *Protective Culture Model* suggests that protective aspects of immigrant culture serve as buffers against potential suicide risk factors. This theory has been suggested by a number of scholars, starting with Durkheim, who in 1952 argued that Catholic countries have lower rates of suicide than Protestant countries because of their stronger social and family bonds. A number of studies with Asian and Latino populations also emphasize the role of social supports and familism in reducing risk factors (Kim, Atkinson, & Umemoto, 2001; Sabogal et al., 1987; Szapocznik & Kurtines, 1993).

The *Intergenerational Acculturation Conflict Model* highlights the intergenerational conflicts that are common to the acculturative experience between immigrant parents and their rapidly assimilating children. Different scholars have described this phenomenon using terms like intergenerational value discrepancies (Phinney et al., 2000), intercultural/intergenerational conflict (Szapockznik & Williams, 2000), and dissonant acculturation (Portes & Rumbaut, 2001). However, this model would suggest that U.S.-born youth with U.S.-born parents would have improved risk against suicidal behavior, which has been discredited by research that shows

that even 3rd generation immigrants have increased suicide risk compared to their 2nd generation counterparts (Pena et al., 2008).

The *Resilient Immigrant Model*, similar to the "healthy immigrant effect", cited in many public health studies, suggests that due to the self-selective process of migration, only the healthiest and hardiest individuals decide to make the journey to immigrate. Therefore, immigrants are less likely to commit suicide than their U.S.-born counterparts because of their inherent resilience (Kennedy, McDonald, & Biddle, 2006).

While these three models provide helpful explanations for why health and mental health deteriorate with acculturation, they only address one dimension of the acculturation experience and do not provide a comprehensive theory for why suicidal risk may increase for different subgroups of Latinos and Asians. This study postulates that Joiner's interpersonal theory is potentially helpful, but, first, an understanding of acculturation and culture is provided to help contextualize his theory within immigrant cultures.

Culture and Acculturation

Culture refers to the characteristics and shared patterns of behaviors and interactions within a particular group of people. This can range from language, religion, food, social habits, and the arts, to cognitive constructs and worldviews that are learned by socialization. Collectivist cultures prioritize the needs and goals of a group as a whole over the needs and goals of each individual. As such, relationships with other members in the group are paramount to the development of one's identity. Collectivist cultures tend to create cohesive in-group identities, which results in high levels of loyalty and rigid between-group boundaries (Hofstede 2001). Therefore, when these in-group identities are shifted or challenged, as is often the case for

immigrants assimilating into a new dominant culture, individuals may feel stressed or even threatened.

When immigrants acculturate into a new culture, they experience a clash of cultural worldviews that can influence their interactions with mainstream society. Acculturation is a dynamic process that changes over time and depends on the degree of identification with one's native culture as well as factors such as age at migration, linguistic preference, and interpersonal behaviors (Berry & Sabatier, 2010 ; Juang & Cookston, 2009; Noh & Kasper, 2002; Sam & Berry, 2010).

Joiner's interpersonal theory of suicide can be useful for understanding cultural correlates of Asian and Latino immigrant suicide patterns because the emphasis on unmet interpersonal needs is congruent with collectivist cultural beliefs that suicidal behavior is primarily a response to social and relational conflicts rather than as a response to mental illness (Range et al., 1999; Wong and Poon, 2010).

One of the most significant distinctions between cultures is the degree to which individuals possess a worldview that emphasizes either the individual or the collective (Triandis, 2006). Individualistic societies prioritize personal goals over in-group goals and value personal uniqueness and choice. Family is mainly conceptualized as the immediate family unit. Conversely, collectivist societies either do not make a distinction between personal and group goals or prioritize group goals over the self. Collectivists value interdependence and group well-being (Markus & Kitayama, 1991).

For example, in Chinese culture, suicide is sometimes interpreted as a way of escaping from intractable interpersonal conflicts (Tsoh et al., 2005). And studies of Latino suicide often cite interpersonal conflicts, particularly within the family environment, as possible risk factors

(Pena et al., 2011; Zayas et al., 2005). The Asian and Latino cultural emphasis on family and interdependence dovetail with Joiner's construct of *failed belongingness* as a risk factor for suicide.

Joiner's construct of *perceived burdensomeness* is also salient for Asian and Latino communities because of collectivist values such as self-sacrifice and social obligations to the family and community (Kim, Atkinson, & Umemoto, 2001; Sabogal et al., 1987; Szapocznik & Kurtines, 1993). The perceived inability to be a valuable and contributing member of the family or community (e.g., by failing to financially provide for one's family due to a job loss) may lead one to believe that one is a burden.

Joiner's interpersonal model may have special relevance to immigrants as they acculturate. Many researchers have identified family conflict as one of the most salient risk factors for psychological distress and suicidal behavior for Asians (Choi et al., 2009; Leong, Leach, Yeh, & Chou, 2007; Range et al., 1999) and Latinos (Kuhlberg & Zayas, 2010; Pena et al., 2011; Zayas et al., 2005). Family conflicts often arise because of different values and expectations that come from intergenerational differences between parents and their children. Acculturated Asians and Latinos, whether as adolescents or adults, may feel disconnected to their parents or communities due to not speaking the native language, not embracing the same cultural values, or feeling like they are perceived as outsiders by their own people (Wong, Brownson, & Schwing, 2009).

Elderly immigrants, particularly men, may also feel a sense of *failed belongingess* due to culture shocks experienced in the American culture such as changed gender roles, lack of respect for the elderly, or a hyper-individualistic culture that may pervade even their own families.

Older immigrants may also experience *perceived burdensomeness* if, because of language barriers, they are unable to feel like productive members of society.

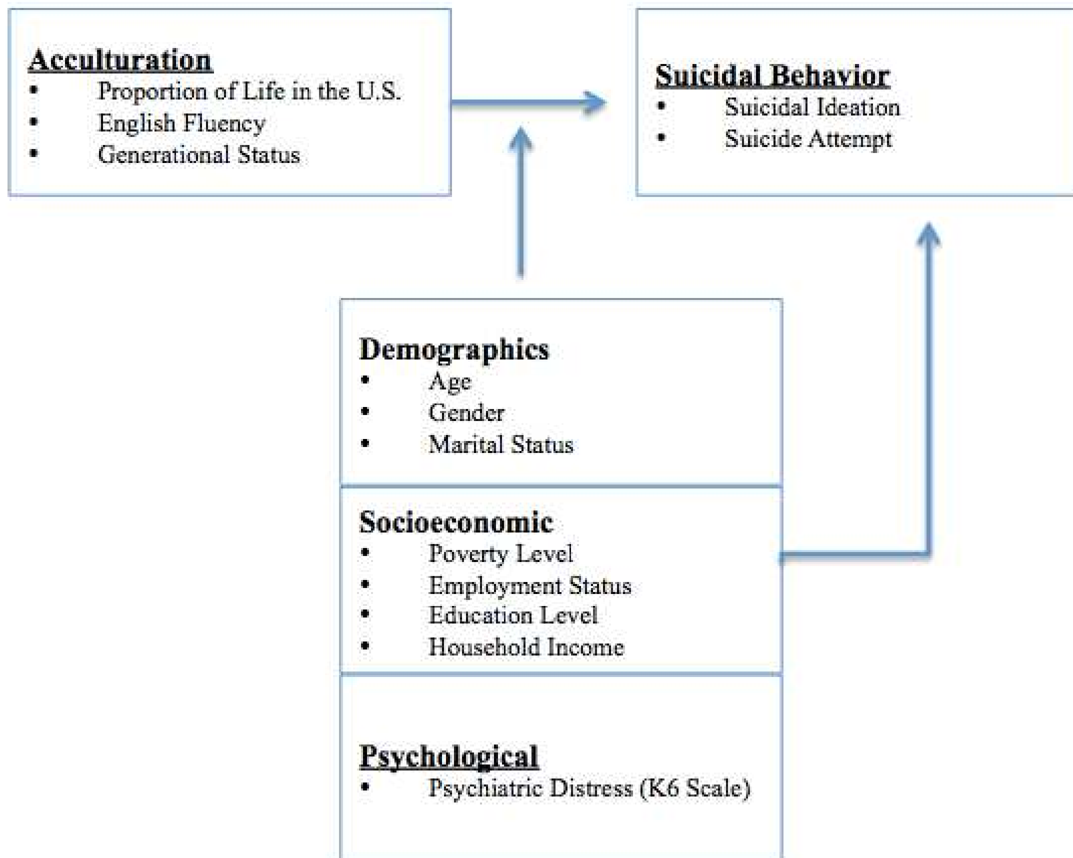
Asians and Asian immigrants may also feel a sense of failed belongingness and perceived burdensomeness if they feel pressured to live up to the model minority stereotype. Because Asians are perceived to be academically and economically successful, those who fail to meet these societal and internalized expectations may experience psychological distress and suicidal behavior because they may feel like outliers to their community or because their financial failure may be perceived as an enormous burden to their families (Choi et al., 2009).

Wong, Koo, Tran, and Mok (2011) tested Joiner's interpersonal theory in a mixed-methods study among a sample of Asian American college students and found support for Joiner's constructs of failed belongingness and perceived burdensomeness in their quantitative and qualitative data.

Conceptual Framework

The conceptual framework for this study draws upon the theoretical models of Durkheim and Joiner, as well as the research and theories related to acculturation, to explore the possible trajectories of suicidal behavior among Asian and Latino communities. This model emphasizes the influence of a number of factors that can potentially contribute to suicidal behavior among Asian and Latino communities. In this framework, correlates of acculturation are defined as proportion of life spent in the U.S., English fluency, and generational status. Suicidal outcome variables are measured as suicidal ideation, recent suicidal ideation, and suicide attempt. In summary, the proposed model for this dissertation study suggests a relationship between acculturation and suicidal behavior and this relationship is mediated by sociodemographic variables such as gender and employment status, as well as psychiatric distress.

Figure 1: Conceptual Framework



Chapter 4: Research Methodology

California Health Interview Survey

The California Health Interview Survey (CHIS) is one of the largest health surveys in the nation and is a significant source of health care data for policymakers in California (Brown, Holtby, Zahnd, & Abbott, 2005). CHIS is spearheaded by the UCLA Center for Health Policy Research and is collaborative project with the California Department of Health Care Services and the Public Health Institute. CHIS is a population-based, cross-sectional, biennial health interview first administered in 2001. Altogether, there have been 7 cycles of CHIS data collection since 2001, with the most recent cycle being completed in 2014.

Conducted as a random digit dial (RDD) telephone survey of California households using both landlines and mobile phones, it uses a multi-stage sampling design drawn from selected households in every county in California and is designed to provide information such as health and mental-health related estimates, service utilization estimates, and health and mental health behaviors representative of California's diverse population. Additionally, CHIS gathers detailed information on demographics, employment, immigrant status, and other acculturative measures such as nativity and language preference.

CHIS is designed to provide population-based estimates for all California counties and all major ethnic groups, and several smaller ethnic groups. The sample was designed to meet and optimize two objectives: (1) to provide local-level estimates for counties with populations of 100,000 or more and (2) to provide statewide estimates of California's overall population and its larger racial/ethnic groups, as well as for some smaller ethnic groups in order to provide important information that is generally not available due to their smaller size. This was achieved by supplementing samples of selected racial/ethnic populations in order to improve estimates.

Koreans and Vietnamese were oversampled so that at least 500 adults would be interviewed in each group. CHIS produces Listsufficient Chinese, Filipino, Japanese, and South Asian sample sizes.

Research design.

The CHIS survey was created based on the research and policy needs of UCLA, sponsoring agencies, and a variety of governmental, academic, and other partners. The survey was initially developed in 2000 with the assistance of an outside research and survey design agency, Westat, in order to cover a wide variety of health and mental health related topics. The survey underwent various iterations and phases of pretesting and was finally completed in 2001 with three distinct questionnaires targeted to adults, children, and adolescents.

The Multi-Cultural Issues and Technical Advisory Committee (MCTAC) vetted the survey for cultural and linguistic fidelity by testing for cultural appropriateness using focus groups. The survey instrument was then translated into Spanish, Chinese (Mandarin and Cantonese dialects), Korean, Vietnamese, and Khmer (Cambodian). These languages were identified as the languages that would cover the largest number of Californians that did not speak English well enough to participate.

For the purposes of this study, the Adult Extended Questionnaire (AEQ) will be described. The AEQ is divided into 13 sections and covers the following topics: health status, health conditions, mental health (including suicide ideation and attempts), health behaviors, women's health, cancer history and prevention, dental health, food environment, access to and use of health care, health insurance, public program eligibility, neighborhood and housing, emergency preparedness, child care and school attendance, employment, income, and demographic characteristics.

CHIS utilized a list-assisted random-digit dial (RDD) method to identify California households using land-land and mobile phone numbers. Telephone numbers were randomly generated by computer and an arbitrary sample of these numbers were geographically stratified and drawn within every county in California. Surname list samples were used, which increased the number of interviews with select racial/ethnic groups. Adult individuals age 18 and older were eligible if they resided in a house, apartment, or mobile home with their families, extended families, or unrelated persons provided the dwelling has less than nine residents. Those living temporarily away from home (e.g. college students) were eligible and enumerated at their usual place of resident. Individuals in living in residences occupied by nine or more unrelated persons (e.g. shelters or sober living facilities), institutions (prisons, psychiatric hospitals), the homeless or transient, as well as those who resided in military barracks were excluded.

List-assisted RDD sampling is currently the standard method of choice for telephone surveys for landline numbers. This method results in an unclustered sample that can be given to interviewers once the sample of telephone numbers is chosen. Once identified, a simple random systemic sample of telephone numbers was selected from this frame. For cell phone users, telephone numbers are drawn using similar RDD methodology from banks of telephone numbers that are assigned for cellular use. The sampled telephone numbers are called and screened to determine whether the adult has a landline telephone. If the individual does have a landline telephone, an additional question is asked to determine if the user conducts most or all of their phone calls via cell phone or landline. Only those who use cell phones as their primary phone are eligible to participate in this sample, due to growing evidence primary cell phone users have different characteristics than those who primarily use landlines (Link et al., 2007). Individuals

who are eligible and complete the adult survey are entitled to a reimbursement for the cost of cell phone airtime.

Data Collection Methods.

Prior to the interviewing process, letters about the survey were sent out to all sampled telephone numbers for which an address was available in order to maximize the response rate. An advanced letter was mailed to approximately 58% of the landline RDD sample numbers and 82% of the surname list sample numbers. Addresses were not available for the cell sample. A $2 bill was included with each advanced letter to promote cooperation.

The interviews were conducted using a Computer-Assisted Telephone Interview Testing (CATI) system. CATI is a method whereby an interviewer uses a computer to conduct the interview by reading the questions from the computer screen and then keying the responses to the computer. The advantages of using this method include increased speed, accuracy, and ability to monitor quality (California Health Interview Survey, 2007).

The randomly generated telephone numbers were then dialed and screened prior to data collection to eliminate nonworking and nonresidential numbers. If the household did not respond after an initial telephone attempt, up to 17 attempts were made to establish contact over several days and at various times of the day and evening. If no contact was made after 17 attempts, the telephone number was retired.

Once a household was identified and selected, an eligibility screening was conducted to determine eligibility, which included request for survey participation, identification of an adult 18 years or older who resided in the household, determination if the residence was associated with the dialed phone number, and how many adults 18 years or older resided in the household. If more than one adult lived in the household, one adult was randomly selected in order to reduce

response burden on the household. The selected individual was then interviewed in their language of choice (of the available five languages).

Due to selection bias challenges related to undercoverage or nonresponse of participants, CHIS employed a nonresponse adjustment procedure as a method for weighting class adjustment. Nonresponse adjustments were computed and applied separately to individuals using characteristics that are known for nonresponders and responders. To produce population estimates from the CHIS data, the sample was weighted to represent the non-institutionalized population for each sampling stratum.

To address missing values in CHIS data, two imputation methods were used. First, randomly selected responses from the observed distribution were inserted for a few variables if the percentage of items missing was less than 3. For other missing values, the hot deck method of imputation without replacement was used, which used data from other observations in the sample.

The average adult interview took approximately 32 minutes to complete. Interviews were counted as complete if the respondent finished at least 80% of the survey. Approximately 12% of the adult interviews were completed in a language other than English and these generally took longer to complete. No incentives were provided for participation.

Sample population.

For the purposes of this research study, four years of CHIS data will be used, 2011 through 2014, to ensure a maximum sample size particularly for smaller Asian subgroups. Suicidal behaviors were measured starting in the 2009 cycle but this year was not added to the sample due to a difference in data collection methods between 2009 and 2011, as well as a difference in U.S. Census weights. The 2009 data relied on 2000 U.S. Census weights whereas

the 20011 data used 2010 U.S. Census weights. Combining CHIS data to maximize small sample size of Asian populations has been a research design strategy employed by other researchers studying topics such as binge-drinking (Becerra, Herring, Marshak, & Banta, 2013), acculturation (Chang, Chan, & Han, 2015), and obesity (Becerra, Scroggins, & Becerra, 2014).

The response rate was a composite of screener completion rates (success in introducing the survey to a household and randomly selecting an adult to be interviewed) and extended interview completion rate (success in getting 1 or more selected persons to complete the extended interview. Researchers conducted extensive data quality studies to assess methodological issues related to nonresponse and noncoverage biases with CHIS data and consistently found that the data accurately represented California's households population (Lee, Brown, Grant, Belin, & Brick, 2009).

Table 1 shows a breakdown of the sample sizes and racial/ethnic compositions of each of the data collection cycles: 2011-2012, 2013, and 2014.

Table 1 CHIS 2011-2014 Racial/Ethnic Group Samples

Race	2011-2012	2013	2014	All years
White	30,110	15,415	14,288	59,813
Latino	9,506	4,203	3,793	17,502
Asian	4,302	1,527	2,038	7,867
African American	2,102	1,022	816	3,940
Native Hawaiian/ Pacific Islander	82	45	42	169
Other single race	4,585	1,830	1,635	8,050
Two or more races	964	559	449	1972
Asian Ethnic Groups				
Chinese	1,203	507	632	2,342
Filipino	555	280	275	1,110
Korean	724	223	210	1,157
Vietnamese	871	128	394	1,393
South Asian	499	210	196	905
Japanese	378	185	327	890
Other/ Two Races	249	107	97	453
Latino Ethnic Groups				
Mexican	7,493	3,364	3,088	13,945
Salvadoran	435	184	165	784
South American	277			277
Guatemalan	252	100	76	428
European Hispanic	234	136	100	470
Other Latino	477	317	275	1,069
2+ Latino Group	338	102	89	529
Total Sample	42,935	20,724	19,516	83,175

Variables and measures.

Indicators of all variables used in this study are based on self-reported information obtained during the CHIS interviews. Many epidemiological surveys about health behaviors include self-report questionnaires about suicidal ideation and attempts. When the same survey is administered to the same population over time, reasonable conclusions can be drawn about changing trends in suicidal behavior (Conner, Conwell, & Duberstein, 2010; Goldney, Fisher, & Merritt, 2001).

The following variable specifications describe the specific survey questions asked to assess suicidal constructs.

Dependent variables.

Suicidal ideation and suicide attempt are the two main dependent variables used in this study. The following CHIS questions assessed these measures:

Suicidal Ideation: Have you ever seriously thought about committing suicide?

Suicide Attempt: Have you ever attempted suicide?

Independent Variables.

Acculturation.

In order to evaluate the level of acculturation of adults, measurement proxies of proportion of life spent in the U.S., English fluency, and generational status are utilized. Proxy measures refer to variables that capture the complex phenomenon of acculturation and are widely used as indicators of acculturation in population studies. The most commonly used proxy measures for acculturation are language use, nativity, and length of residence in the U.S., all of which assume that acculturation can be approximated by the amount of exposure to the mainstream culture (Abraido-Lanza et al., 2006). In a systematic review of 48 studies using proxy measures, 46% used linguistic preference, 41% used nativity, 34% used length of residence in the host country, 15% used language of interview, 11% used generational status, and 9% used age at immigration (Thompson & Hoffman-Goetz, 2009).

