

LIMITED ENGLISH LANGUAGE PROFICIENCY AND ACCESS TO HEALTH CARE
AMONG U.S. LATINOS

By

KARL SLAZINSKI

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To my family, for their continued support and love—
Also, to my colleagues and professors, for their challenges and endless enthusiasm
for debate and discussion

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LIST OF ABBREVIATIONS

BRFSS	The Behavioral Risk Factor Surveillance System, run by the Centers for Disease Control and Prevention. It consists of data aggregated from a phone survey conducted by all states and territories of the United States.
CDC	Center for Disease Control and Prevention, operated by the United States government in an effort to promote public health and decrease the prevalence and/or impact of infectious disease.
HIV	Human Immunodeficiency Virus, a retrovirus that can lead to Acquired Immunodeficiency Syndrome (AIDS), a condition in humans in which the immune system begins to fail, leading to life-threatening opportunistic infections.
HMO	Health maintenance organization, a type of managed care organization that provides a form of health care coverage in the United States that is fulfilled through hospitals, doctors, and other providers with which the HMO has a contract.
LEP	Limited English Proficiency, as defined by either the respondent or a third-party observing the individual. In this paper, LEP means that the individual is not comfortable communicating more than a few sentences in English.
OLS	Ordinary Least Squares, also known as regression analysis, is used to model numerical data obtained from observations by adjusting the parameters of a model so as to get an optimal fit of the data.
PPO	Preferred Provider Organization, a type of managed care organization that provides a form of health care coverage that is less restrictive than the HMO. A PPO does not require a primary care physician to prescribe specialized medical services.
SES	Socioeconomic status, a measure of not only the economic but the social conditions in which individuals and families live. Class comes into the analysis, which takes into account more measures than solely traditional economic variables.
SLVR	Spanish language response variable, a pre-survey variable compiled from Spanish and English speakers' responses to normal, everyday experiences. This accounts for any language-related variation among rating schema.

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Karl Slazinski

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Numerous case studies deal with the effects of immigration status and race on access to health insurance among the Hispanic populations in the United States. However, few of them deal with English language proficiency as the main causal variable. Thus, the main objective of this study is to determine if Limited English Proficiency (LEP) is the primary or a contributing variable in determining health insurance status.

The method I use to determine the effect of being an LEP Latino versus an English-speaking Latino on health insurance rates is logistic regression. The data are provided by the CDC in the form of the Behavioral Risk Factor Surveillance System. The BRFSS is the largest, ongoing, random-digit-dial telephone survey of health status and access in the United States, Puerto Rico, and Guam. It randomly selects from the population of noninstitutionalized adults 18 years of age and older. The weighted sample controls for multiple phone lines and non-response biases. Included in the sample were 18,147 mainland Latino individuals, 21,368 mainland and Puerto Rican Latino individuals and 275,491 white individuals. Respondents were permitted to answer the questions in English or Spanish. For the purposes of this study, I used the question of language choice as a proxy for dominant language. The individuals who chose to respond in Spanish were classified as people who were limited English proficient. Logistic

regression analyses were performed to determine if, after controlling for years of education, sex, age, and income, English language proficiency still accounted for a substantial effect on health plan enrollment.

The results showed that mainland and all Latinos who responded in English were 2.682 and 1.446 times more likely to have health insurance, respectively. Therefore, the logistic regression shows that English language proficiency is one factor in determining if Latinos have access to health insurance.

CHAPTER 1 INTRODUCTION

The existence of health inequalities between whites and Latinos is well documented. In 2002, Hispanic or Latino individuals constituted 13.3% of the United States' population, with nearly 28.1% of all Latinos living at or under the poverty line (Garcés et al. 2006:377). Of those individuals under sixty-five years of age, 11% of non-Hispanic whites are uninsured, while 32% of Latinos are uninsured (Garcés et al. 2006:377-378). Moreover, about half of those African-Americans or Latinos with insurance are covered only by Medicaid, compared with only one in five whites (Nickens 1991:27). Nearly 35% of Latinos are foreign born, 67% (25,074,000) are from Mexico (Garcés et al. 2006:377-378), and a quarter of Latinos speak little or no English (Pérez-Stable 1987:213). Speaking English appears to correlate to larger rates of health insurance access. Immigration status seems to also play a role in whether or not Latinos have health insurance. Furthermore, having health insurance appears to be the single most important predictor of having access to quality health care and preventive services.

However, while poverty rates for Latinos and African-Americans are somewhat similar at approximately 28.1% and 32.6% (Kerner et al. 1993:357), respectively, Latinos are better off health-wise—earning the Latino minority the dubious title of the “epidemiologic paradox” (Nickens 1991:27-29). The epidemiologic paradox states that while Latinos are generally as poor and have similar educational attainment profiles as African-Americans, health among Latinos is generally better. The majority of the Latino population suffers from less chronic and degenerative diseases than African-Americans, which seems counterintuitive. As observed by Dressler et al. (2005:233) in their review of the literature that established the acknowledgement of health disparities between whites and minorities, there are a set of diseases that seem to account for most of the racial or ethnic disparities in mortality: hypertension, HIV, diabetes, and

homicide are prevalent at much higher rates in minorities than in whites. However, the role of English language proficiency among Latinos in determining their health insurance access has been overlooked in much of the literature. To this end, in Chapter 2 I will explore the relevant literature on health inequities between whites and Latinos, particularly those relating to language barriers to health insurance access, which compromise health care utilization.