Covariates

A set of additional variables that have consistent correlations with suicidal behavior in the literature were measured to use as covariates in the modeling process. Each covariate and its associated categories are in Table 2.

Table 2 Variables Used to Assess Suicidal Risk

Variable Name	Categories
Age	18-34 years 35-49 years 50-64 years <65 years
Gender	Male Female
Marital status	Married Divorced/separated/widowed Never married
Education	High school (or less) College (or less) Graduate degree (or less)
Household poverty	Household income below the federal poverty threshold
Work status	Employed Not-employed (and looking for a job) Not in labor force (and not looking for a job)
Household income	<$15,000 $15,000-$34,999 $35,000-$75,999 >$75,000
Proportion of life spent in U.S.	<30% 30-70% >70%
English fluency	Native speaker Very well/well (non-Native speaker) Not well/ not well at all (non-Native speaker)
Generational status	1st generation (foreign-born) 2nd generation (U.S. born, both parents foreign-born) 2.5 generation (U.S. born, one parent U.S. born) 3rd generation (U.S. born, both parents U.S. born)
U.S. nativity[a]	U.S. born Foreign born
Years lived in the U.S.[a]	0-5 6-10 11-20 >21
Psychiatric distress	< 13 (less than score of 13 on Kessler-6 scale) >= 13 (higher than 13 score on Kessler-6 scale; severe psychological distress)

[a] These variables were excluded from the final model due to multicollinearity

Psychiatric distress

CHIS utilizes the Kessler-6 (K6), an epidemiologic screening tool, to identify persons with a high likelihood of having a diagnosable psychological disorder sufficiently severe to

cause moderate to serious impairment using the least number of questions possible. Kessler et al. (2002) developed the scale based on an item response theory model to be used in population-based surveys to screen for individuals who are likely to meet diagnostic criteria for "serious mental illness" in a given year, which was estimated by previous studies to constitute about 6% of the U.S. adult population (Kessler, Andres, Colpe, et al., 2002). The scale is comprised of 6 questions asking respondents how often they feel sad, nervous, worthless, hopeless, restless, or whether everything is an effort, within the past 30 days and within the past 12 months. The K6 measures psychological distress with a 5-point Likert response format ranging from 0 (none of the time) to 4 (all of the time). Scores range between 0 (no psychological distress) to 24 (most severe psychological distress). The K6 divides adults into those experiencing severe psychological distress as ≥ 13 and a score of ≥ 6 indicating non-specific psychological distress (Kessler, Andres, Colpe, et al., 2002; Kessler, Barker, Colpe, et al., 2003; Pratt, Dey, & Cohen, 2007). Scores will be categorized as low (0-5), moderate (6-12), and serious (13-24).

Data Analysis Strategies

The primary objective of the proposed research is to understand the degree to which acculturation levels explain suicidal behaviors (ideation and attempts) among Asian and Latino communities in a large, diverse random sample of California adults. Analyses will be conducted using data from the CHIS 2011-2014 surveys.

Identifying acculturation measures used in the model required a test of multicollinearity between the following acculturation variables: U.S. nativity (born in the US or born in a foreign country), proportion of life spent in the U.S., number of years lived in the U.S., generational status, and English fluency. The extent of collinearity between these five variables, which can result in an increase in standard of errors of regression coefficients, was measured by running a

multicollinearity test. Variance inflation factor (VIF) scores were calculated and variables that produced a VIF score of > 5 were discarded: U.S. nativity (VIF score: 76.09) and years lived in the U.S. (57.82) (O'Brien 2007). The remaining variables were tested again for multicollinearity, and all results received a score of 2.15 or less, indicating no presence of multicollinearity in the model.

Descriptive analyses using cross tabulations and chi-square tests will be conducted to describe a characterization of the Asian and Latino samples using all independent and dependent variables, as well as estimating the prevalence of suicidal ideation and suicide attempt. Both Asian and Latino samples will also be broken into ethnic subgroup categories for this stage of analysis. Bivariate statistics will be generated in order to examine the sociodemographic covariates of age, gender, marital status, education, household poverty, work status, household income, and a psychiatric distress measure. Acculturation covariates examined include proportion of life spent in the U.S., English fluency, and generational status.

After examining the univariate characteristics of the independent variables, multivariate logistic regression models were developed for Asians and Latinos, as well as each ethnic subgroup, and used to examine the association between the likelihood of suicidal behaviors and selected sociodemographic, psychiatric, and acculturation factors. All measures were entered simultaneously into a logistic regression analysis, with lifetime prevalence of suicidal ideation or suicide attempt as the dependent variables. Logistic regression is a commonly used statistical method in suicide research when the dependent variable is categorical and dichotomous, in this case measuring suicidal behaviors such as suicidal ideation or attempts (answering yes or no). Odds ratios and 95% confidence intervals were reported for each measure of sociodemographics, psychiatric distress, and acculturation.

Limitations

This study has several limitations. First, because this is a secondary data set, there is no opportunity to introduce measures that would have been helpful to this study, such as ethnic identity or social supports. While the secondary data set method allowed for a large sample of Asians, relative to other epidemiological studies, given the low rate of self-reported suicidal behavior in the population, a larger sample size may be needed to generate a more robust statistical relationship. Also, there is no way to control how the original interviewer conducted the questionnaires with the respondents and if they were culturally sensitive or competent in their communication style, which could potentially influence the feedback of the respondent.

This study was a cross-sectional analysis and therefore inferences about causality are limited. Because study participants were limited to non-institutionalized settings, individuals who may be of particularly high suicide risk, including those who are imprisoned, homeless, or hospitalized, were not included in the survey

Another major limitation of this study is the reliance on the respondent to provide accurate responses, which may be undermined by social desirability bias, underreporting, or recall error. Unwillingness to report suicidal behaviors may also be due to cultural factors such as saving face or concerns that an admission would result in institutionalization (which may be perceived to threaten undocumented immigrants). Comparison of self-reported rates of suicidal ideation across generational groups can be problematic because suicidal ideation is not necessarily observable by others but it is fleeting and fluctuating subjective experience, oftentimes influenced by culture.

Furthermore, single-item proxy variables such as nativity and linguistic preference are used to measure acculturation, which may not capture the full multidimensional experience of

acculturation. For example, measures of ethnic identity, cultural identity, and social supports would be beneficial in measuring the magnitude of acculturation since they may serve as important mediators and protective factors for suicidal behavior.

An important limitation to consider when interpreting immigrant suicide data is the tremendous diversity within each racial/ethnic category and across cultural groups. Results may vary widely depending on which ethnic subgroup is referenced. Collapsing across heterogeneously distinct subgroups can yield characterizations that obscure important differences between groups.

Asians encompass over 16 distinct ethnic groups across East Asia, Southeast Asia, and South Asia. Each Asian ethnic group has its own unique cultural heritage and migration trajectory, from East Asians like Chinese and Koreans who tend to be better-educated to Cambodians and Vietnamese who came as refugees (Hoeffel, Rastogi, Kim, & Shahid, 2012). The largest Asian ethnic groups in the U.S. are Chinese (4 million), Filipinos (3.4 million), followed by Vietnamese, Korean, and Japanese (Hoeffel et al., 2012).

Similarly, there the Latino population is also widely heterogeneous and diverse, and yet studies often do not disaggregate by ethnic subgroup. The term “Latino” or “Hispanic” encompasses over 20 different countries, each with its own unique history, heritage, and customs. Latinos differ in socioeconomic background, depending on their immigration trajectory to the U.S.

Chapter 5: Results

The results of this study are divided into three sections. Section 5.1 reports descriptive analyses on all major variables included in the study. Chi-square tests were used to compare the distribution of the sociodemographic and acculturation characteristics and suicidal behaviors by race. Section 5.2 summarizes descriptive and logistic regression results by Latinos and Latino subgroups, and section 5.3 summarizes descriptive and logistic regression results by Asians and Asian subgroups.

Section 5.1: Descriptive Analysis

Table 1 presents the results of chi-square tests conducted for all sociodemographic variables used in the study, by race. These variables were selected due to their significant associations, according to multiple suicide studies, in predicting suicidal behavior and completed suicide. Pooling four years of survey data from 2011-2014 generated a sample size of 83,175 adults in California. Observed frequencies (n's) are unadjusted and percentages are reported as weighted data. Data is typically weighted for health survey research in order to rebalance the data to more accurately reflect the population under study by accounting for the probability of sampling and nonresponse. CHIS data is post-stratified to control totals for California based on U.S. Census data so that results are generalizable to the California population.

Whites account for approximately 62% of survey respondents, followed by Latinos with 21%, Asians with 9.3%, Blacks with 4.54%, Other/Multiracial with 2.24%, and American Indians/Alaska Natives with 0.94%. More than half of respondents are ages 50 and older, largely

Table 3 Sociodemographic Characteristics of the California Health Interview Survey, 2011-2014

n (%) [a]	Latino 17, 502 (21.04)	White 51,518 (61.94)	Black 3,777 (4.54)	American Indian 779 (0.94)	Asian 7,738 (9.30)	Other/ Multiracial 1,861 (2.24%)	Entire Sample 83,175
Age* **							
18-34 years	4,758 (39.82)[b]	4,433 (24.6)	519 (29.84)	99 (29.97)	1,314 (35.35)	412 (47.04)	11,535 (32.21)
35- years	5,054 (32.48)	7,275 (22.63)	703 (24.85)	151 (21.84)	1,762 (28.78)	357 (22.330	15,302 (27.01)
50-64 years	4,687 (19.65)	17,002 (28.35)	1,311 (29.43)	267 (26.66)	2,271 (22.6)	581 (19.37)	26,119 (24.38)
65 years or more	3,003 (08.06)	22,808 (24.41)	1,244 (15.88)	262 (21.54)	2,391 (13.27)	511 (11.26)	30219 (24.38)
Gender* **							
Male	7,199 (49.51)	21,155 (49.27)	1,465 (46.61)	291 (49.17)	3,412 (46.34)	744 (47.55)	34,266 (48.75)
Female	10,303 (50.49)	30,363 (50.73)	2,312 (53.39)	488 (50.83)	4,326 (53.66)	1,117 (52.45)	48,909 (51.25)
Marital status* **							
Married/Cohabiting	9,925 (57.79)	28,160 (61.65)	1,250 (37.24)	372 (59.33)	4,837 (60.5)	823 (45.76)	45,367 (58.40)
Divorced/separated/ widowed	3,544 (13.68)	16,630 (18.08)	1,474 (26.88)	285 (24.21)	1,466 (9.86)	582 (17.58)	23,981 (15.92)
Never married	4,033 (28.53)	6,728 (20.27)	1,053 (35.88)	122 (16.45)	1,435 (29.65)	456 (36.66)	13,827 (25.68)
Education* **							
High school	10,710 (63.44)	12,416 (26.37)	1,191 (34.72)	361 (49.9)	2,394 (26.52)	596 (28.67)	27,668 (39.84)
College	5,919 (32.99)	29,003 (55.64)	2,121 (56.38)	366 (44.12)	3,816 (54.39)	1,032 (60.85)	42,257 (47.75)
Graduate degree	873 (3.56)	10,099 (17.99)	465 (8.9)	52 (5.98)	1,528 (19.09)	233 (10.48)	13,250 (12.41)
Household poverty* **							
Yes	5,126 (27.97)	3,724 (7.48)	650 (19.99)	189 (25.16)	1,598 (13.62)	293 (14.33)	11,580 (16.37)
No	12,376 (72.03)	47,794 (92.52)	3,127 (80.01)	590 (74.84)	6,140 (86.38)	1,568 (85.67)	71,595 (83.63)
Work Status* **							
Employed	9,695 (64.94)	23,759 (60.67)	1,728 (56.73)	311 (51.8)	3,857 (64.69)	879 (60.93)	40,429 (62.45)
Not-employed	1,637 (10.71)	1,888 (5.57)	290 (11.59)	39 (6.48)	415 (6.85)	145 (12.42)	4,414 (8.03)
Not in labor force	6,170 (24.36)	25,871 (33.77)	1,759 (31.68)	429 (41.73)	3,466 (28.47)	837 (26.65)	38,532 (29.52)
Household income* **							
<$15,000	3,876 (18.26)	4,691 (7.63)	745 (19.89)	187 (22.76)	1,476 (11.19)	328 (12.6)	11,303 (12.68)
$15,000-$34,999	5,856 (33.66)	10,015 (15.33)	981 (22.68)	228 (21.63)	1,675 (18.6)	432 (21.7)	19,187 (22.72)
$35,000-$74,999	4,684 (29.48)	15,129 (26.73)	1,094 (29.62)	218 (29.92)	1,737 (26.01)	497 (26.19)	23,359 (27.75)
>$75,000	3,086 (18.6)	21,683 (50.3)	957 (27.82)	146 (25.69)	2,850 (44.2)	604 (39.51)	29,326 (36.86)

*** p < .0001

[a] n's are unweighted; percentages are weighted
[b] percentages are column percentages

due to a high proportion of older adult White respondents in the sample. For all other racial categories, respondents skewed younger, particularly for the Latino, Asian, and Other/multiracial categories.

Marriage and cohabitation is a robust protective factor against suicidal ideation and attempt, whereas divorce or never having been married is a risk factor. A little over half of the respondents were married or cohabitating, with Whites having the highest rate of 61.65% and Blacks with the lowest at 37.24%. Whites, along with American Indians, had relatively low rates of respondents who had never married (or cohabitated) at 20.27% and 16.45%, respectively. In comparison, 28.53% of Latinos and 29.65% of Asians had never married. Asians had the lowest divorce rate at 9.86%, compared to the group average of 15.92%.

Higher levels of education also serve a protective effect against suicide. Latinos had the lowest educational rates, with 63.44% having a high school degree or less, compared to the group average of 39.84%. Asians were the highest educated, with 19.09% with a graduate degree or higher, followed by Whites at 17.99%. Both Asians and Whites also had comparable sample proportions of high school or less, 26.52 and 26.37%, respectively.

Poverty is a suicide risk factor. Since poverty is a function not only of household income but also household size, it is a different construct than income alone, particularly for communities who live in multigenerational households. The average poverty rate for the entire sample was 16.37% but Latinos had the highest poverty rate of 27.97%. Whites had the lowest poverty rate at 7.48% and Asians had a poverty rate of 13.62, slightly lower than average.

Work status is also correlated with suicidal behavior, with unemployment and non-working status (i.e., retired, stay-at-home parent, etc.) serving as risk factors for suicide. The average unemployment rate for the sample is 8.03%, with Other/multiracial and Blacks having

the highest unemployment rates of 12.42% and 11.59%. Whites, American Indians, and Asians had comparatively lower unemployment rates of 5.57%, 6.48%, and 6.85%, respectively.

Related to poverty and work status is household income, which measures the collective incomes of all working individuals in the household. Whites and Asians had the highest proportion of household income over $75,000, at 50.3% and 44.2%, whereas Hispanics had a substantially lower rate of 18.6%.

Table 4 Serious Psychological Distress by Racial Group

	Latino	White	Black	American Indian	Asian	Other/ Multiracial	Entire Sample
n (%)[a]	17, 502 (21.04)	51,518 (61.94)	3,777 (4.54)	779 (0.94)	7,738 (9.30)	1,861 (2.24)	83,175
Yes***	1,523 (8.84)	3,011 (7.69)	281 (9.33)	96 (16.83)	359 (4.77)	217 (13.91)	5,487 (7.96)

*** p < .0001

[a] n's are unweighted; percentages are weighted

Table 4 summarizes the prevalence rates of serious psychological distress for respondents within the past year of participating in the survey. The average rate is 7.96%, with Asians reporting the lowest at 4.77% and American Indians reporting the highest at 16.83%, followed by Other/Multiracial and Blacks, at 13.91% and 9.33%. Psychological distress is the strongest predictor of suicidal behavior.

Table 5 presents the variables used to measure acculturation by racial group. Both Latinos and Asians have substantially lower levels of acculturation across all three measures: proportion of life spent in the U.S., level of English fluency, and generational status. For proportion of life spent in the U.S., Asians had a much higher share of spending less than 30% of their lives in the U.S., at 23.1%, even compared to Latinos, at 9.97%. This suggests that either

Table 5 Acculturation Variables by Racial Group

	Latino	White	Black	American Indian	Asian	Other/ Multiracial	Entire Sample
n (%)[a]	17, 502 (21.04)	51,518 (61.94)	3,777 (4.54)	779 (0.94)	7,738 (9.30)	1,861 (2.24%)	83,175
Proportion of life spent in U.S.* **							
<30%	1,533 (9.97)[b]	489 (1.82)	61 (3.03)	< 3 [c]	1,687 (23.14)	10 (.01)	3,782 (7.66)
30-70%	6,508 (36.18)	1,975 (4.82)	159 (4.72)	3 (.01)	3,697 (37.99)	46 (3.08)	12,388 (20.23)
>70%	9,461 (53.86)	49,054 (93.36)	3,557 (92.25)	774 (99.86)	2,354 (38.87)	1,805 (95.93)	67,005 (72.11)
English fluency* **							
Native speaker	3,691 (18.93)	46,975 (87.85)	3,467 (90.13)	660 (80.05)	1,649 (23.51)	1,591 (81.8)	58,033 (54.98)
Very well/well	7,299 (43.94)	4,398 (11.83)	303 (9.67)	116 (19.85)	3,487 (54.75)	265 (17.83)	15,868 (28.99)
Not well/ not well at all	6,512 (37.12)	145 (.32)	7 (.02)	3 (.01)	2,602 (21.74)	5 (.37)	9,274 (16.03)
Generational status* **							
1st generation	9,702 (54.9)	4,014 (9.8)	278 (9.64)	9 (1.42)	6,029 (72.01)	147 (18.7)	20,179 (34.01)
2nd generation	2,849 (19.45)	2,034 (3.77)	37 (2.29)	0	1,008 (20.17)	47 (8.45)	5,975 (11.41)
2.5 generation	1,774 (9.27)	4,303 (7.88)	84 (2.29)	30 (4.8)	275 (3.33)	261 (18.7)	6,727 (7.65)
3rd generation	3,177 (16.38)	41,167 (78.55)	3,378 (85.78)	740 (93.78)	426 (4.49)	1,406 (68.07)	50,294 (46.93)

*** $p < .0001$
[a] n's are unweighted; percentages are weighted
[b] percentages are column percentages
[c] values marked < 3 represent suppressed values less than 3 for data confidentiality

Asians are on average more recent immigrants than Latinos or that recent Asian immigrants were more likely to respond to the survey. However, despite Asians spending proportionally less time in the U.S. than Latinos, Asians reported higher levels of English fluency. Latinos who reported not speaking English well or not well at all comprised 37.12% of the sample, compared to 21.74% of the Asian sample. Furthermore, approximately 45% of Latinos were born in the U.S. (2nd generation, 2.5 generation, 3rd generation), but only 18.93% identified with being a native speaker. For Asians, approximately 28% were U.S. born and 23.51% identified as native

speakers. This suggests merely being native-born does not necessarily indicate a high level of acculturation for ethnic minorities.

Relative to other racial groups, Asians were the most recent immigrants to California, as illustrated by the higher proportions of 1st and 2nd generation respondents. The majority of Asians, 72.01%, were not born in the U.S., compared to 54.9% of Latinos. Furthermore, only 4.49% of Asians were 3rd generation, compared to 16.38% of Latinos. The Other/multiracial category also has a disproportionately high percentage of 2.5 generation respondents, at 18.7% of their sample, compared to a 7.65% average across all racial groups.

Table 6 Lifetime Prevalence of Suicidal Ideation and Attempt by Race

	Latino	White	Black	American Indian	Asian	Other/ Multiracial	Entire Sample
n (%) [a]	17, 502 (21.04)	51,518 (61.94)	3,777 (4.54)	779 (0.94)	7,738 (9.30)	1,861 (2.24%)	83,175
Lifetime Suicidal Ideation* **	1,099 (6.51)[b]	5,231 (10.79)	311 (10.03)	117 (16.22)	368 (5.43)	317 (16.71)	7,443 (8.68)
Lifetime Suicide Attempt* **	456 (2.62)	1,565 (3.44)	132 (4.01)	53 (7.93)	82 (1.06)	286 (7.33)	2,430 (2.97)

*** $p < .0001$
[a] n's are unweighted; percentages are weighted
[b] percentages are column percentages

Table 6 summarizes the relationship between suicidal ideation and suicidal attempt by racial group. The average prevalence rate for lifetime suicidal ideation is 8.68%. Other/Multiracial respondents and American Indians had the highest rates of 16.71% and 16.22%, respectively. Blacks and Whites had comparable rates of 10.03% and 10.79%, whereas Latinos and Asians had the lowest rates of 6.51% and 5.43%. Prevalence rates for lifetime suicide attempt were roughly similar, with American Indians and Other/Multiracial also reporting the highest attempt rates, followed by Blacks, Whites, Latinos, and lastly, Asians. Only Latinos and Asians reported suicide ideation and attempt rates lower than average.

Section 5.2: Latino Models

Although Latinos and Asians report relatively low suicidal behaviors, it is still important to examine possible correlates of suicidal risk, which may or may not be consistent with correlates found in the literature for the general population. Since the main research question in this study considers the predictive role of acculturation in suicidal risk, chi-square results for these variables are presented in Table 7 in order to provide detailed information about acculturative distinctions between Latino ethnic subgroups.

There are significant differences between ethnic subgroups for each acculturation variable. Some ethnic groups have over 90% of their sample living over 70% of their life in the U.S. including Puerto Ricans (99.88%), Latino Europeans (92.71%), and 2 or more Latino types (94.71%). Salvadorans and Guatemalans have substantially lower percentages of their sample with over 70% of their life spent in the U.S., at 23.51% and 21.93%, respectively.

For English language fluency, only Latino Europeans, other Latinos, and Puerto Ricans had over 50% of their sample identified as native English speakers. Salvadorans and Guatemalans had over 50% of their sample identified as not speaking English well or not well at all. Mexicans and Central Americans were roughly comparable in English fluency, with 18.17% and 15.31% as native English speakers, respectively.

An examination of the distribution of generational status revealed significant differences between each of the Latino ethnic subgroups, as well. Salvadorans and Guatemalans again demonstrated low levels of acculturation with their relatively high proportion of 1st generation immigrants (80.95% and 85.34%). Puerto Ricans, Latino Europeans, other Latino types, and 2 or more Latino types all have less than 10% first generation immigrant samples and also correspondingly have higher levels of 3rd generation respondents, with Puerto Ricans and Latino

Europeans with the highest rates (66.87% and 71.78%). Respondents who were two or more Latino types had a much greater share of 2nd generation respondents at 45.35%, suggesting a high level of intermarriage among U.S. born children of immigrants from different Latino ethnic groups (e.g. a Mexican-American marrying a Guatemalan-American).

This wide range of differences between Latino ethnic subgroups with respect to acculturation indicates significant heterogeneity and diversity of life experience. This may help to explain discrepancies in suicidal ideation and attempt between groups given that Guatemalans report an ideation prevalence of only 1.91% whereas Puerto Ricans report a rate of 17.54%. Other groups with higher levels of acculturation, including 2 or more Latino types and Latino Europeans also have substantially higher suicide ideation rates of 11.36% and 9.58%, respectively. With respect to suicide attempt, a similar pattern of highly acculturated groups reporting higher suicide attempt prevalence also emerged, including Puerto Ricans (8.84%) and 2 or more Latino types (4.3%). However, South Americans represent somewhat of a divergence from this relationship, since they report relatively low levels of acculturation (75.61% first generation and 16.77% native English speaker), and yet higher suicide ideation and attempt rates (8.36% and 5.39%). Logistic regression models, along with pairwise tests to compare effects between groups, will help to clarify some of these seeming theoretical inconsistencies.

Table 7 Acculturation and Suicide Characteristics of Latinos in California Health Interview Survey, 2011-2014, n = 17, 502

	Mexican	Salvadoran	Guatemalan	Central American	Puerto Rican	Latino European	South American	Other Latino	2 + Latino Types
n (%) [a]	13,945 16.77%	784 9.40%	428 5.10%	340 4.10%	251 3.00%	470 5.70%	502 6.0%	253 3.0%	529 6.40%
Proportion of life spent in U.S.***									
<30%	1,201 8.67% [b]	109 23.51%	57 21.93%	44 15.26%	0 0%	5 2.06%	107 22.48%	5 0.55%	5 0.33%
30-70%	5,253 8.67%	475 48.90%	277 58.20%	156 40.79%	< 3 [c] 0.12%	32 5.23%	235 41.96%	49 11.19%	30 4.95%
>70%	7,491 54.57%	200 27.60%	94 19.87%	140 43.94%	250 99.88%	433 92.71%	160 35.57%	199 88.26%	494 94.71%
English fluency***									
Native speaker	2,710 18.17%	39 4.95%	26 3.88%	56 15.31%	134 51.82%	303 64.86%	79 16.77%	130 59.28%	214 33.47%
Very well/well	5,727 43.67%	299 39.78%	174 35.82%	161 49.49%	110 47.07%	153 33.39%	285 53.40%	88 35.23%	302 64.94%
Not well/ not well at all	5,508 38.16%	446 55.27%	228 60.30%	123 35.20%	7 1.11%	14 1.75%	138 29.82%	35 5.50%	13 1.59%
Generational status***									
1st generation	7,805 54.34%	652 80.95%	361 85.34%	260 72.30%	7 2.16%	54 8.32%	402 75.61%	93 8.30%	68 9.92%
2nd generation	2,346 19.90%	99 15.65%	49 12.79%	32 13.12%	0 0.00%	54 9.59%	49 13.17%	20 29.87%	200 45.35%
2.5 generation	1,414 9.64%	19 2.25%	15 1.56%	35 9.06%	84 30.97%	56 8.32%	34 8.70%	22 8.30%	95 15.73%
3rd generation	2,380 16.12%	14 1.15%	3 0.31%	13 5.52%	160 66.87%	306 71.78%	17 2.52%	118 45.55%	166 28.99%
Lifetime Suicidal Ideation***	822 6.34%	44 5.75%	11 1.91%	19 4.42%	40 17.54%	49 9.58%	33 8.36%	22 6.73%	59 11.36%
Lifetime Suicide Attempt***	326 2.51%	24 2.05%	3 0.77%	9 2.35%	22 8.84%	21 2.90%	23 5.39%	9 1.66%	19 4.30%

*** $p < .0001$

[a] n's are unweighted; percentages are weighted

[b] percentages are column percentages

[c] values marked < 3 represent suppressed values less than 3 for data confidentiality

Table 8 Variables Predicting Lifetime Suicidal Ideation and Suicide Attempt for Latinos

	Suicidal Ideation (n = 1,099)		Suicide Attempt (n = 456)	
	OR	95% CI	OR	95% CI
Age				
18-34 years	1		1	
35-49 years	0.84	[0.64, 1.10]	0.81	[0.51, 1.3]
50-64 years	0.84	[0.61, 1.16]	0.64	[0.39, 1.05]
65 years or more	0.33***	[0.20, 0.54]	0.18***	[0.86, 0.38]
Gender				
Male	1		1	
Female	0.85	[0.67, 1.08]	1.11	[0.76, 1.62]
Marital status				
Married	1		1	
Divorced/separated/widowed	2.17***	[1.55, 3.04]	2.46***	[1.49, 4.04]
Never married	1.46**	[1.10, 1.93]	1.27	[0.85, 1.91]
Education				
High school	1		1	
College	1.21	[0.96, 1.51]	0.83	[0.56, 1.22]
Graduate degree	1.34	[0.83, 2.17]	1.15	[0.50, 2.62]
Household poverty				
Yes	1		1	
No	1.41	[0.92, 2.16]	0.87	[0.49, 1.55]
Work Status				
Employed	1		1	
Not-employed	1.33	[0.92, 1.92]	1.07	[0.66, 1.75]
Not in labor force	1.44**	[1.11, 1.86]	1.76*	[1.22, 2.55]
Household income				
<$15,000	1		1	
$15,000-$34,999	0.59*	[0.38, 0.91]	0.93	[0.50, 1.76]
$35,000-$74,999	0.46**	[0.27, 0.79]	0.67	[0.31, 1.47]
>$75,000	0.46**	[0.26, 0.82]	0.42*	[0.17, 1.00]
Proportion of life spent in U.S.				
<30%	1		1	
30-70%	1.71	[0.87, 3.35]	1.18	[0.62, 5.35]
>70%	1.97	[0.95, 4.05]	2.1	[0.67, 6.61]
English fluency				
Native speaker	1		1	
Very well/well	0.69**	[0.52, 0.92]	0.93	[0.57, 1.52]
Not well/ not well at all	0.43***	[0.28, 0.67]	0.54	[0.27, 1.01]
Generational status				
1st generation	0.49*	[0.31, 0.76]	0.61	[0.33, 1.11]
2nd generation	0.49**	[0.34, 0.69]	0.49*	[0.28, 0.86]
2.5 generation	1		1	
3rd generation	0.58***	[0.41, 0.81]	0.72	[0.46, 1.12]
Psychiatric distress				
<13	1		1	
>=13	6.77***	[4.32, 8.62]	6.61	[4.73, 9.28]

Note: OR = odds ratio; CI = confidence interval
*p < .05.
**p < .01. ***p < .001.

Table 9 Pairwise tests for Acculturation Variables Predicting Lifetime Suicidal Ideation and Suicide Attempt for Latinos

	Suicidal Ideation (n = 1,099)		Suicide Attempt (n = 456)	
	OR	95% CI	OR	95% CI
Proportion of life spent in the U.S.				
30-70% vs. >70%	0.87	[0.59, 1.31]	0.86	[0.49, 1.52]
English Fluency				
Well vs. not well+	1.62**	[1.1, 2.38]	1.72	[0.97, 3.07]
Generational Status				
1st gen vs. 2nd gen	1.01	[0.69, 1.46]	1.12	[9.76, 2.03]
1st gen vs. 3rd gen	0.84	[0.55, 1.29]	0.85	[0.48, 1.52]
2nd gen vs. 3rd gen	0.84	[0.61, 1.15]	0.68	[0.39, 1.20]

** p <.01

Table 8 summarizes the results of the full regression model examining correlates of suicidal ideation and suicide attempt for Latinos. Table 9 displays pairwise tests in order to compare effects between groups within the model. Gender, education, poverty level, or proportion of life spent in the U.S. was not associated with higher odds of suicidal ideation or attempt after adjusting for sociodemographic, acculturation, and psychiatric covariates. Significant correlates of suicidal ideation in the model include age, marital status, work status, household income, English fluency, generational status, and psychological distress.

Age was shown to have a negative association with suicidal ideation and attempt for individuals aged 65 and older, with a decreased odds rate of 33% for ideation and 18% for attempt, compared to Latinos aged 18-34 years old. This is in contrast to many suicide studies that indicate older age serving as a risk factor.

With respect to marital status, marriage or cohabitation served as a significant protective factor against suicidal ideation and attempt. Respondents who were divorced, separated, or

widowed were 2.17 times as likely to think about attempting suicide than respondents who were married. Never getting married was also a risk factor; these respondents were 1.46 times as likely to have suicidal ideation as respondents who were married. Only those who were divorced, separated, or widowed had significantly higher odds (2.46) of attempting suicide.

Latinos who were not in the labor force (excluding the unemployed), had higher odds of both ideation and attempt, with odds ratios of 1.44 and 1.76, respectively. Household income was also significantly correlated with suicidal risk, with those making under $15,000 having higher odds of both ideation and attempt. Only those making over $75,000 were shown to have a decreased risk for suicide attempt.

Acculturation was shown to be a robust predictor of suicidal risk for Latinos. For suicide attempt, only second generation respondents were significantly less likely, with an odds ratio of 0.49 compared to the 2.5 generation, to have attempted suicide. Respondents who were 2.5 generation, or having one parent born in the U.S. and one parent born in another country, were significantly more likely to think about attempting suicide compared to every other respondent generation. Furthermore, higher levels of English fluency also served as a risk factor for suicidal ideation. Even respondents who spoke English very well or well had a 31% reduction in the odds (OR = .69) of suicide ideation compared to native English speakers, and those who spoke English not well or not well at all had a 57% reduction in the odds (OR =.43) of suicide ideation compared to native English speakers. The pairwise test in Table 5.7 shows that bilingual speakers of Spanish and English are 1.62 times more likely to think about committing suicide than monolingual Spanish speakers (not well or not well at all for English).

Psychiatric distress is shown in the literature to be the most robust predictor for both suicidal ideation and attempt, but, for the Latino sample, it is only significant for suicidal

ideation at an odds rate of 6.77. A possible profile of a high-risk Latino adult is a 18-34 year old individual who is divorced, separated, or widowed, poor, not in the labor force, and is a U.S.-born native English speaker born to one parent who was born in the U.S. and one parent born in a Latin country.

Tables 10, 11, and 12 all display associations between Latino ethnic subgroups and suicidal ideation and attempt. When compared to all non-Latinos in the sample, only South Americans have increased odds (OR=3.08) of attempting suicide compared to non-Latinos. However, the lack of significance for suicide attempt for particular subgroups may be a function of small sample sizes. For suicidal ideation, Mexicans, Guatemalans, and Central Americans are all less likely to have suicidal thoughts than non-Latinos.

Table 10 Pairwise Tests for Variables Predicting Lifetime Suicidal Ideation and Suicide Attempt for Latinos Subgroups[a]

	Suicidal Ideation (n = 1,099)		Suicide Attempt (n = 456)	
	OR	95% CI	OR	95% CI
Non-Latino	1		1	
Mexican	0.75**	[0.64, 0.87]	0.8	[0.62, 1.03]
Salvadoran	0.91	[054, 1.54]	0.86	[0.32, 2.29]
Guatemalan	0.32**	[0.13, 0.81]	0.35	[0.11, 1.19]
Central American	0.53*	[0.28, 0.99]	0.84	[0.36, 1.98]
Puerto Rican	1.27	[0.69, 2.33]	1.52	[0.66, 3.54]
Latino European	0.82	[0.45, 1.50]	0.65	[0.31, 1.39]
South American	1.34	[0.77, 2.34]	3.08**	[1.51, 6.31]
Other Latino	0.62	[0.32, 1.23]	0.45	[0.93, 2.18]
2+ Latino Types	0.92	[0.58, 1.44]	1.00	[0.53, 1.89]

[a] Adjusted for sociodemographic and acculturation variables
*p < .05.
**p < .01.

Table 11 Pairwise Tests for Predicting Lifetime Suicidal Ideation for Latino Subgroups

	Guatemalan[a]	Central American	Latino European	South American	Other Latino	2+ Latino Type
Mexican	2.32 [0.91, 5.91]	1.41 [0.74, 2.72]	0.91 [0.49, 1.68]	0.56* {0.32, 0.96]	1.20 [0.59, 2.44]	0.81 [0.51, 1.29]
Salvadoran	2.83* [0.97, 8.24]	1.73 [.78, 3.83]	1.11 [0.46, 2.68]	0.68 [0.32, 1.43]	1.46 [0.62, 3.42]	0.99 {0.51, 1.92]
Guatemalan		0.61 [0.20]	0.39 [0.13, 1.19]	0.24** [0.08, 0.70]	0.52 [0.16, 1.64]	0.35* [0.12, 0.99]
Central American			0.64 [0.26, 1.57	0.39* [0.17, 0.92]	0.85 [0.35, 2.06]	0.57 {0.27, 1.25]
Puerto Rican			1.55 [0.67, 3.57]	0.95 [0.41, 2.17]	2.04 [0.78, 5.28]	1.39 [0.65, 2.96]
Latino European				0.61 [0.28, 1.35]	1.32 [0.54, 3.23]	0.89 [0.41, 1.97]
South American					2.15 [0.88, 5.23]	1.46 [0.70, 3.07]
Other Latino						0.68 [0.30, 1.53]

[a] Row ethnic subgroups are the reference group

Table 12 Pairwise tests for Predicting Lifetime Suicidal Attempt for Latino subgroups

	Guatemalan[a]	Central American	Latino European	South American	Other Latino	2+ Latino Type
Mexican	2.25 [0.66, 7.66]	0.95 [0.39, 2.29]	1.22 [0.55, 2.73]	0.26*** [0.13, 0.53]	1.78 [0.37, 8.65]	0.80 [0.43, 1.48]
Salvadoran	2.43 [0.56, 10.53]	1.03 [0.29, 3.61]	1.32 [0.38, 4.53]	0.28* [0.09, 0.90]	1.92 [0.27, 13.79]	0.86 [0.28, 2.62]
Guatemalan		0.42 [0.10, 1.78]	0.54 [0.13, 2.28]	0.11** [0.29, 0.50]	0.79 [0.11, 5.60]	0.35 [0.90, 1.39]
Central American			1.29 [0.41, 4.02]	0.27* [0.09, 0.81]	1.87 [0.44, 7.99]	0.84 [0.30, 2.37]
Puerto Rican			2.34 [0.78, 7.06]	0.50 [0.17, 1.48]	3.40 [0.54, 21.24]	1.53 [0.55, 4.24]
Latino European				0.21** [0.08, 0.58]	1.45 [0.25, 8.52]	0.65 [0.25, 1.73]
South American					6.87* [1.22, 38.53[	3.08* [1.15, 8.21]
Other Latino						3.08* [1.15, 8.21]

[a] Row ethnic subgroups are the reference group

Pairwise comparisons in tables 11 and 12 allow for evaluating Latino subgroups against one another, which allows for a more nuanced perspective of suicidal behaviors unique to certain subgroups. Although Salvadorans and Guatemalans had relatively low suicide ideation rates, Salvadorans were 2.83 times more likely to think about committing suicide than Guatemalans.

Mexicans and Guatemalans had significantly lower risk of both suicidal ideation and attempt compared to South Americans. As noted in Table 10, South Americans were shown to be a particularly high-risk group. They showed significant suicide risk compared to almost every Latino group, with the exception of Puerto Ricans. South Americans also had a 6.87 odds ratio with respect to Latinos belonging in the Other category.

Logistic regression models were conducted for all Latino ethnic subgroups, but only two groups had sufficient observations to produce viable models: Mexicans and South Americans. Mexicans had a large sample size of 13,945 respondents, and while South Americans had a much smaller sample size of 502 respondents, their relatively high prevalence of respondents reporting suicidal ideation and suicide attempt generated a workable model, with only older age at 65 and above indicating increased suicide risk. [1]

These logistic regression models indicate which variables are particularly predictive of suicidal risk for Latino subgroups, which may or may not be predictive for Latinos as a whole. Given that Mexicans and South Americans are so characteristically different across sociodemographic and acculturation variables, differentiating the unique predictors for each model helps to understand the diversity within the Latino population.

In the Mexican logistic regression model, as in the Latino model, respondents aged 65 years and older had a significantly lower risk for suicidal ideation and attempt. However, in the Mexican model, adults aged 50-64 also had a lower risk for suicidal attempt compared to 18-34 years olds and adults aged 35-49 years old. Young adults aged 18-34 were found to be at particular risk for suicidal behavior.

---

[1] The South American logistic regression model is not displayed because only older adults demonstrated a significant relationship, likely due to small sample size.

Table 13 Logistic Regression Analyses for Variables Predicting Lifetime Suicidal Ideation and Suicide Attempt for Mexicans

	Suicidal Ideation (n = 822)		Suicide Attempt (n = 324)	
Age	OR	95% CI	OR	95% CI
18-34 years	1		1	
35-49 years	0.68*	[0.49, 0.94]	0.65	[0.37, 1.15]
50-64 years	0.78	[0.54, 1.14]	0.55*	[0.32, 0.95]
65 years or more	0.28***	[0.16, 0.50]	0.14***	[0.62, 0.31]
Gender				
Male	1		1	
Female	0.88	[0.68, 1.15]	1.24	[0.81, 1.99]
Marital status				
Married	1		1	
Divorced/separated/widowed	2.52***	[1.70, 3.73]	3.01***	[1.65, 5.49]
Never married	1.48*	[1.06, 2.08]	1.22	[[0.75, 2.01]
Education				
High school	1		1	
College	1.10	[0.85, 1.43]	0.63*	[0.40, 0.97]
Graduate degree	1.43	[.80, 2.56]	0.59	[0.21, 1.65]
Household poverty				
Yes	1		1	
No	1.39	[0.84, 2.29]	0.84	[.43, 1.63]
Work Status				
Employed	1		1	
Not-employed	1.32	[0.86, 2.05]	0.97	[0.55, 1.72]
Not in labor force	1.60**	[1.18, 2.17]	1.89**	[1.19, 2.99]
Household income				
<$15,000	1		1	
$15,000-$34,999	0.64	[0.37, 1.10]	1.26	[0.58, 2.72]
$35,000-$74,999	0.49*	[0.26, 0.93]	0.81	[0.31, 2.12]
>$75,000	0.53	0.30, 1.06]	0.64	[0.22, 1.86]
Proportion of life spent in U.S.				
<30%	1		1	
30-70%	1.66	[0.78, 3.57]	1.39	[0.39, 5.00]
>70%	1.59	[0.69, 3.68[	1.48	[0.37, 5.95]
English fluency				
Native speaker	1		1	
Very well/well	0.61**	[0.44, 0.86]	0.88	[0.49, 1.56]
Not well/ not well at all	0.36***	[0.21, 0.60]	0.56	[0.24, 1.30]
Generational status				
1st generation	0.53*	[0.30, 0.91]	0.57	[0.57, 0.21]
2nd generation	0.45***	[0.30, 0.69]	0.49**	[0.49, 0.14]
2.5 generation	1		0.78	[0.78, 0.200
3rd generation	0.54**	[0.36, 0.79]		
Psychiatric distress				
<13	1		1	
>=13	7.08***	[5.33, 9.41]	6.67***	[4.33, 10.25]

Note: OR = odds ratio; CI = confidence interval *p < .05. **p < .01. ***p < .001.

According to Table 13 as was the case with the Latino model, Mexicans who were divorced, separated, and widowed had a significantly higher odds ratio of both ideation and attempt (2.52 and 3.01), as well as a higher ideation odds for those who were never married. Mexicans not in the labor force also had a higher suicidal risk compared to those who were employed.

Low household income does not pose as serious of a risk for the Mexican population as it does for the general Latino population. Only those with a household income of $35,000 to $75,499 had a significant odds ratio of 0.49 with respect to those who earned less than $15,000. Another distinctive of the Mexican model is that higher education served as protective factor. College graduates had an odds ratio of 0.63 with respect to those who completed high school or less.

With regard to acculturation variables, English fluency and generational status also indicate that increased acculturation is associated with higher suicidal risk. As was the case with the Latino model, native speakers had the highest odds of suicidal ideation, and monolingual Spanish speakers had the lowest odds. Mexicans who are 2.5 generation also had the highest suicidal risk, even though they may be somewhat less acculturated than their third generation peers. Having both parents born from different countries represents a significant predictor for suicidal behavior. Second generation Mexicans are shown to have even lower odds of suicide attempt than their U.S.-born peers with different-country born parents.

Section 5.3: Asian Models

The distribution of acculturation characteristics and suicidal behaviors for Asians can be found in Table 14. While the average Asian suicide ideation prevalence is 5.43%, rates were spread over a wide range across Asian groups, with a low of 4.42% for South Asians and a high of 8.74% for Other Asians, 7.74% for Koreans, and 6.55% for Filipinos. The average Asian suicide attempt rate is 1.06%, whereas for the subgroup sample, Southeast Asians reported the lowest rate of 0.67% and Vietnamese reported the highest rate of 2.12%, followed by Other Asians, Filipinos and Koreans (2.10%, 1.34%, and 1.11%, respectively). Compared to the most recent epidemiological study of Asian American adult suicide conducted in 2010 using data from 2002 and 2003, results from this study were substantially lower (Cheng, Fancher, Ratanasen, Conner, Duberstein, Sue, & Takeuchi, 2010). In that study, Chinese had suicide ideation and attempt rates of 10.6% and 3.2%, followed by Filipinos (10.0% and 2.5%), Vietnamese, (6.8% and 1.7%), and Other Asian (7.2% and 2.3%).

In this study's sample, Japanese, Filipinos, and Other Asians have higher rates of acculturation across all three variables. For proportion of life spent in the United States, Japanese, Southeast Asians, and Other Asians have more than 50% of their samples having spent over 70% of their lives in the U.S. Vietnamese and Koreans have significant proportions of respondents with less than 30% of life spent in the U.S. (28.35% and 25.99%). Vietnamese and Koreans also have the highest percentages of monolingual speakers, with 52.9% of Vietnamese and 49.49% of Koreans speaking English either not

Table 14 Acculturation and Suicide Characteristics of Asians in California Health Interview Survey, 2011-2014, n = 7,738

	Chinese	Japanese	Korean	Filipino	South Asian	Vietnamese	Southeast Asian	Other Asian
n (%)[a]	2,342 28.39%	890 10.79%	1,157 14.02%	1,110 13.45%	905 10.97%	1,393 16.88%	167 2.02%	286 3.47%
Proportion of life spent in U.S.* **								
<30%	542 24.67%	25 2.39%	252 25.99%	181 18.18%	221 31.24%	427 28.35%	10 9.90%	35 12.24%
30-70%	1,013 36.19%	123 15.29%	713 45.46%	436 32.57%	466 40.07%	804 49.48%	78 31.15%	95 33.22%
>70%	787 39.13%	742 82.32%	192 28.56%	493 49.26%	218 28.69%	162 22.17%	79 58.95%	156 54.55%
English fluency* **								
Native speaker	461 17.48%	642 72.37%	101 12.04%	433 40.35%	182 18.44%	51 5.94%	42 19.18%	107 37.41%
Very well/well	1,092 53.82%	216 23.58%	353 38.46%	620 56.07%	700 79.41%	405 41.12%	103 69.13%	132 46.15%
Not well/ not well at all	789 28.70%	32 4.05%	703 49.49%	57 3.58%	23 2.15%	937 52.95%	22 11.69%	47 16.43%
Generational status* **								
1st generation	1,761 70.50%	223 25.45%	1,040 81.75%	754 64.50%	767 79.93%	1,323 94.97%	119 4.71%	168 58.74%
2nd generation	370 20.62%	154 15.01%	86 14.26%	178 23.49%	121 17.63%	65 4.67%	34 58.86%	61 21.33%
2.5 generation	107 4.22%	163 15.18%	21 2.75%	109 7.57%	15 2.36%	5 0.36%	13 35.76%	20 6.99%
3rd generation	370 4.67%	350 44.36%	10 1.24%	69 4.89%	< 3 NA	0 0	< 3 0.67%	37 12.94%
Lifetime Suicidal Ideation***	121 5.49%	61 6.02%	72 7.74%	73 6.55%	30 4.42%	54 4.77%	11 4.47%	25 8.74%
Lifetime Suicide Attempt***	28 0.89%	16 0.94%	11 1.11%	22 1.34%	6 0.78%	16 2.12%	3 0.67%	6 2.10%

*** p < .0001
[a] n's are unweighted; percentages are weighted
[b] percentages are column percentages
[c] values marked < 3 represent suppressed values less than 3 for data confidentiality

well or very not well. Japanese and Filipinos have the highest rates of native English speakers, at 62.37% and 40.35%.

Asian Americans are, on the whole, relative newcomers to the U.S., as can be seen in the first generation statistics for Koreans (81.75%), South Asians (79.93%), and Chinese (70.5%). The 2.5 generation variable, which was shown to be highly predictive of suicide risk for Latinos, had the largest proportion among Southeast Asians (35.76%) and Japanese (15.18%). Japanese also had a significant proportion of respondents who are 3rd generation (44.36%), which is much higher than the second group, Other Asian, at 12.94%.

Table 15 summarizes the results of the full regression model examining correlates of suicidal ideation and suicide attempts for Asians. Table 16 displays pairwise tests in order to compare effects between groups within the model. Variables that were not found to be associated with lifetime suicidal ideation and attempts are gender, education, household poverty, work status, or household income. English fluency is significant, as shown in Table 5.13, for increased odds of suicide attempt by 1.02 for respondents who speak English very well/not-well (but are non-Native speakers) compared to monolingual Asians.

As was the case with Latinos, older age also served as a protective factor against suicide, compared to adults aged 18-34. Respondents aged 65 years or older or 35-49 years were significantly less likely to think about committing suicide than their younger counterparts. Similar to Latinos, Asians also had a higher suicide risk among those who were divorced, separated, or widowed, having over two times the odds of both suicidal ideation and suicide as married Asians. However, unlike Latinos, never being married was not a risk factor for Asians. Another divergence from the Latino model was the non-significance of work status or household income for Asians in predicting suicidal behavior.

Table 15 Variables Predicting Lifetime Suicidal Ideation and Suicide Attempt for Asians

	Suicidal Ideation (n = 368)		Suicide Attempt (n = 82)	
Age	OR	95% CI	OR	95% CI
18-34 years	1		1	
35-49 years	0.59*	[0.34, 1.01]	1.11	[0.34, 3.62]
50-64 years	0.71	[0.43, 1.19]	0.68	[0.22, 2.13]
65 years or more	0.32**	[0.15, 0.66]	0.65	[0.18, 2.31]
Gender				
Male	1		1	
Female	0.88	[0.61, 1.13]	1.36	[0.65, 2.82]
Marital status				
Married	1		1	
Divorced/separated/widowed	2.10*	[1.08, 4.08]	2.50*	[0.98, 6.33]
Never married	1.53	[0.90, 2.58]	1.39	[0.39, 5.00]
Education				
High school	1		1	
College	0.99	[0.61, 1.62]	1.26	[0.56, 2.82]
Graduate degree	1.21	[0.65, 2.24]	1.14	[0.19, 6.68]
Household poverty				
Yes	1		1	
No	1.25	[0.67, 2.35]	1.00	[0.41, 2.43]
Work Status				
Employed	1		1	
Not-employed	1.32	[0.63, 2.74]	1.17	[0.21, 6.65]
Not in labor force	1.13	[0.68, 1.89]	0.5	[0.22, 1.13]
Household income				
<$15,000	1		1	
$15,000-$34,999	0.92	[0.52, 1.61]	0.7	[0.32, 1.54]
$35,000-$74,999	0.66	[0.32, 1.39]	0.56	[0.18, 1.70]
>$75,000	0.7	[0.31, 1.54]	0.32	[0.09, 1.16]
Proportion of life spent in U.S.				
<30%	1		1	
30-70%	1.27	[0.72, 2.23]	2.21	[0.66, 7.38]
>70%	4.68***	[1.99, 10.99]	2.15	[0.31, 15.1]
English fluency				
Native speaker	1		1	
Very well/well	1.14	[0.65, 1.98]	1.15	[0.45, 2.93]
Not well/ not well at all	1.68	[0.76, 3.70]	3.1	[0.88, 10.91]
Generational status				
1st generation	2.83	[0.97, 8.26]	1.29	[0.16, 10.24]
2nd generation	1.55	[0.58, 4.09]	4.29*	[1.12, 16.44]
2.5 generation	1		1	
3rd generation	4.18**	[1.46, 12.00]	10.22*	[1.37, 76.44]
Psychiatric distress				
<13	1		1	
>=13	7.89***	[4.89, 12.73]	9.46***	[4.01, 22.30]

Note: OR = odds ratio; CI = confidence interval *p < .05, **p < .01, ***p < .001

Table 16 Pairwise tests for Acculturation Variables Predicting Lifetime Suicidal Ideation and Suicide Attempt for Asians

	Suicidal Ideation (n = 368)		Suicide Attempt (n = 82)	
	OR	95% CI	OR	95% CI
Proportion of life spent in the U.S.				
30-70% vs. >70%	0.27***	[0.14, 0.52]	1.02	[0.19, 5.61]
English Fluency				
Well vs. not well+	0.68	[0.42, 1.09]	0.37*	[0.19, 5.61]
Generational Status				
1st gen vs. 2nd gen	1.83	[0.92, 3.63]	0.30	[0.05, 1.69]
1st gen vs. 3rd gen	0.67	[0.33, 1.41]	0.13*	[0.02, 1.06]
2nd gen vs. 3rd gen	0.37**	[0.19, 0.73]	0.42	[0.09, 2.06]

* p < .05 **p <.01 ***p <.001

While Asians do not share many of the risk factors indicated in non-race specific suicide literature, the acculturation variables do demonstrate that more acculturated Asians are at higher risk of suicidal behavior. In fact, acculturated Asians are at a considerably higher odds of suicidal risk than their Latino counterparts, with 3rd generation Asians having 4.18 times the odds of suicidal ideation and 10.22 times the odds of suicide attempt as the 2.5 generation, an opposite association to that for Latinos. Furthermore, second generation Asians have an odds ratio of 0.37 for suicidal ideation compared to 3rd generation Asians. First generation Asians have an odds ratio of 0.13 for suicide attempts compared to 3rd generation Asians.

Although language did not emerge as significant in Table 15, pairwise tests in Table 16 indicate that non-native Asians who speak English well or very well have 0.37 times lower odds of suicide attempt than monolingual Asians.

Proportion of life spent in the U.S. is also a significant correlate of suicidal behavior, with Asians with higher than 70% having a 4.68 times higher odds of suicidal ideation than Asians with less than 30% of life in the U.S. In pairwise tests, Asians who lived between 30% to 70%

of their lives in the U.S. had a 73% reduction in odds of suicidal ideation compared to those who lived more than 70%.

For psychiatric distress, Asians had higher odds than Latinos for both ideation (7.89 vs. 6.87) and attempt (9.46 vs. 6.61). However, in the Asian model, being third generation had a significantly higher odds ratio (10.22) of attempting suicide than even those with psychiatric distress (9.46).

Table 17 demonstrates a logistic regression model comparing all Asian ethnic subgroups to non-Asians as a reference group. In this model, only Koreans were shown to have a significantly higher odds ratio of suicidal ideation at 1.68.

Table 17 Logistic Regression Analyses for Variables Predicting Lifetime Suicidal Ideation and Suicide Attempt for Asians

	Suicidal Ideation (n = 368)		Suicide Attempt (n = 82)	
	OR	95% CI	OR	95% CI
Non-Asian	1		1	
Chinese	1.11	[0.80, 1.55]	0.58	[0.32, 1.07]
Japanese	0.62	[0.44, 1.20]	0.42	[0.15, 1.13]
Korean	1.68*	[1.06, 2.69]	0.65	[0.27, 1.53]
Filipino	1.01	[0.70, 1.46]	0.7	[0.34, 1.46]
South Asian	0.89	[0.55, 1.42]	0.59	[0.28, 1.14]
Vietnamese	1.23	[0.74, 2.02]	1.57	[0.64, 3.79]
Southeast Asian	0.6	[0.25, 1.43]	0.23	[0.02, 2.71]
Other Asian	1.6	[0.88, 3.00]	0.86	[0.43, 2.32]

* $p < .05$

Table 18 Pairwise Tests for Predicting Lifetime Suicidal Ideation for Asian Subgroups

	Japanese[a]	Korean	Filipino	South Asian	Vietnamese	Southeast Asian	Other Asian
Chinese	1.54 [0.83, 2.84]	0.66 [0.39, 1.12]	1.10 [0.70, 1.74]	1.25 [0.74, 2.12]	0.91 [0.53, 1.56]	1.86 [0.74, 4.68]	0.69 [0.35, 1.35]
Japanese		0.42** [0.22, 0.83]	0.71 [0.39, 1.30]	0.81 [0.42, 1.59]	0.59 [0.29, 1.19]	1.21 [0.45, 3.27]	0.45 [0.21, 0.97]
Korean			1.67 [0.91, 3.04]	1.90 [0.95, 3.79]	1.38 [0.71, 2.66]	2.82* [1.02, 7.78]	1.04 [0.51, 2.14]
Filipino				1.14 [0.63, 2.07]	0.83 [0.44, 1.55]	1.70 [0.63, 4.56]	0.62 [0.31, 1.29]
South Asian					0.73 [0.37, 1.42]	1.49 [0.57, 3.91]	0.55 [0.26, 1.15]
Vietnamese						2.05 [0.76, 5.53]	0.76 [0.35, 1.66]
Southeast Asian							0.37 [0.13, 1.06]

[a] Row ethnic subgroups are the reference group

Table 18 Pairwise Tests for Predicting Lifetime Suicidal Attempt for Asian Subgroups

	Japanese[a]	Korean	Filipino	South Asian	Vietnamese	Southeast Asian	Other Asian
Chinese	1.40 [0.44, 4.47]	0.90 [0.34, 2.40]	0.83 [0.35, 1.97]	1.02 [0.44, 2.40]	0.37* [0.14, 1.00]	2.54 [0.21, 31.3]	0.68 [0.22, 2.09]
Japanese		0.64 [0.17, 2.40]	0.59 [0.18, 1.96]	0.73 [0.21, 2.50]	0.27* [0.07, 1.03]	1.81 [0.13, 25.56]	0.48 [0.12, 1.92]
Korean			0.92 [0.31, 2.73]	1.14 [0.39, 3.35]	0.41 [0.13, 1.36]	2.83 [0.19, 42.95]	0.75 [0.29, 1.94]
Filipino				1.24 [0.46, 3.34]	0.45 [0.15, 1.38]	3.07 [0.23, 40.00]	0.81 [0.24, 2.81]
South Asian					0.36 [0.13, 1.06]	2.48 [0.20, 30.73]	0.66 [0.20, 2.13]
Vietnamese						6.83 [0.51, 91.10]	1.82 [0.49, 6.69]
Southeast Asian							0.27 [0.18, 3.85]

[a] Row ethnic subgroups are the reference group

Tables 18 show pairwise tests for all Asian subgroups. For suicidal ideation, Japanese had an odds ratio of .42 compared to Koreans. Koreans also had odd of ideation 2.82 times higher than those for Southeast Asians. For suicide attempt, Chinese and Japanese also had odds ratios of 0.37 and 0.27 in comparison to Vietnamese. These rates reinforce the chi-square results of Koreans having the highest rates of suicide ideation and Vietnamese having the highest rates of suicide attempt.

Logistic regression models were also run for all Asian subgroups in order to determine any between group differences in suicide correlates. Due to the relatively small sample sizes, not all Asian subgroups produced models, but models were significant for Chinese, Japanese, Koreans, and Filipinos.

Table 19 Variables Predicting Lifetime Suicidal Ideation and Suicide Attempt for Chinese

	Suicidal Ideation (n = 121)		Suicide Attempt (n = 21)	
Age	OR	95% CI	OR	95% CI
18-34 years	1		1	
35-49 years	0.51	[0.19, 1.36]	0.57	[0.14, 2.35]
50-64 years	0.65	[0.24, 1.78]	0.34	[0.04, 2.75]
65 years or more	0.44	[0.12, 1.64]	1.04	[0.08, 13.79]
Gender				
Male	1			
Female	0.61	[0.32, 1.18]	2.04	[0.38, 10.80]
Marital status				
Married	1			
Divorced/separated/widowed	2.84	[0.90, 8.94]	6.24*	[1.36, 28.55]
Never married	1.63	[0.62, 4.37]	3.72*	[0.96, 14.48]
Education				
High school	1		1	
College	1.45	[0.67, 3.15]	6.83**	[1.82, 25.62]
Graduate degree	1.47	[0.46, 4.64]	12.95	[0.21, 815, 99]
Household poverty				
Yes	1		1	
No	0.64	[0.24, 1.73]	0.43	[0.07, 2.85]
Work Status				
Employed	1		1	
Not-employed	0.47	[0.99, 2.25]	0.52	[0.09, 3.08]
Not in labor force	0.74	[0.33, 1.64]	0.15	[0.01, 2.19]
Household income				
<$15,000	1		1	
$15,000-$34,999	0.69	[0.23, 2.08]	0.91	[0.49, 16.96]
$35,000-$74,999	0.2	[0.31, 4.60]	2.20	[0.99, 48.95]
>$75,000	0.8	[0.21, 3.08]	1.08	[0.41, 28.22]
Proportion of life spent in U.S.				
<30%	1		1	
30-70%	0.99	[0.42, 2.33]	0.99	[0.17, 5.83]
>70%	1.58**	[1.69, 18.41]	0.57	[0.25, 12.70]
English fluency				
Native speaker	1	1	1	
Very well/well	1.2	[0.51, 2.85]	5.25	[0.40, 69.44]
Not well/ not well at all	0.74	[0.19, 2.96]	18.37	[0.54, 625.83]
Generational status				
1st generation	2.5	[0.53, 11.94]	0.93	0.004, 2.48]
2nd generation	0.40	[0.98, 1.68]	0.18	[0.01, 2.20]
2.5 generation	1		1	
3rd generation	0.77	[0.13, 4.58]	0.18**	[0.001, 0.24]
Psychiatric distress				
<13	1			
>=13	8.27***	[3.47, 19.70]	5.96*	[1.33, 26.68]

Note: OR = odds ratio; CI = confidence interval *p < .05. **p < .01. ***p < .001.

For the Chinese model in Table 19, several differences from the Asian model emerged. Unlike in the Asian model where age, specifically age 18-34, was a significant predictor for suicidal ideation, age was not significant for the Chinese model. Marital status was also not significant for Chinese suicide ideation, but it was significant, and considerably higher, for suicide attempt, with divorced, separated, or widowed respondents reporting 6.24 higher odds (compared to 2.50 for Asians), and never married individuals reporting 3.72 higher odds than married Chinese.

Having a college education is also a strong correlate for suicide attempt, with 6.83 higher odds than that of someone with a high school education or less. As a reference, college-educated Whites have an odds ratio of .72 for suicide attempt.

While other key variables such as work status, household income, and household poverty did not emerge as significant, acculturation variables did show significance. Having a higher proportion of life spent in the U.S. correlated with higher suicidal ideation at over 70% of life spent in the U.S. However, the Chinese sample had a different response to generation, with first generation Chinese having a 6.12 higher odds for suicidal ideation compared to second generation. Third generation Chinese have a lower odds rate of suicidal attempt than their less acculturated counterparts. Furthermore, Chinese who spent 30% to 70% of their lives in the U.S. had an odds ratio of 0.18 compared to Chinese who spent more than 70% (Table 20).

Table 20 Pairwise tests for Acculturation Variables Predicting Lifetime Suicidal Ideation and Suicide Attempt for Chinese

	Suicidal Ideation (n = 121)		Suicide Attempt (n = 21)	
	OR	95% CI	OR	95% CI
Proportion of life spent in the U.S.				
30-70% vs. >70%	0.18***	[0.07, 0.47]	1.75	[0.996, 30.64]
English Fluency				
Well vs. not well+	1.62	[0.57, 5.60]	0.29	[0.03, 2.40]
Generational Status				
1st gen vs. 2nd gen	6.12***	[2.18, 17.56]	0.53	[0.32, 8.93]
1st gen vs. 3rd gen	3.26	[0.90, 11.81]	5.25	[0.16, 176.16]
2nd gen vs. 3rd gen	0.53	[0.17, 1.67]	9.82	[0.60, 160.31]

Note: OR = odds ratio; CI = confidence interval *p < .05. **p < .01. ***p < .001

Table 21 Variables Predicting Lifetime Suicidal Ideation and Suicide Attempt for Japanese

	Suicidal Ideation (n = 61)		Suicide Attempt (n = 16)	
Age	OR	95% CI	OR	95% CI
18-34 years	1		1	
35-49 years	0.88	[0.21, 3.74]	0.17	[0.13, 2.19]
50-64 years	0.32	[0.08, 1.27]	0.16	[0.02, 1.27]
65 years or more	0.31	[0.05, 1.83]	0.14	[0.0004, 0.47]
Gender				
Male	1			
Female	0.89	[0.32, 2.45]	3.39	[0.38, 30.18]
Marital status				
Married	1			
Divorced/separated/widowed	1.53	[0.41, 5.73]	3.70	[0.42, 32.57]
Never married	0.48	[0.11, 2.13]	1.63	[0.38, 6.98]
Education				
High school	1			
College	0.82	[0.22, 3.08]	0.40	[0.003, 45.90]
Graduate degree	0.46	[0.99, 2.18]	0.54	[0.007, 42.12]
Household poverty				
Yes	1			
No	1.8	[0.42, 7.92]	6.79	[0.41, 111.48]
Work Status				
Employed	1			
Not-employed	1.71	[0.37, 7.87]	8.08**	[1.14, 42.29]
Not in labor force	0.68	[0.23, 2.03]	16.96*	[1.46, 196.61]
Household income				
<$15,000	1			
$15,000-$34,999	0.51	[0.14, 1.81]	0.70	[0.17, 2.81]
$35,000-$74,999	0.37	[0.07, 2.07]	0.03**	[0.002, 0.49]
>$75,000	0.47	[0.12, 1.78]	0.12	[0.009, 1.67]
Proportion of life spent in U.S.				
<30%	1			
30-70%	2.84	[0.32, 187, 09]	0.62	[0.01, 36.26]
>70%	1.18	[0.02, 65.05]	0.35	[0.008, 15.51]
English fluency				
Native speaker	1			
Very well/well	1.15	[0.42, 3.11]	1.07	[0.16, 6.94]
Not well/ not well at all	0.33	[0.18, 6.27]	0.57	[0.02, 15.45]
Generational status				
1st generation	0.48	[0.10, 2.24]	0.87	[0.05, 14.17]
2nd generation	0.40	[0.16, 9.87]	0.85	[0.04, 16.19]
2.5 generation	1			
3rd generation	1.77	[0.58, 5.41]	3.97	[0.24, 64.45]
Psychiatric distress				
<13	1			
>=13	4.82*	[1.11, 21.02]	4.37	[0.24, 78.92]

Note: OR = odds ratio; CI = confidence interval *p < .05. **p < .01. ***p < .001.

Table 22 Pairwise tests for Acculturation Variables Predicting Lifetime Suicidal Ideation and Suicide Attempt for Japanese

	Suicidal Ideation (n = 61)		Suicide Attempt (n = 16)	
	OR	95% CI	OR	95% CI
Proportion of life spent in the U.S.				
30-70% vs. >70%	2.40	[0.49, 11.80]	1.78	[0.04, 70.71]
English Fluency				
Well vs. not well+	3.45	[0.15, 76.94]	1.88	[0.13, 25.46]
Generational Status				
1st gen vs. 2nd gen	1.20	[0.05, 29.53]	1.03	[0.74, 14.21]
1st gen vs. 3rd gen	0.28*	[0.08, 0.92[	0.22	[0.22, 2,21]
2nd gen vs. 3rd gen	0.23	[0.01, 4.62]	0.21	[0.02, 1.86]

Note: OR = odds ratio; CI = confidence interval *p < .05. **p < .01. ***p < .001.

Tables 21 and 22 summarize logistic regression and pairwise tests for suicide ideation and attempt for Japanese. Despite a relatively small sample of suicide ideation and attempts, significant predictive correlates emerged. For suicide ideation, only psychological distress and generational status were significant. First generation respondents have an odds ratio of 28% for thinking about committing suicide compared to 3rd generation. Several suicide attempt correlates were significant, including work status and household income. Not being in the labor force served as the most predictive correlate, at an odds ratio of 16.96, one of the highest odds ratio for all models. Meanwhile, psychiatric distress, typically a robust predictor for suicide attempt, did not emerge as significant.

For Koreans, only the ideation model had enough observations to produce a viable model (Table 23). Pairwise tests also did not generate significant results. However, for suicidal ideation, several unique findings emerged. First, the Korean model was one of the only models (together with the Filipino model) for which household poverty was significant, at a relatively high odds ratio of 6.02 compared to those who do not live in poverty. Additionally, none of the acculturation

Table 23 Logistic Regression Analyses for Variables Predicting Lifetime Suicidal Ideation for Koreans

	Suicidal Ideation (n = 72)	
Age	OR	95% CI
18-34 years	1	
35-49 years	1.37	[0.31, 6.07]
50-64 years	1.45	[0.29, 7.20]
65 years or more	0.80	[0.26, 24.27]
Gender		
Male	1	
Female	1.02	[0.27, 3.88]
Marital status		
Married	1	
Divorced/separated/widowed	2.67	[0.64, 11.10]
Never married	1.38	[0.52, 3.69]
Education		
High school	1	
College	1.12	[0.25, 5.08]
Graduate degree	0.19*	[0.05, 0.77]
Household poverty		
Yes	1	
No	6.02**	[1.40, 25.85]
Work Status		
Employed	1	
Not-employed	2.82	[0.13, 62.94]
Not in labor force	0.69	[0.20, 2.32]
Household income		
<$15,000	1	
$15,000-$34,999	0.55	[0.17, 1.84]
$35,000-$74,999	0.20	[0.02, 1.89]
>$75,000	0.16	[0/12, 1.35]
Proportion of life spent in U.S.		
<30%	1	
30-70%	1.08	[0.37, 3.08]
>70%	1.22	[0.07, 22.31]
English fluency		
Native speaker	1	
Very well/well	1.12	[0.18, 6.94]
Not well/ not well at all	0.47	[0.33, 6.87]
Generational status		
1st generation	2.59	[0.03, 216.38]
2nd generation	2.67	[0.05, 143.65]
2.5 generation	1	
3rd generation	0.35	[.003, 37.28]
Psychiatric distress		
<13	1	
>=13	19.9***	[4.53, 87.60]

Note: OR = odds ratio; CI = confidence interval *p < .05. **p < .01. ***p < .001.

variables were significant, which may suggest that acculturation might not be a risk factor for Koreans. Furthermore, the psychiatric distress correlate produced a notably high odds ratio of 19.9 as a predictor of suicide ideation, suggesting that Koreans who express mental distress have a high likelihood to consider attempting suicide. The last unique finding in the Korean model is the significantly low odds ratio of 19% for those with a graduate degree.

Lastly, the Filipino model for suicidal ideation generated results very different from the Korean model or the Chinese model. According to Tables 24 and 25, being age 65 or older is protective (odds ratio of .06) whereas being highly acculturated is a risk for suicidal behavior. Proportion of life spent in the U.S., English fluency, and generational status all indicate correlation with suicidal ideation, with 3rd generation Filipinos having the highest risk.

Table 24 Variables Predicting Lifetime Suicidal Ideation for Filipinos

	Suicidal Ideation (n = 73)	
Age	OR	95% CI
18-34 years	1	
35-49 years	0.35	[0.11, 1.10]
50-64 years	0.46	[0.16, 1.32]
65 years or more	0.06**	[0.009, 0.36]
Gender		
Male	1	
Female	1.31	[0.59, 2.90]
Marital status		
Married	1	
Divorced/separated/widowed	1.12	[0.25, 4.99]
Never married	1.47	[0.56, 3.89]
Education		
High school	1	
College	0.72	[0.25, 2.07]
Graduate degree	0.82	[0.14, 4.77]
Household poverty		
Yes	1	
No	1.43	[0.28, 7.38]
Work Status		
Employed	1	
Not-employed	1.80	[0.50, 6.57]
Not in labor force	1.61	[0.433, 6.01]
Household income		
<$15,000	1	
$15,000-$34,999	3.51	[0.69, 17.83]
$35,000-$74,999	1.67	[0.28, 9.80]
>$75,000	2.40	[9.37, 15.59]
Proportion of life spent in U.S.		
<30%	1	
30-70%	0.76	[0.10, 57.01]
>70%	3.63	[0.26, 507.15]
English fluency		
Native speaker	1	
Very well/well	0.81	[0.27, 2.48]
Not well/ not well at all	2.01	[0.53, 15.91]
Generational status		
1st generation	1.39	[0.37, 5.06]
2nd generation	0.66	[0.22, 1.98]
2.5 generation	1	
3rd generation	3.51*	[1.22, 10.07]
Psychiatric distress		
<13	1	
>=13	11.28	[4.67, 27.22]

Note: OR = odds ratio; CI = confidence interval *p < .05. **p < .01. ***p < .001.

Table 25 Pairwise tests for Acculturation Variables Predicting Lifetime Suicidal Ideation for Filipinos

	Suicidal Ideation (n = 73)	
	OR	95% CI
Proportion of life spent in the U.S.		
30-70% vs. >70%	0.21*	[0.04, 1.0008]
English Fluency		
Well vs. not well+	0.28*	[0.08, 0.97]
Generational Status		
1st gen vs. 2nd gen	2.10	[0.59, 7.39]
1st gen vs. 3rd gen	0.39	[0.11, 1.38]
2nd gen vs. 3rd gen	0.19**	[0.68, 0.52]

Note: OR = odds ratio; CI = confidence interval *p < .05. **p < .01. ***p < .001.

Chapter 6: Discussion

This study represents the largest representative sample of Asians (n = 7,738) and Latinos (n = 17,502) used to study suicidal behavior within these communities. Understanding correlates of suicidal behavior among and between racial and ethnic groups is a growing area of research and the findings of this study emphasize the critical need to disaggregate data by not only race, but by ethnic subgroup. As hypothesized, there was a positive association between higher levels of acculturation and increased risk for suicidal ideation and attempts for Asians and Latinos and at least several of their ethnic subgroups. After adjusting for key sociodemographic and psychological characteristics that have been found to predict suicidal behavior, the positive association with acculturation emerged across multiple measures including proportion of life spent in the U.S., English fluency, and generational status

Prevalence of Suicidality

The lifetime prevalence of suicidal ideation and attempt were reported for all races and ethnic subgroups. This is the first study that has provided detailed ethnic subgroup prevalence estimates for as many as 15 ethnic groups. NLAAS, which was the first study to provide prevalence estimates at the ethnic subgroup level, provided estimates for 6 groups. This study's comparatively large sample size of 83,175 was unprecedented, given that the second largest sample size is 2,178, from the Collaborative Psychiatric Epidemiological Survey (CPES), which was conducted in 2002-2003. Pooling four years of CHIS generated a sample size sufficiently large to provide disaggregated data at the ethnic subgroup level.

Table 26 compares CHIS suicide ideation and attempt rates with three of the most recent and comparable epidemiological studies. While CHIS is California-based, the three other studies are nationally representative samples, which means that any divergence of rates may be

explained by regional differences in suicidal behavior. According to completed suicide rates provided by the National Vita Statistics System (2012), California has the 9th lowest suicide rate of all 50 US states and Washington D.C., which may also provide some context for CHIS's comparatively low suicide rates. CHIS rates are also roughly similar to data from NESARC whereas CPES and NLAAS were also part of the same study and employed similar methods for data collection, which may explain why rates between those surveys are similarly high.

Asian suicide prevalence.

Among all Asian subgroups, "Other Asian" was found to have the highest suicide ideation rate of 8.74%. With such a high rate, it is recommended to further disaggregate this group to determine if a specific group has a particularly high effect, although it is likely that the effect may be coming from biracial Asians due to a similarly high rate coming from the "2+ Latino" category.

Although Koreans have the second highest ideation rate of 7.74%, they have a comparatively lower suicide attempt rate than other groups. What is particularly unique about the Korean model is that while none of the acculturation values were significant, the correlates that were significant (graduate education, poverty, and psychiatric distress) had exceptionally extreme odds ratios relative to other groups. In other words, a potential profile of a particularly high-risk Korean would be an individual who is mentally ill and living in a household under the federal poverty line. In addition, a Korean with a graduate degree is substantially less likely to think about committing suicide, relative to all other protective factors. These three significant correlates, especially in the absence of acculturation correlates or other sociodemographic correlates, may suggest a particularly strong culture of stigma against mental illness and poverty and a correspondingly high value for postgraduate education.

Vietnamese had the highest suicide attempt rate at 2.12%, which was in contrast to the NLAAS data with Vietnamese having the lowest rate. California has the largest diaspora of Vietnamese and is home to three of the three largest Vietnamese ethnic enclaves in the country: San Jose, Garden Grove, and Westminster (U.S. Census, 2010). While it is unknown whether the suicide attempters in this study reside in a Vietnamese ethnic enclave, it is worth examining whether there is a relationship between ethnic enclave residency and suicidal behaviors. Previous studies have found residency in ethnic enclaves to be a protective factor against mental illness (Kang, Domanski, & Moon, 2009; Shaw et al., 2012; Veling et al., 2008).

South Asians and Southeast Asians (excluding Vietnamese and Cambodians) had the lowest suicidal ideation and attempt rates in the sample. Countries in the Southeast Asian sample include Indonesia, Malaysia, Thailand, Singapore, Laos, and Myanmar. Countries in the South Asian sample include India, Pakistan, Bangladesh, and Sri Lanka. Regression models were not viable for these groups due to small frequencies but low prevalence rates suggest a need for further research to examine potential protective factors within these communities.

Latino suicide prevalence.

Latino prevalence estimates also revealed sizeable disparities between ethnic subgroups. Puerto Ricans had a particularly high suicide ideation rate (17.54%) and elevated attempt rate (2.35%). This is consistent with previous studies that have shown Puerto Ricans having higher rates of completed suicide and psychiatric disorders compared to other Latinos (Alegria et al., 2006; Ortega et al., 2002; Ortega et al., 2006). Puerto Ricans are the second largest Hispanic group in the U.S. after Mexicans, and California has the 8th largest population of Puerto Ricans in the country (U.S. Census, 2002). Puerto Ricans have unique political and immigration distinctions compared to other Hispanic communities. They are automatically granted U.S.

citizenship because Puerto Rico is a U.S. territory, and yet Puerto Ricans still strongly adhere to their distinctively Hispanic culture, including speaking Spanish. Ramos (2005) argues that Puerto Ricans have a "distinctive acculturation experience" due to their circulatory migratory pattern of going back and forth between Puerto Rico and the U.S. Although Puerto Ricans have a different culture than mainstream White America, their high suicidal behavior rates suggest that Puerto Ricans' unique position as politically acculturated Americans may play a role in increasing suicidal risk.

Latino Americans and 2+ Latino types also have elevated suicidal risk and like Puerto Ricans, they are among the most acculturated Latino subgroups in the sample. This again lends support to the research that acculturation is predictive of suicidal behaviors.

South Americans also have elevated suicidal behaviors, but they have low levels of acculturation, with 76% of their sample being first generation immigrants. A logistic regression model reveals that the only significant correlate for suicidal ideation or attempt is the 18-34 age category. South Americans were also the only sample for which psychiatric distress was not a significant predictor for suicidal behavior. However, this analysis was based on a sample size of 33 South Americans having suicidal ideation and 23 attempting suicide, so increasing the sample size may generate more significant results.

While groups like Mexicans, Salvadorans, Guatemalans, and Central Americans may have relatively lower suicidal behavior rates, this may be a function of their low acculturation rates. Based on this study's findings, as these ethnic groups acculturate into mainstream society, suicidal behaviors will likely increase, particularly among the children and grandchildren of recent immigrants. The overwhelming majority of Guatemalans, Salvadorans, and Central

Americans are first generation immigrants and so the negative effects of acculturation will likely emerge within the next 10-20 years.

Correlates of Suicidal Ideation and Attempt

Sociodemographic characteristics.

All of the correlates included in this study were identified in the literature as being associated with suicidal ideation and attempts. However, an examination of these variables within both the Latino and Asian ethnic groups revealed the lack of generalizability of the suicide literature to these populations. For example, gender was not significant for any racial or subgroup category, even though males are commonly considered most at-risk for suicide. Additionally, subgroup analysis among either Asians or Latinos also showed heterogeneity and seeming contradictions between predictive variables.

The variation within the Asian and Latino groups with regard to sociodemographic differences in predicting suicidal behavior supports the importance of considering the sociocultural context in assessing suicidal risk for different ethnic communities. Disparities may be a function of cultural-specific differences in the motivations and social acceptability of suicide. Older age is frequently cited as a risk factor for suicide, but for Asians and Latinos, it actually serves as a protective factor, which may suggest implications about the sociocultural context of Asian and Latino older adults that are distinct from Whites. Conversely, young adults ages 18-34 are the most at-risk of all groups, which may be partially explained by high acculturation levels.

Marital status was also significant for both Asians and Latinos, with divorced, separated, and widowed respondents more vulnerable to both suicidal ideation and attempt. However, never marrying was a significant correlate for ideation for Latinos and Whites, but not for

Asians. Furthermore, never marrying did not emerge as significant for attempt for Latinos and Asians, but it did for Whites. One possible reason for this is that single Asians and Latinos may not experience the same level of social isolation as Whites due to having strong ethnic social networks.

Socioeconomic indicators performed differently depending on the ethnic category. Lower incomes, specifically less than $15,000 per year for a household, were a risk factor for Latinos (including Mexicans and South Americans) but were not a risk factor for Asians or for any of the Asian subgroups. Although household income was not significant for Koreans, household poverty was, which might suggest that Koreans living in large households (possibly intergenerational) on a relatively small income may lead to some suicidal risk. For employment, not being in the labor force (unemployed and not looking for work) was a risk factor for only Latinos and Mexicans for suicidal ideation. For suicide attempt, however, this risk factor disappeared for Latinos and Mexicans, and yet became significant for Koreans.

Acculturation.

For Asian and Latino groups as a collective whole, vulnerability to suicidality increased with greater acculturation to U.S. society. For suicidal ideation, proportion of life spent in the U.S. and generational status were risk factors for both groups. For suicide attempt, generational status was significant for both Asians and Latinos and English fluency was significant for Asians.

English fluency emerged as a significant correlate for Latinos, but not for Asians. The research literature on identity and language suggests the ability to speak one's mother tongue is critical to one's formation and expression of ethnic identity for Latinos (Bailey, 2000; Torres, 2003; Zentella, 2002), as well as Asians (Mills, 2001; Noels, Pon, Clement, 1996). However,

there have been no empirical studies comparing Latinos and Asians and the measurable effect of language as a vehicle for creating or preserving one's sense of ethnic identity. It is in this author's personal experience, however, through classroom discussions with Asian and Latino students that language at least *appears* to be more critical to Latino students than Asian students. While this is just based on anecdotal experience, the data produced from this study indicating a difference between Asians and Latinos and the role language plays, indicates a potential line for future research.

Drilling down to the ethnic subgroup level revealed some exceptions to the acculturation and suicidal behavior relationship. South Americans and Koreans did not have any significant acculturation correlates for suicidal ideation or attempt. Furthermore, first generation Chinese were 6.12 times as likely to think about committing suicide as second generation Chinese and, conversely, Chinese who lived more than 70% of their lives in the U.S. were more likely to think about committing suicide than their less acculturated counterparts. This discrepancy between the two acculturation measures, generational status and proportion of life in the U.S., suggests that they are theoretically and conceptually distinct measures for acculturation despite the ostensible contradiction. Someone who is first generation can still belong to any of the three proportion categories. This seeming incongruity may suggest that immigrant Chinese may be more suicidal than their U.S. born counterparts, but even among immigrants, degree of acculturation matters. For example, someone who immigrated to the U.S. as a child is likely to be more suicidal than someone who came recently as an adult.

For Japanese and Filipinos, third generation respondents were most at risk for suicide. The Japanese have had the longest history of immigration to the U.S., with 44% of its sample as third generation respondents. Filipinos, however, have a relatively small 3rd generation

proportion of 4.89%, suggesting a need for further research into the acculturative experiences of this community.

The analysis of Latino ethnic subgroups also found some discrepancies for acculturation. These differences may be due to the unique social experiences of each ethnic group or the cultural orientations of their countries of origin. For suicidal ideation, Mexicans who are native English speakers were at higher suicidal risk than their bilingual or monolingual counterparts.

One of the most surprising findings in this study is the marked increase in suicidal risk for 2.5 generation Latinos, those who are U.S.-born with one U.S.-born parent and one parent born in a different country. This is the first study, to this author's knowledge, that has differentiated this category from either second or third generation, rather than merging it into one of the latter two categories. The 2.5 generation category is fairly sizeable across Latino ethnic subgroups, with Puerto Ricans at 31%, 2+ Latino types at 16%, Mexicans at 10%, and Central Americans at 9%. One possible explanation for this finding is that parents of 2.5 generation adults are presumably in intercultural marriages, which have been found to be associated with high levels of conflict and divorce (Negy & Snyder, 2007; Jones, 1996; Solsberry, 1994). And adults who were raised in households with high levels of conflict and/or divorce are at more at risk for suicide (Burr, McCall, & Powell-Griner, 1994; Trovato, 1987).

This study adds to prior findings examining acculturation as a risk factor for suicidal behavior among Latinos and Asians. Previous studies were largely inconsistent with respect to the role of acculturation in predicting suicide, quite possibly due to methodological issues, such as using an overly simplistic conceptualization of acculturation as a function of nativity alone (U.S.-born vs foreign-born) or having too small of a sample size to generate enough statistical power. This study employed three different statistically significant measures of acculturation,

which were found to be distinct conceptual measures after controlling for multicollinearity. Studies that rely on only one or two measures of acculturation, particularly if they are dichotomous variables, may miss out on potentially significant findings. Furthermore, they may fail to recognize the multidimensional orientation of acculturation as a theoretical concept.

Acculturation is a complex phenomenon and is likely a product of many conceptually distinct factors. This study utilizes three measures of acculturation, proportion of life spent in the U.S., English fluency, and generational status, to approximate the acculturative experience. However, these measures do not explain *how* and *why* acculturation leads to higher suicidality nor do they capture the subtle nuances that do not fit into a linear directional model of acculturation. Scholars studying immigration, health, and mental health outcomes have posited that acculturation can either be a function of (1) immigrants adapting to the mainstream culture's values, norms, and practices, (2) immigrants losing the protective effect of their native culture, identity, and community, or (3) immigrants feeling alienated and oppressed as minorities living within a majority culture.

Additionally, this study limited its sample to California residents, which limits its generalizability to Asians or Latinos who reside outside of California. It can be argued that one's lived experience as an Asian or Latino in California is culturally different than in the rest of the U.S. due to the state's high proportion of Asians and Latinos. Some ethnic enclaves within California or so large and homogenous that an immigrant may be able to avoid some of the acculturative stresses typically associated with adapting to a different culture because of the way heritage culture is preserved. Immigrants residing in ethnic enclaves can thrive without interacting with members of the mainstream society or acquiring the host culture's norms, practices, or values (Schwartz, Pantin, et al., 2006). In addition, living within an ethnic enclave

may also effectively delay the acculturative process typically experienced by first generation immigrants because second generation individuals can more easily retain their native language, culture, values, and identity within a culturally insular community.

Implications for Practice

Because different predictive correlates emerged for the various racial and ethnic groups, clinicians should consider how the dynamics of suicidality differ across cultural groups. Rather than relying upon generic suicide prevention strategies that have been designed based on majority White samples, assessments and interventions should be tailored to ethnic-specific realities. In the American Indian community, for example, research has shown that incorporating indigenous cultural practices such as pow-wows, drumming circles, and traditional story-telling is instrumental in the healing process for mental illness and addiction (Hodge, Pasqua, Marquez, & Geishirt-Cantrel, 2002; Kirmayer, Simpson, & Cargo, 2003; Rybak & Decker-Fitts, 2009). While there is no research about similarly cultural-specific practices used as interventions for Asians or Latinos, this is a line of research worth exploring for clinical purposes.

In addition, practitioners, policymakers, and social work educators should consider the diversity of experience for each ethnic group and implications for practice, even when groups may seem very culturally congruent. For example, among Asians, Koreans and Chinese are commonly thought of as culturally similar communities, but this study's results found different correlates for suicidal behavior for each group. Practitioners should be educated about clinical implications about group differences between ethnic communities that may *seem* similar and modify practice interventions meet the historically and culturally unique realities of specific ethnic communities.

Recommendations for Further Research

This was an epidemiological investigation that examined prevalence and correlates of suicidal ideation and attempt and therefore should not be used as an explanatory mechanism for determining suicide cause. The Centers for Disease Control maintains the National Violent Death Reporting System and the state of California maintains the Electronic Violent Death Reporting System, both of which gather statistics related to deaths by suicide by analyzing death certificates, coroner/medical examiner records, police reports, and crime laboratory records. Since suicidal ideation and attempts are highly predictive of completed suicide, one recommendation for further research is to test whether suicidal prevalence estimates and correlates found in this study are also associated with completed suicide.

This study did not examine biracial Asian or Latinos as a distinct category. Respondents who were biracial were categorized as “other”, along with ethnicities that did not belong to one of the major categories. It is worth noting that for both Asians and Latinos, the “other” category generated significant findings relative to suicidal ideation and attempt, as well as elevated prevalence levels for both. It can be argued that the correlates of acculturation are associated with biracial identity, particularly if the parent that is Asian or Latino is a recent immigrant since the child would still undergo the same cultural negotiation process that children of two Asian/Latino parents do. Currently, there are no epidemiological studies of Asian or Latino biracial identity and suicide. But considering the increasing intermarriage of races in contemporary society paired with the findings in this study of high suicide ideation and attempt prevalence rates among biracial individuals, the need for more research is of critical and time-sensitive importance (Pew Research Center, 2015).

Table 26 Comparison of Lifetime Prevalence of Suicide Ideation and Attempts by Study

	California Health Interview Survey (2009-2014)	Collaborative Psychiatric Epidemiological Surveys (2002-2003)	National Latino and Asian American Study (2002-2003)	National Epidemiological Survey on Alcohol and Related Conditions (2001-2005)
Asian sample size	7,738	2,178	2,095	1,304
Latino sample size	17,502	3,259	2,554	6,359
All Races suicide ideation	8.68%	14.64%		8.4%
All Races suicide attempt	2.97%	4.58%		2.4%
Asian suicide ideation	5.43%	9.02%	8.60%	4.1%
Asian suicide attempt	1.06%	2.55%	2.50%	2.0%
Chinese suicide ideation	5.49%		10.6%	
Chinese suicide attempt	0.89%		3.3%	
Vietnamese suicide ideation	4.77%		6.8%	
Vietnamese suicide attempt	2.12%		1.7%	
Filipino suicide ideation	6.55%		10%	
Filipino suicide attempt	1.34%		2.5%	
Latino suicide ideation	6.51%	11.35%	10.1%	7.93%
Latino suicide attempt	2.62%	5.11%	4.4%	2.85%
Mexican suicide ideation	6.34%		9.9%	
Mexican suicide attempt	2.05%		4.9%	
Puerto Rican suicide ideation	17.54%		14.2%	
Puerto Rican suicide attempt	2.35%		6.9%	

Table A Risk and Protective Variables for Suicide Ideation Variable for All Races and Subgroups

	Latino	Mexican	South Amer	Asian	Chinese	Japanese	Korean	Filipino	White	All
Age										
18-34 years	Risk	Risk		Risk						Risk
35- years									Risk	Risk
50-64 years									Risk	
65 years or more	Protective	Protective	Protective	Protective				Protective	Protective	Protective
Gender										
Male										
Female										
Marital status										
Married/Cohabiting	Protective	Protective		Protective					Protective	Protective
Divorced/separated/widowed	Risk	Risk		Risk					Risk	Risk
Never married	Risk	Risk							Risk	Risk
Education										
High school										
College										
Graduate degree							Protective		Risk	Protective
Household poverty										
Yes							Risk			
No										

Table B Risk and Protective Variables for Suicide Attempt Variable for All Races and Subgroups (continued)

	Latino	Mexican	South Amer	Asian	Chinese	Japanese	Korean	Filipino	White	All
Work Status										
Employed										
Not-employed										
Not in labor force	Risk	Risk							Risk	Risk
Household income										
<$15,000	Risk	Risk	Risk							Risk
$15,000-$34,999										
$35,000-$74,999										
>$75,000										
Psychiatric Distress	Risk	Risk		Risk	Risk	Risk	Risk	Risk		
Proportion of life spent in U.S.										
<30%										
30-70%									Risk	
>70%	Risk			Risk	Risk			Risk	Risk	Risk
English fluency										
Native speaker	Risk	Risk								Risk
Very well/well		Risk								
Not well/ not well at all								Risk		
Generational status										
1st generation					Risk					
2nd generation										Risk
2.5 generation	Risk	Risk								
3rd generation				Risk		Risk		Risk		

References

Abraído-Lanza, A. F., Armbrister, A. N., Flórez, K. R., & Aguirre, A. N. (2006a). Toward a Theory-Driven Model of Acculturation in Public Health Research. *American Journal of Public Health*, *96*(8), 1342–1346.

Afable-Munsuz, A., Gregorich, S. E., Markides, K. S., & Pérez-Stable, E. J. (2013). Diabetes risk in older Mexican Americans: effects of language acculturation, generation and socioeconomic status. *Journal of Cross-Cultural Gerontology*, *28*(3), 359–373.

Alegria, M., Canino, G., Stinson, F. S., & Grant, B. F. (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. *The Journal of Clinical Psychiatry*, *67*(1), 56–65.

Alegría, M., Mulvaney-Day, N., Woo, M., Torres, M., Gao, S., & Oddo, V. (2007b). Correlates of past-year mental health service use among Latinos: results from the National Latino and Asian American Study. *American Journal of Public Health*, *97*(1), 76–83.

Arria, A. M., O'Grady, K. E., Caldeira, K. M., Vincent, K. B., Wilcox, H. C., & Wish, E. D. (2009). Suicide ideation among college students: A multivariate analysis. *Archives of Suicide Research*, *13*(3), 230-246.

Arsenault-Lapierre, G., Kim, C., & Turecki, G. (2004). Psychiatric diagnoses in 3275 suicides: a meta-analysis. *BMC Psychiatry*, *4*, 37.

Bailey, B. (2000). Language and negotiation of ethnic/racial identity among Dominican Americans. *Language in Society*, *29*(04), 555-582.

Baller, R. D., & Richardson, K. K. (2002). Social Integration, Imitation, and the Geographic Patterning of Suicide. *American Sociological Review*, *67*(6), 873–888.

Beautrais, A. L. (2002). A case control study of suicide and attempted suicide in older adults. *Suicide and Life-Threatening Behavior*, *32*(1), 1-9.

Beautrais, A. L., Joyce, P. R., & Mulder, R. T. (1996). Access to firearms and the risk of suicide: a case control study. *Australian and New Zealand Journal of Psychiatry*, *30*(6), 741-748.

Becerra, M. B., Herring, P., Hopp Marshak, H., & Banta, J. E. (2013). Association between acculturation and binge drinking among Asian-Americans: results from the California health interview survey. *Journal of addiction*, *2013*.

Becerra, B. J., Scroggins, C. M., & Becerra, M. B. (2014). Peer Reviewed: Association Between Asthma and Obesity Among Immigrant Asian Americans, California Health Interview Survey, 2001–2011. *Preventing chronic disease*, *11*.

Beck, A. T. (1979a). *Cognitive Therapy and the Emotional Disorders*. Penguin. New York: NY.

Beck, A. T., Brown, G. K., Steer, R. A., Dahlsgaard, K. K., & Grisham, J. R. (1999). Suicide ideation at its worst point: a predictor of eventual suicide in psychiatric outpatients. *Suicide and Life-Threatening Behavior*, *29*(1), 1-9.

Beck, A. T., Kovacs, M., & Weissman, A. (1979). Assessment of suicidal intention: the Scale for Suicide Ideation. *Journal of consulting and clinical psychology*, *47*(2), 343.

Berry, J. W. (1997). Immigration, Acculturation, and Adaptation. *Applied Psychology*, *46*(1), 5–34.

Berry, J. W. (2003). *Conceptual approaches to acculturation*. American Psychological Association.

Berry, J. W. (2005). Acculturation: Living successfully in two cultures.*International journal of intercultural relations*, *29*(6), 697-712.

Berry, J. W., & Sabatier, C. (2010). Acculturation, discrimination, and adaptation among second generation immigrant youth in Montreal and Paris.*International journal of intercultural relations*, *34*(3), 191-207.

Bhugra, D., Baldwin, D. S., Desai, M., & Jacob, K. S. (1999). Attempted suicide in west London, II. Inter-group comparisons. *Psychological Medicine*, *29*(05), 1131–1139.

Boardman, A. P., Grimbaldeston, A. H., Handley, C., Jones, P. W., & Willmott, S. (1999). The North Staffordshire Suicide Study: a case–control study of suicide in one health district. *Psychological Medicine*, *29*(01), 27–33.

Borges, G., Angst, J., Nock, M. K., Ruscio, A. M., & Kessler, R. C. (2008). Risk factors for the incidence and persistence of suicide-related outcomes: A 10-year follow-up study using the National Comorbidity Surveys. *Journal of Affective Disorders*, *105*(1-3), 25–33.

Borges, G., Breslau, J., Su, M., Miller, M., Medina-Mora, M. E., & Aguilar-Gaxiola, S. (2009). Immigration and Suicidal Behavior Among Mexicans and Mexican Americans. *American Journal of Public Health*, *99*(4), 728–733.

Borges, G., Orozco, R., Rafful, C., Miller, E., & Breslau, J. (2012). Suicidality, ethnicity and immigration in the USA. *Psychological Medicine*, *42*(6), 1175–1184.

Bourhis, R. Y., Moise, L. C., Perreault, S., & Senecal, S. (1997a). Towards an Interactive Acculturation Model: A Social Psychological Approach. *International Journal of Psychology*, *32*(6), 369–386.

Brener, N. D., Hassan, S. S., & Barrios, L. C. (1999). Suicidal ideation among college students in the United States. *Journal of Consulting and Clinical Psychology*, *67*(6), 1004–1008.

Brent, D. A., Perper, J. A., Moritz, G., Baugher, M., Schweers, J., & Roth, C. (1994). Suicide in affectively ill adolescents: a case-control study. *Journal of affective disorders*, *31*(3), 193-202.

Brezo, J., Paris, J., Tremblay, R., Vitaro, F., Zoccolillo, M., Hébert, M., & Turecki, G. (2006). Personality traits as correlates of suicide attempts and suicidal ideation in young adults. *Psychological medicine*, *36*(02), 191-202.

Brown, G. K., Beck, A. T., Steer, R. A., & Grisham, J. R. (2000). Risk factors for suicide in psychiatric outpatients: A 20-year prospective study. *Journal of Consulting and Clinical Psychology*, *68*(3), 371–377.

Brown, E. R., Holtby, S., Zahnd, E., & Abbott, G. B. (2005). Community-based participatory research in the California Health Interview Survey'Preventing Chronic Disease 2: 4. *Octubre, visto el*, *25*, 01-08.

Bruce, M. L. (2010). Suicide risk and prevention in veteran populations. *Annals of the New York Academy of Sciences*, *1208*(1), 98–103.

Bryan, C. J., Morrow, C. E., Anestis, M. D., & Joiner, T. E. (2010). A preliminary test of the interpersonal-psychological theory of suicidal behavior in a military sample. *Personality and Individual Differences*, *48*(3), 347-350.

Burnam, M. A., Hough, R. L., Karno, M., Escobar, J. I., & Telles, C. A. (1987). Acculturation and lifetime prevalence of psychiatric disorders among Mexican Americans in Los Angeles. *Journal of Health and Social Behavior*, *28*(1), 89–102.

Burr, J. A., Hartman, J. T., & Matteson, D. W. (1999). Black suicide in US metropolitan areas: An examination of the racial inequality and social integration-regulation hypotheses. *Social Forces*, *77*(3), 1049-1080.

Burr, J. A., McCall, P. L., & Powell-Griner, E. (1994). Catholic religion and suicide: The mediating effect of divorce. *Social Science Quarterly*.

Canetto, S. S., & Lester, D. (1995). Gender and the primary prevention of suicide mortality. *Suicide and Life-Threatening Behavior*, *25*(1), 58-69.

Canino, G., & Roberts, R. E. (2001). Suicidal behavior among Latino youth. *Suicide and Life-Threatening Behavior*, *31*(s1), 122-131.

Castro, V. S. (2003). *Acculturation and psychological adaptation*. Praeger Publishers/ Greenwood Publishing Group.

Cavanagh, J. T. O., Carson, A. J., Sharpe, M., & Lawrie, S. M. (2003). Psychological autopsy studies of suicide: a systematic review. *Psychological Medicine*, (03), 395–405.

Centers for Disease Control and Prevention, USA. (1997). Regional variations in suicide rates--United States, 1990-1994. *MMWR: Morbidity and Mortality Weekly Report*, *46*(34), 789–793.

Centers for Disease Control and Prevention (2013). Web-Based Injury Statistics Query and Reporting System: Leading Cuases of Death Reports. Atlanta, GA: National Center for Injury Prevention and Control. Retrieved from: http://www.cdc.gov/injury/wisqars/index.html

Chang, E. C. (1998). Cultural differences, perfectionism, and suicidal risk in a college population: Does social problem solving still matter?. *Cognitive Therapy and research*, *22*(3), 237-254.

Chang, E., Chan, K. S., & Han, H. R. (2015). Effect of acculturation on variations in having a usual source of care among Asian Americans and Non-Hispanic Whites in California. *American journal of public health*, *105*(2), 398-407.

Chen, X., Unger, J. B., Cruz, T. B., & Johnson, C. A. (1999). Smoking patterns of Asian-American youth in California and their relationship with acculturation. *The Journal of Adolescent Health: Official Publication of the Society for Adolescent Medicine*, *24*(5), 321–328.

Cheng, A. T., Chen, T. H., Chen, C. C., & Jenkins, R. (2000). Psychosocial and psychiatric risk factors for suicide Case—control psychological autopsy study. *The British Journal of Psychiatry*, *177*(4), 360-365.

Cheng, J. K. Y., Fancher, T. L., Ratanasen, M., Conner, K. R., Duberstein, P. R., Sue, S., & Takeuchi, D. (2010). Lifetime suicidal ideation and suicide attempts in Asian Americans. *Asian American Journal of Psychology*, *1*(1), 18–30.

Chioqueta, A. P., & Stiles, T. C. (2005). Personality traits and the development of depression, hopelessness, and suicide ideation. *Personality and Individual Differences*, *38*(6), 1283–1291.

Choi, H., Meininger, J. C., & Roberts, R. E. (2006). Ethnic differences in adolescents' mental distress, social stress, and resources. *Adolescence*, *41*(162), 263–283.

Choi, J. L., Rogers, J. R., & Werth, J. L. (2009). Suicide Risk Assessment With Asian American College Students A Culturally Informed Perspective. *The Counseling Psychologist*, *37*(2), 186–218.

Chu, J., Chi, K., Chen, K., & Leino, A. (2014). Ethnic Variations in Suicidal Ideation and Behaviors: A Prominent Subtype Marked by Nonpsychiatric Factors Among Asian Americans. *Journal of Clinical Psychology*.

Chu, J. P., Goldblum, P., Floyd, R., & Bongar, B. (2010). The cultural theory and model of suicide. *Applied and Preventive Psychology*, *14*(1–4), 25–40.

Chu, J. P., Hsieh, K.-Y., & Tokars, D. A. (2011a). Help-seeking tendencies in Asian Americans with suicidal ideation and attempts. *Asian American Journal of Psychology*, *2*(1), 25–38.

Compton, M. T., Thompson, N. J., & Kaslow, N. J. (2005). Social environment factors associated with suicide attempt among low-income African Americans: The protective role of family relationships and social support. *Social psychiatry and psychiatric epidemiology*, *40*(3), 175-185.

Conner, K. R., Britton, P. C., Sworts, L. M., & Joiner Jr., T. E. (2007). Suicide attempts among individuals with opiate dependence: The critical role of belonging. *Addictive Behaviors*, *32*(7), 1395–1404.

Conwell, Y., Duberstein, P. R., Hirsch, J. K., Conner, K. R., Eberly, S., & Caine, E. D. (2010). Health status and suicide in the second half of life.*International journal of geriatric psychiatry*, *25*(4), 371-379.

Crone, D. M. (1996). Historical Attitudes toward Suicide. *Duquesne Law Review*, *35*, 7.

Cuellar, J., & Curry, T. R. (2007). The prevalence and comorbidity between delinquency, drug abuse, suicide attempts, physical and sexual abuse, and self-mutilation among delinquent Hispanic females. *Hispanic journal of behavioral sciences*, *29*(1), 68-82.

Davidson, J. R., Hughes, D. C., George, L. K., & Blazer, D. G. (1996). The association of sexual assault and attempted suicide within the community. *Archives of General Psychiatry*, *53*(6), 550–555.

Dear, G. (2001). Further Comments on the Nomenclature for Suicide-Related Thoughts and Behavior. *Suicide and Life-Threatening Behavior*, *31*(2), 234–235.

Dervic, K., Oquendo, M. A., Grunebaum, M. F., Ellis, S., Burke, A. K., & Mann, J. J. (2004). Religious Affiliation and Suicide Attempt. *American Journal of Psychiatry*, *161*(12), 2303–2308.

Duan, C., & Vu, P. (2000). Acculturation of Vietnamese students living in or away from Vietnamese communities. *Journal of Multicultural Counseling and Development*, *28*(4), 225.

Dube, S. R., Anda, R. F., Felitti, V. J., Chapman, D. P., Williamson, D. F., & Giles, W. H. (2001). Childhood abuse, household dysfunction, and the risk of attempted suicide throughout the life span: findings from the Adverse Childhood Experiences Study. *Jama*, *286*(24), 3089-3096.

Duldulao, A. A., Takeuchi, D. T., & Hong, S. (2009). Correlates of Suicidal Behaviors Among Asian Americans. *Archives of Suicide Research*, *13*(3), 277–290.

Durkheim, E. (1897). Le suicide. *Paris, Presses Universitaires de France*.

Durkheim, E. (1951). *Suicide*. New York, NY, US: Free Press.

Farrelly, S., Jeffery, D., Rüsch, N., Williams, P., Thornicroft, G., & Clement, S. (2015). The link between mental health-related discrimination and suicidality: service user perspectives. *Psychological medicine*, *45*(10), 2013-2022.

Ford-Paz, R. E., Reinhard, C., Kuebbeler, A., Contreras, R., & Sánchez, B. (2015). Culturally tailored depression/suicide prevention in Latino youth: community perspectives. *The journal of behavioral health services & research*, *42*(4), 519-533.

Fortuna, L. R., Perez, D. J., Canino, G., Sribney, W., & Alegria, M. (2007). Prevalence and Correlates of Lifetime Suicidal Ideation and Attempts among Latino Subgroups in the United States. *The Journal of Clinical Psychiatry*, *68*(4), 572–581.

Foster, T. (2011). Adverse life events proximal to adult suicide: A synthesis of findings from psychological autopsy studies. *Archives of Suicide Research*, *15*(1), 1–15.

Goldsmith, S.K. (2002). *Reducing suicide: a national imperative*. National Academies Press. Washington, D.C.

Goldstein, R. B. (1991). The Prediction of Suicide: Sensitivity, Specificity, and Predictive Value of a Multivariate Model Applied to Suicide Among 1906 Patients With Affective Disorders. *Archives of General Psychiatry*, *48*(5), 418

Gordon-Larsen, P., Harris, K. M., Ward, D. S., Popkin, B. M., & National Longitudinal Study of Adolescent Health. (2003). Acculturation and overweight-related behaviors among Hispanic immigrants to the US: the National Longitudinal Study of Adolescent Health. *Social Science & Medicine (1982)*, *57*(11), 2023–2034.

Gould, M. S., Fisher, P., Parides, M., Flory, M., & Shaffer, D. (1996). Psychosocial risk factors of child and adolescent completed suicide. *Archives of general psychiatry*, *53*(12), 1155-1162

Grant B.F., Stinson F.S., Hasin D.S., Dawson D.A., Chou S, & Anderson K. (2004). Immigration and lifetime prevalence of dsm-iv psychiatricdisorders among mexican americans and non-hispanic whites in the united states: Results from the national epidemiologic survey on alcohol and relatedconditions. *Archives of General Psychiatry*, *61*(12), 1226–1233.

Gruenewald, P. J., Ponicki, W. R., & Mitchell, P. R. (1995). Suicide rates and alcohol consumption in the United States, 1970-89. *Addiction (Abingdon, England)*, *90*(8), 1063–1075.

Gutierrez, Rodriguez, Garcia, P. (2001). Suicide risk factors for young adults: Testing a model across ethnicities. *Death Studies*, *25*(4), 319-340.

Hahm, H. C., Jang, J., Vu, C., Alexander, L. M., Driscoll, K. E., & Lundgren, L. (2013). Drug Use and Suicidality Among Asian American Women Who Are Children of Immigrants. *Substance Use & Misuse*, *48*(14), 1563–1576.

Han, C. S., Oliffe, J. L., & Ogrodniczuk, J. S. (2013). Suicide among East Asians in North America: A scoping review. *Journal of Mental Health*, *22*(4), 361–371.

Hankin, C. S., Spiro, A., Miller, D. R., & Kazis, L. (1999). Mental Disorders and Mental Health Treatment Among U.S. Department of Veterans Affairs Outpatients: The Veterans Health Study. *American Journal of Psychiatry*, *156*(12), 1924–1930.

Hansen, L., & Pritchard, C. (2008). Consistency in suicide rates in twenty-two developed countries by gender over time 1874–78, 1974–76, and 1998–2000. *Archives of suicide research*, *12*(3), 251-262.

Harris, E. C., & Barraclough, B. (1997). Suicide as an outcome for mental disorders. A meta-analysis. *The British Journal of Psychiatry*, *170*(3), 205-228.

Hastings, K. G., Jose, P. O., Kapphahn, K. I., Frank, A. T. H., Goldstein, B. A., Thompson, C. A., … Palaniappan, L. P. (2015). Leading Causes of Death among Asian American Subgroups (2003–2011). *PLoS ONE*, *10*(4), e0124341.

Hawton, K., Clements, A., Sakarovitch, C., Simkin, S., & Deeks, J. J. (2001). Suicide in doctors: a study of risk according to gender, seniority and specialty in medical practitioners in England and Wales, 1979–1995. *Journal of Epidemiology and Community Health*, *55*(5), 296-300.

Hodge, F. S., Pasqua, A., Marquez, C. A., & Geishirt-Cantrell, B. (2002). Utilizing traditional storytelling to promote wellness in American Indian communities. *Journal of Transcultural Nursing*, *13*(1), 6-11.

Hofstede, G. H., & Hofstede, G. (2001). *Culture's Consequences: Comparing Values, Behaviors, Institutions and Organizations Across Nations*. SAGE.

Hovey, J. D. (2000). Acculturative stress, depression, and suicidal ideation in Mexican immigrants. *Cultural Diversity and Ethnic Minority Psychology*, *6*(2), 134–151.

Hovey, J. D., & King, C. A. (1996). Acculturative Stress, Depression, and Suicidal Ideation among Immigrant and Second-Generation Latino Adolescents. *Journal of the American Academy of Child & Adolescent Psychiatry*, *35*(9), 1183–1192.

Hovey, J. D., & King, C. A. (1997). 10 Suicidality Among Acculturating Mexican Americans: Current Knowledge and Directions for Research. *Suicide and Life-Threatening Behavior*, *27*(1), 92–103.

Hovey, J. D., & Magaña, C. G. (2003). Suicide risk factors among Mexican migrant farmworker women in the Midwest United States. *Archives of Suicide Research*, *7*(2), 107-121.

Hunt, L. M., Schneider, S., & Comer, B. (2004). Should "acculturation" be a variable in health research? A critical review of research on US Hispanics. *Social Science & Medicine*, *59*(5), 973–986.

Huth-Bocks, A. C., Kerr, D. C., Ivey, A. Z., Kramer, A. C., & King, C. A. (2007). Assessment of psychiatrically hospitalized suicidal adolescents: self-report instruments as predictors of suicidal thoughts and behavior. *Journal of the American Academy of Child & Adolescent Psychiatry*, *46*(3), 387-395.

Hu, G., Wilcox, H. C., Wissow, L., & Baker, S. P. (2008). Mid-life suicide: an increasing problem in US Whites, 1999–2005. *American journal of preventive medicine*, *35*(6), 589-593.

Hyman, I. (2004). Setting the stage: reviewing current knowledge on the health of Canadian immigrants: what is the evidence and where are the gaps? *Canadian Journal of Public Health = Revue Canadienne De Santé Publique*, *95*(3), I4-8.

Ji, J., Kleinman, A., & Becker, A. E. (2001). Suicide in Contemporary China: A Review of China's Distinctive Suicide Demographics in Their Sociocultural Context. *Harvard Review of Psychiatry*, *9*(1), 1–12.

Joel, Y., Koo, K., Tran, K. K., Chiu, Y.-C., & Mok, Y. (2011). Asian American college students' suicide ideation: A mixed-methods study. *Journal of Counseling Psychology*, *58*(2), 197–209.

Joel, Y., Vaughan, E. L., Liu, T., & Chang, T. K. (2014). Asian Americans' proportion of life in the United States and suicide ideation: The moderating effects of ethnic subgroups. *Asian American Journal of Psychology*, *5*(3), 237–242.

Joiner, T. E., Van Orden, K. A., Witte, T. K., Selby, E. A., Ribeiro, J. D., Lewis, R., & Rudd, M. D. (2009). Main Predictions of the Interpersonal-Psychological Theory of Suicidal Behavior: Empirical Tests in Two Samples of Young Adults. *Journal of Abnormal Psychology*, *118*(3), 634–646.

Joiner, T. E., Pettit, J. W., Walker, R. L., & Voelz, Z. R. (2002). Perceived burdensomeness and suicidality: Two studies on the suicide notes of those attempting and those completing suicide. *Journal of Social and Clinical Psychology*, *21*(5), 531.

Juang, L. P., & Cookston, J. T. (2009). Acculturation, Discrimination, and Depressive Symptoms among Chinese American Adolescents: A Longitudinal Study. *The Journal of Primary Prevention*, *30*(3-4), 475–496.

Kang, S. Y., Domanski, M. D., & Moon, S. S. (2009). Ethnic enclave resources and predictors of depression among Arizona's Korean immigrant elders. *Journal of Gerontological Social Work*, *52*(5), 489-502.

Kaplan, M. S., & Geling, O. (1998). Firearm suicides and homicides in the United States: regional variations and patterns of gun ownership1. *Social Science & Medicine*, *46*(9), 1227–1233.

Kennedy, M. A., Parhar, K. K., Samra, J., & Gorzalka, B. (2005). Suicide ideation in different generations of immigrants. *Canadian Journal of Psychiatry. Revue Canadienne de Psychiatrie*, *50*(6), 353–356.

Kessler, R. C., Andrews, G., Colpe, L. J., Hiripi, E., Mroczek, D. K., Normand, S. L., ... & Zaslavsky, A. M. (2002). Short screening scales to monitor population prevalences and trends in non-specific psychological distress.*Psychological medicine*, *32*(06), 959-976.

Kessler, R. C., Barker, P. R., Colpe, L. J., Epstein, J. F., Gfroerer, J. C., Hiripi, E., ... & Zaslavsky, A. M. (2003). Screening for serious mental illness in the general population. *Archives of general psychiatry*, *60*(2), 184-189.

Kessler, R. C., Borges, G., & Walters, E. E. (1999). Prevalence of and risk factors for lifetime suicide attempts in the National Comorbidity Survey. *Archives of General Psychiatry*, *56*(7), 617–626.

Kirmayer, L., Simpson, C., & Cargo, M. (2003). Healing traditions: Culture, community and mental health promotion with Canadian Aboriginal peoples. *Australasian Psychiatry*, *11*(sup1), S15-S23.

Kim, B. S., Atkinson, D. R., & Umemoto, D. (2001). Asian cultural values and the counseling process current knowledge and directions for future research. *The Counseling Psychologist*, *29*(4), 570-603.

King, M., Semlyen, J., Tai, S. S., Killaspy, H., Osborn, D., Popelyuk, D., & Nazareth, I. (2008). A systematic review of mental disorder, suicide, and deliberate self harm in lesbian, gay and bisexual people. *BMC psychiatry*, *8*(1), 1.

Kingsbury, S., Hawton, K., Steinhardt, K., & James, A. (1999). Do adolescents who take overdoses have specific psychological characteristics? A comparative study with psychiatric and community controls. *Journal of the American Academy of Child & Adolescent Psychiatry*, *38*(9), 1125-1131.

Kisch, J., Leino, E. V., & Silverman, M. M. (2005). Aspects of Suicidal Behavior, Depression, and Treatment in College Students: Results from the Spring 2000 National College Health Assessment Survey. *Suicide and Life-Threatening Behavior*, *35*(1), 3–13.

Kochanek, K. D., Murphy, S. L., & Anderson, R. N. (2004). Scott C Deaths: Final data for 2002. *National vital statistics reports. Hyattsville Maryland: National Center for Health Statistics*, *53*(5), 99.

Kochanek, K. D., Murphy, S. L., Xu, J., & Arias, E. (2014). Mortality in the United States, 2013. *NCHS Data Brief*, (178), 1–8.

Kuhlberg, J. A., Peña, J. B., & Zayas, L. H. (2010). Familism, parent-adolescent conflict, self-esteem, internalizing behaviors and suicide attempts among adolescent Latinas. *Child Psychiatry & Human Development*, *41*(4), 425-440.

Kposowa, A. J., McElvain, J. P., & Breault, K. D. (2008). Immigration and Suicide: The Role of Marital Status, Duration of Residence, and Social Integration. *Archives of Suicide Research*, *12*(1), 82–92.

Kposowa, A. J., & McElvain, J. P. (2006). Gender, place, and method of suicide. *Social psychiatry and psychiatric epidemiology*, *41*(6), 435-443.

Kunce, M., & Anderson, A. L. (2002). The impact of socioeconomic factors on state suicide rates: a methodological note. *Urban Studies*, *39*(1), 155-162.

Kuroki, Y., & Tilley, J. L. (2012a). Recursive partitioning analysis of lifetime suicidal behaviors in Asian Americans. *Asian American Journal of Psychology*, *3*(1), 17–28.

Lau, A. S., Jernewall, N. M., Zane, N., & Myers, H. F. (2002). Correlates of suicidal behaviors among Asian American outpatient youths. *Cultural Diversity and Ethnic Minority Psychology*, *8*(3), 199–213.

Leach, M. M. (2006). Cultural diversity and suicide: *Ethnic, religious, gender, and sexual orientation perspectives.* Routledge. New York, NY.

Lee, C.S., Chang, J.-C., & Cheng, A. T. A. (2002). Acculturation and suicide: a case–control psychological autopsy study. *Psychological Medicine*, *32*(01), 133–141.

Lee, S., Brown, E. R., Grant, D., Belin, T. R., & Brick, J. M. (2009). Exploring nonresponse bias in a health survey using neighborhood characteristics.*American Journal of Public Health*, *99*(10), 1811-1817.

Leong, F. T. L., & Leach, M. M. (2007). *Suicide Among Racial and Ethnic Minority Groups: Theory, Research, and Practice*. Taylor & Francis.

Leong, F. T. L., Leach, M. M., Yeh, C., & Chou, E. (2007). Suicide among Asian Americans: What Do We Know? What Do We Need to Know? *Death Studies*, *31*(5), 417–434.

Lester, D. (1995). Explaining regional differences in suicide rates. *Social science & medicine*, *40*(5), 719-721.

Lester, D. (1997). Suicide in America: a nation of immigrants. *Suicide & Life-Threatening Behavior*, *27*(1), 50–59.

Link, M. W., Battaglia, M. P., Frankel, M. R., Osborn, L., & Mokdad, A. H. (2007). Reaching the US cell phone generation comparison of cell phone survey results with an ongoing landline telephone survey. *Public Opinion Quarterly*, *71*(5), 814-839.

Liu, L. L., Benner, A. D., Lau, A. S., & Kim, S. Y. (2009). Mother-adolescent language proficiency and adolescent academic and emotional adjustment among Chinese American families. *Journal of Youth and Adolescence*, *38*(4), 572-586.

Malone, K. M., Oquendo, M. A., Haas, G. L., Ellis, S. P., Li, S., & Mann, J. J. (2000). Protective factors against suicidal acts in major depression: reasons for living. *American Journal of Psychiatry*.

Mann, J. J., Apter, A., Bertolote, J., Beautrais, A., Currier, D., Haas, A., ... & Mehlum, L. (2005). Suicide prevention strategies: a systematic review. *Jama*, *294*(16), 2064-2074.

Marcotte, D. E. (2003). The economics of suicide, revisited. *Southern Economic Journal*, 628-643.

Marin, G., Sabogal, F., Marin, B. V., Otero-Sabogal, R., & Perez-Stable, E. J. (1987). Development of a Short Acculturation Scale for Hispanics. *Hispanic Journal of Behavioral Sciences*, *9*(2), 183–205.

Maris, R. W. (1969). *Social forces in urban suicide* (Vol. xiv). Homewood, IL, US: Dorsey Press.

Markus, H. R., & Kitayama, S. (1991). Culture and the self: Implications for cognition, emotion, and motivation. *Psychological review*, *98*(2), 224.

McDonald, J. T., & Kennedy, S. (2004). Insights into the "healthy immigrant effect": health status and health service use of immigrants to Canada. *Social Science & Medicine (1982)*, *59*(8), 1613–1627.

Markides, K. S., & Eschbach, K. (2011). Hispanic Paradox in Adult Mortality in the United States. In R. G. Rogers & E. M. Crimmins (Eds.), *International Handbook of Adult Mortality* (pp. 227–240). Springer Netherlands

Mathers, C. D., & Loncar, D. (2006). Projections of global mortality and burden of disease from 2002 to 2030. *Plos med*, *3*(11), e442.

Mills, J. (2001). Being bilingual: Perspectives of third generation Asian children on language, culture and identity. *International Journal of Bilingual Education and Bilingualism*, *4*(6), 383-402.

Mina, E. E., & Gallop, R. M. (1998). Childhood sexual and physical abuse and adult self-harm and suicidal behaviour: a literature review. *Canadian Journal of Psychiatry*, *43*, 793-800.

Minois, G. (2001). *History of suicide: Voluntary death in western culture*. American Psychological Association.

Minkoff, K., Bergman, E., Beck, A. T., & Beck, R. (1973). Hopelessness, depression, and attempted suicide. *The American Journal of Psychiatry*, *130*(4), 455–459.

Molnar, B. E., Shade, S. B., Kral, A. H., Booth, R. E., & Watters, J. K. (1998). Suicidal behavior and sexual/physical abuse among street youth. *Child Abuse & Neglect*, *22*(3), 213-222.

Mościcki, E. K. (2001). Epidemiology of completed and attempted suicide: toward a framework for prevention. *Clinical Neuroscience Research*, *1*(5), 310-323.

Muehlenkamp, J. J., Gutierrez, P. M., Osman, A., & Barrios, F. X. (2005). Validation of the Positive and Negative Suicide Ideation (PANSI) Inventory in a diverse sample of young adults. *Journal of Clinical Psychology*, *61*(4), 431–445.

Mui, A. C., & Kang, S.-Y. (2006). Acculturation Stress and Depression among Asian Immigrant Elders. *Social Work*, *51*(3), 243–255.

Murphy, S. L., Kochanek, K. D., Xu, J., & Heron, M. (2015). National vital statistics reports. *National Vital Statistics Reports*, *63*(9).

Negy, C. & Snyder, D.K. (2000). Relationship Satisfaction of Mexican American and Non-Hispanic White American Interethnic Couples: Issues of Acculturation and Clinical Intervention. *Journal of Marital and Family Therapy*, *26*(3), 293-304.

Nock, M. K. (2014). *The Oxford Handbook of Suicide and Self-Injury*. Oxford University Press.

Nock, M. K., Borges, G., Bromet, E. J., Cha, C. B., Kessler, R. C., & Lee, S. (2008). Suicide and Suicidal Behavior. *Epidemiologic Reviews*, *30*(1), 133–154.

Nock, M. K., Joiner, T. E., Gordon, K. H., Lloyd-Richardson, E., & Prinstein, M. J. (2006). Non-suicidal self-injury among adolescents: Diagnostic correlates and relation to suicide attempts. *Psychiatry research*, *144*(1), 65-72.

Noels, K. A., Pon, G., & Clément, R. (1996). Language, identity, and adjustment the role of linguistic self-confidence in the acculturation process. *Journal of language and social psychology*, *15*(3), 246-264.

Noh, S., & Kaspar, V. (2003). Perceived Discrimination and Depression: Moderating Effects of Coping, Acculturation, and Ethnic Support. *American Journal of Public Health*, *93*(2), 232–238.

Nordentoft, M., & Branner, J. (2008). Gender Differences in Suicidal Intent and Choice of Method Among Suicide Attempters. *Crisis*, *29*(4), 209–212.

Nordström, P., Samuelsson, M., & Åsberg, M. (1995). Survival analysis of suicide risk after attempted suicide. *Acta Psychiatrica Scandinavica*, *91*(5), 336-340.

O’Brien, R. M. (2007). A caution regarding rules of thumb for variance inflation factors. *Quality & Quantity*, *41*(5), 673-690.

Ortega, A. N., Rosenheck, R., Alegría, M., & Desai, R. A. (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.

Pearson, V., Phillips, M. R., He, F., & Ji, H. (2002). Attempted suicide among young rural women in the People's Republic of China: possibilities for prevention. *Suicide and Life-Threatening Behavior*, *32*(4), 359-369.

Peña, J. B., Wyman, P. A., Brown, C. H., Matthieu, M. M., Olivares, T. E., Hartel, D., & Zayas, L. H. (2008). Immigration Generation Status and its Association with Suicide Attempts, Substance Use, and Depressive Symptoms among Latino Adolescents in the USA. *Prevention Science*, *9*(4), 299–310.

Perez-Rodriguez, M. M., Baca-Garcia, E., Oquendo, M. A., Wang, S., Wall, M. M., Liu, S.-M., & Blanco, C. (2014). Relationship between acculturation, discrimination, and suicidal ideation and attempts among US Hispanics in the National Epidemiologic Survey of Alcohol and Related Conditions. *The Journal of Clinical Psychiatry*, *75*(4), 399–407.

Pew Research Center (2013a). *A Nation of immigrants.* Pew Research Center, Washington, D.C. Retrieved from: http://www.pewhispanic.org/2013/01/29/a-nation-of-immigrants/

Pew Research Center (2013b). *Second generation Americans.* Pew Research Center, Washington, D.C. Retrieved from: http://www.pewsocialtrends.org/2013/02/07/second-generation-americans/

Pew Research Center (2015). *Multiracial in America.* Pew Research Center, Washington, D.C. Retrieved from: http://www.pewsocialtrends.org/files/2015/06/2015-06-11_multiracial-in-america_final-updated.pdf

Phinney, J. S. (1990). Ethnic identity in adolescents and adults: review of research. *Psychological bulletin*, *108*(3), 499.

Phinney, J. S., Horenczyk, G., Liebkind, K., & Vedder, P. (2001). Ethnic identity, immigration, and well-being: An interactional perspective. *Journal of social issues*, *57*(3), 493-510.

Portes, A., & Rumbaut, R. G. (2001). *Legacies: The story of the immigrant second generation*. Univ of California Press.

Posner, R. A. (2006). *Not a suicide pact: The Constitution in a time of national emergency*. Oxford University Press.

Posner, K., Brent, D., Lucas, C., Gould, M., Stanley, B., Brown, G., ... & Mann, J. (2008). Columbia-suicide severity rating scale (C-SSRS). *New York, NY: Columbia University Medical Center*.

Pratt, L. A., Dey, A. N., & Cohen, A. J. (2007). Characteristics of adults with serious psychological distress as measured by the K6 scale: United States, 2001-04. *Advance Data*, (382), 1–18.

Pritchard, C., & Hean, S. (2008). Suicide and Undetermined Deaths Among Youths and Young Adults in Latin America. *Crisis*, *29*(3), 145–153.

Rasmussen, K. M., Negy, C., Carlson, R., & Burns, J. M. (1997). Suicide Ideation and Acculturation among Low Socioeconomic Status Mexican American Adolescents. *The Journal of Early Adolescence*, *17*(4).

Ribeiro, J. D., & Joiner, T. E. (2009). The interpersonal-psychological theory of suicidal behavior: current status and future directions. *Journal of clinical psychology*, *65*(12), 1291-1299.

Rihmer, Z. (2007). Suicide risk in mood disorders. *Current Opinion in Psychiatry*, *20*(1), 17–22.

Rogers, J. R., & Soyka, K. M. (2004). “One Size Fits All”: An Existential-Constructivist Perspective on the Crisis Intervention Approach with Suicidal Individuals. *Journal of Contemporary Psychotherapy*, *34*(1), 7–22.

Romero, C. X., Duke, J. K., Dabelea, D., Romero, T. E., & Ogden, L. G. (2012). Does the epidemiologic paradox hold in the presence of risk factors for low birth weight infants among Mexican-born women in Colorado?.*Journal of health care for the poor and underserved*, *23*(2), 604-614.

Roy, A. (2002). Family history of suicide and neuroticism: a preliminary study. *Psychiatry Research*, *110*(1), 87–90.

Rybak, C., & Decker-Fitts, A. (2009). Understanding Native American healing practices. *Counselling Psychology Quarterly*, *22*(3), 333-342.

Sabogal, F., Marín, G., Otero-Sabogal, R., Marín, B. V., & Perez-Stable, E. J. (1987). Hispanic familism and acculturation: What changes and what doesn't?. *Hispanic Journal of Behavioral Sciences*, *9*(4), 397-412.

Sam, D. L., & Berry, J. W. (2010). Acculturation when individuals and groups of different cultural backgrounds meet. *Perspectives on Psychological Science*, *5*(4), 472-481.

Schwartz, S. J., Pantin, H., Sullivan, S., Prado, G., & Szapocznik, J. (2006). Nativity and years in the receiving culture as markers of acculturation in ethnic enclaves. *Journal of Cross-Cultural Psychology*, *37*(3), 345-353.

Shah, A. (2007). The relationship between suicide rates and age: an analysis of multinational data from the World Health Organization. *International Psychogeriatrics*, *19*(06), 1141–1152.

Shaw, R. J., Atkin, K., Bécares, L., Albor, C. B., Stafford, M., Kiernan, K. E., … Pickett, K. E. (2012). Impact of ethnic density on adult mental disorders: narrative review. *The British Journal of Psychiatry*, *201*(1), 11–19.

Shrira, I., & Christenfeld, N. (2010). Disentangling the person and the place as explanations for regional differences in suicide. *Suicide and Life-Threatening Behavior*, *40*(3), 287-297.

Shneidman, E. S. (1998). *The Suicidal Mind*. Oxford University Press. New York.

Silverman, M. M. (2006). The Language of Suicidology. *Suicide and Life-Threatening Behavior*, *36*(5), 519–532.

Shoval, G., Schoen, G., Vardi, N., & Zalsman, G. (2007). Suicide in Ethiopian immigrants in Israel: A case for study of the genetic-environmental relation in suicide. *Archives of Suicide Research*, *11*(3), 247-253.

Singh, G. K., & Hiatt, R. A. (2006). Trends and disparities in socioeconomic and behavioural characteristics, life expectancy, and cause-specific mortality of native-born and foreign-born populations in the United States, 1979–2003. *International Journal of Epidemiology*, *35*(4), 903–919.

Singh, G. K., & Siahpush, M. (2001). All-cause and cause-specific mortality of immigrants and native born in the United States. *American Journal of Public Health*, *91*(3), 392–399.

Solsberry, P. W. (1994). Interracial couples in the United States of America: Implications for mental health counseling. *Journal of Mental Health Counseling*.

Sorenson, S. B., & Golding, J. M. (1988). Prevalence of Suicide Attempts in a Mexican-American Population: Prevention Implications of Immigration and Cultural Issues. *Suicide and Life-Threatening Behavior*, *18*(4), 322–333.

Sorenson, S. B., & Shen, H. (1996). Youth Suicide Trends in California: An Examination of Immigrant and Ethnic Group Risk. *Suicide and Life-Threatening Behavior*, *26*(2), 143–154.

Stravynski, A., & Boyer, R. (2001). Loneliness in relation to suicide ideation and parasuicide: A population-wide study. *Suicide and Life-Threatening Behavior*, *31*(1), 32-40.

Stack, S. (1981). The Effect of Immigration on Suicide: A Cross-National Analysis. *Basic and Applied Social Psychology*, *2*(3), 205–218.

Stack, S. (1990). New Micro-Level Data on the Impact of Divorce on Suicide, 1959-1980: A Test of Two Theories. *Journal of Marriage and Family*, *52*(1), 119–127.

Stephen, E. H., Foote, K., Hendershot, G. E., & Schoenborn, C. A. (1994). Health of the foreign-born population: United States, 1989-90. *Advance Data*, (241), 1–12.

Suárez-Orozco, C., Carhill, A., & Chuang, S. S. (2011). Immigrant children: Making a new life. *Immigrant children: Change, adaptation, and cultural transformation. Lanham, MA: Lexington Books*.

Suominen, K., Isometsä, E., Suokas, J., Haukka, J., Achte, K., & Lönnqvist, J. (2004). Completed suicide after a suicide attempt: a 37-year follow-up study. *The American Journal of Psychiatry*, *161*(3), 562–563.

Szapocznik, J., & Kurtines, W. M. (1993). Family psychology and cultural diversity: Opportunities for theory, research, and application. *American Psychologist*, *48*(4), 400.

Szapocznik, J., & Williams, R. A. (2000). Brief strategic family therapy: Twenty-five years of interplay among theory, research and practice in adolescent behavior problems and drug abuse. *Clinical child and family psychology review*, *3*(2), 117-134.

Takeuchi, D. T., Zane, N., Hong, S., Chae, D. H., Gong, F., Gee, G. C., … Alegría, M. (2007a). Immigration-related factors and mental disorders among Asian Americans. *American Journal of Public Health*, *97*(1), 84–90.

Tata, S. P.(1994). Individualism-collectivism, social-network orientation, and acculturation as predictors of attitudes toward seeking professional psychological help among Chinese Americans. *Journal of Counseling Psychology*, *41*(3), 280–287.

Thomson, M. D., & Hoffman-Goetz, L. (2009). Defining and measuring acculturation: A systematic review of public health studies with Hispanic populations in the United States. *Social Science & Medicine*, *69*(7), 983–991.

Torres, L. (2010). Predicting levels of Latino depression: acculturation, acculturative stress, and coping. *Cultural Diversity & Ethnic Minority Psychology*, *16*(2), 256–263.

Torres, V. (2003). Influences on ethnic identity development of Latino college students in the first two years of college. *Journal of College Student Development*, *44*(4), 532-547.

Triandis, Harry C. "Cultural aspects of globalization." *Journal of International Management* 12, no. 2 (2006): 208-217.

Trovato, F. (1987). A longitudinal analysis of divorce and suicide in Canada.*Journal of Marriage and the Family*, 193-203.

Tsoh, J., Chiu, H. F., Duberstein, P. R., Chan, S. S., Chi, I., Yip, P. S., & Conwell, Y. (2005). Attempted suicide in elderly Chinese persons: a multi-group, controlled study. *The American journal of geriatric psychiatry*, *13*(7), 562-571.

U.S. Census Bureau (2013) U.S. Census Bureau Projections Show a Slower Growing, Older, More Diverse Nation a Half Century from Now. Retrieved from https://www.census.gov/newsroom/releases/archives/population/cb12-243.html

U.S. Census Bureau (2010). Statistical abstract of the United States, Table 761. Washington, D.C.: US Government Printing Office

U.S. Department of Defense (2010). Army health promotion, risk reduction, suicide prevention: Report 2010. *Washington, DC: Department of Defense*.

Ungemack, J.A. & Guarnaccia, P.J. (1998). Suicidal Ideation and Suicide Attempts among Mexican Americans, Puerto Ricans and Cuban Americans. *Transcultural Psychiatry, 35*(2), 307-327.

Van Orden, K. A., Lynam, M. E., Hollar, D., & Joiner Jr, T. E. (2006). Perceived burdensomeness as an indicator of suicidal symptoms. *Cognitive Therapy and Research*, *30*(4), 457-467.

Van Orden, K. A., Witte, T. K., Cukrowicz, K. C., Braithwaite, S. R., Selby, E. A., & Joiner Jr., T. E. (2010). The interpersonal theory of suicide. *Psychological Review*, *117*(2), 575–600.

Van Orden, K. A., Witte, T. K., Gordon, K. H., Bender, T. W., & Joiner Jr, T. E. (2008). Suicidal desire and the capability for suicide: tests of the interpersonal-psychological theory of suicidal behavior among adults. *Journal of consulting and clinical psychology*, *76*(1), 72.

Värnik, P. (2012). Suicide in the World. *International Journal of Environmental Research and Public Health*, *9*(3), 760–771.

Vega, W. A., Alderete, E., Kolody, B., & Aguilar-Gaxiola, S. (1998). Illicit drug use among Mexicans and Mexican Americans in California: the effects of gender and acculturation. *Addiction (Abingdon, England)*, *93*(12), 1839–1850.

Veling, W., Susser, E., van Os, J., Mackenbach, J. P., Selten, J.-P., & Hoek, H. W. (2008). Ethnic Density of Neighborhoods and Incidence of Psychotic Disorders Among Immigrants. *American Journal of Psychiatry*, *165*(1), 66–73.

Wadsworth, T., & Kubrin, C. E. (2007). Hispanic Suicide in U.S. Metropolitan Areas: Examining the Effects of Immigration, Assimilation, Affluence, and Disadvantage. *American Journal of Sociology*, *112*(6), 1848–1885.

Wagner, F. A., Gallo, J. J., & Delva, J. (1999). Depression in late life: a hidden public health problem for Mexico? *Salud Pública de México*, *41*(3), 189–202.

Weaver, J., & Wright, D. (2008). *Histories of Suicide: International Perspectives on Self-Destruction in the Modern World* (1st edition). Toronto: University of Toronto Press, Scholarly Publishing Division.

Wei, K. C., & Chua, H. C. (2008a). Suicide in Asia. *International Review of Psychiatry*, *20*(5), 434–440.

Wilburn, V. R., & Smith, D. E. (2005). Stress, self-esteem, and suicidal ideation in late adolescents. *Adolescence*, *40*(157), 33–45.

Williams, K. L., & Galliher, R. V. (2006). Predicting Depression and Self–Esteem from Social Connectedness, Support, and Competence. *Journal of Social and Clinical Psychology*, *25*(8), 855–874.

Wong, Y. J., Brownson, C., & Schwing, A. E. (2011). Risk and Protective Factors Associated With Asian American Students' Suicidal Ideation: A Multicampus, National Study. *Journal of College Student Development*, *52*(4), 396–408.

Wong, Y. J., Koo, K., Tran, K. K., Chiu, Y.-C., & Mok, Y. (2011). Asian American college students' suicide ideation: A mixed-methods study. *Journal of Counseling Psychology*, *58*(2), 197–209.

Wong, Y. J., & Maffini, C. S. (2011). Predictors of Asian American Adolescents' Suicide Attempts: A Latent Class Regression Analysis. *Journal of Youth and Adolescence*, *40*(11), 1453–1464.

Wong, Y. J., & Poon, M. L. (2010). Counseling Asian American men who demonstrate suicidal behavior. *Culturally responsive counseling with Asian American men*, 279-298.

Yang, B., & Clum, G. A. (1994). Life Stress, Social Support, and Problem-Solving Skills Predictive of Depressive Symptoms, Hopelessness, and Suicide Ideation in an Asian Student Population: A Test of a Model. *Suicide and Life-Threatening Behavior*, *24*(2), 127–139.

Yen, S., & Siegler, I. C. (2003). Self-Blame, Social Introversion, and Male Suicides: Prospective Data from a Longitudinal Study. *Archives of Suicide Research*, *7*(1), 17–27.

Ystgaard, M., Hestetun, I., Loeb, M., & Mehlum, L. (2004). Is there a specific relationship between childhood sexual and physical abuse and repeated suicidal behavior?. *Child abuse & neglect*, *28*(8), 863-875.

Zane, N., & Mak, W. (2003). Major approaches to the measurement of acculturation among ethnic minority populations: A content analysis and an alternative empirical strategy. In

K. M. Chun, P. Balls, & G. Mar (Eds.), *Acculturation: Advances in theory, measurement, and applied research*

Zayas, L. H., Lester, R. J., Cabassa, L. J., & Fortuna, L. R. (2005a). Why Do So Many Latina Teens Attempt Suicide? A Conceptual Model for Research. *American Journal of Orthopsychiatry*, *75*(2), 275–287.

Zentella, A. C. (2002). Latin@ languages and identities. *Latinos: Remaking America*, 321-338.