Who are U.S. Latinos?

Latino as a term was adopted by the United States government in 1997 to be an ethnonym for Hispanic individuals. According to definition, Latino refers to any individual who is either: a Spanish speaker or person belonging to a household where Spanish was spoken; a person with Spanish heritage by birth location; and/or a person who self-identifies with Spanish ancestry or descent. While many use “Hispanic” and “Latino” interchangeably, scholars maintain a distinction between the terms. Hispanic comes from the Latin word for Spain, and thereby potentially encompasses all Spanish-speaking peoples in both hemispheres. The term Hispanic also emphasizes the common denominator of language and in effect removes cultural differences from the identity. Latino, which is most likely a shortening of the word *latinoamericano*, refers more exclusively to persons or communities of Latin American origin. However, to most English speakers and indeed to a majority of “Latino” groups, Latino means any person who is of Spanish ancestry who now resides in the United States.

In my thesis, I will be using Hispanic and Latino interchangeably. This is due to the nature of the data I am using, which was collected using the census definitions for ethnicity/race. However, my preferred and most frequently used term is Latino, referring to the nature of an individual’s Spanish-ancestry who maintains a domicile in the United States.

Importantly, each group of Latinos has a specific history and relationship to the United States. They have different legal statuses, levels of integration, and motives for being here.

Mexican-Americans primarily reside in Chicago and the Southwest—in California, Arizona, Texas, and surrounding areas. Puerto Ricans reside on the island of Puerto Rico, in New York City—especially in *El Barrio*, and more recently have expanded the diaspora to Orlando, Florida. Cubans who left the island relocated principally to South Florida, particularly in Miami. More recently, this group has expanded throughout Florida into Tampa and Orlando (González 2000:86-87). Dominicans and other Latin American groups have been increasingly moving into the traditional enclave communities that each subgroup have founded and nurtured.

The term “Chicano”—or Mexican-American—originally developed as a self-designated identity for a subgroup in Chicago. The term spread into the Southwest where many Mexican-Americans live, and now it is widely recognized by Mexican-Americans as an umbrella term. They also are, by far, the largest Spanish speaking minority group in the United States. When Texas was annexed in 1845 through the signing of the Treaty of Guadalupe-Hidalgo, the Mexicans who were already living there became the first Mexican-American citizens. This act established the long-standing relationship between the United States and Mexico, with the border crossing their land and separating them from Mexico (González 2000:105-106). Later, a migrant worker program called the *Bracero* Program allowed Mexicans to come into the United States to work temporarily in agriculture. The El Paso Herald Post (1956:1A-5A) printed that, “More than 80,000 Braceros pass through the El Paso Center annually. They’re part of an army of 350,000 or more that marches across the border each year to help plant, cultivate, and harvest cotton and other crops throughout the United States.” This program established the trend of the U.S. importing a seasonal, low-wage agricultural labor supply from Mexico.

Along with Chicanos, Puerto Ricans also have a lengthy relationship with the United States. The island of Puerto Rico, along with the Philippines and Guam, was acquired at the end

of the Spanish-American War in 1898 through the signing of the Treaty of Paris. Puerto Ricans began to move into the United States seeking work, motivated by the Puerto Rican government and Operation Bootstrap. Operation Bootstrap was created as a means to make Puerto Rico less dependent on sugar production and to increase the tax base by enticing corporations and manufacturing to the island. It also encouraged migration off the island, thereby shunting the amount of needed social services to the mainland (González 2000:246-249). This allowed the island to become increasingly industrialized, shifting labor from the traditional agrarian society to an urban one. As Puerto Ricans left the island, they frequently travelled and settled in New York in what became known as Spanish Harlem, simultaneously and inadvertently founding an ethnic sub-group called the Nuyoricans. As a commonwealth, the relationship the island has to the United States government is exceptional among Latino groups. Puerto Ricans do not have the same traumatic experience of immigrating either legally or illegally into the country. Nonetheless, this is not to say that their experience and cultural transition is not painful and jarring, especially considering the racial typing and discrimination they encountered upon arriving (González 2000:250-257). While it is debated among scholars whether Island Puerto Ricans are Latinos or not, I include them in the umbrella term of “Latino.” This is because the United States Census Bureau defines a Latino as, “A person of Cuban, Mexican, Puerto Rican, South or Central American, or other Spanish culture or origin regardless of race (2001:1-2). Nonetheless, to address these scholarly concerns, I perform an analysis on the Latino/Hispanic populations as both separate and aggregate groups.

Another large group in the United States is the Cuban-American population. The United States government has had a turbulent history with Cuba. While investment in Cuba was over \$1.24 billion in 1924, after Castro took power in 1959, the United States steadily was pushed out

of the country through land expropriation, culminating in a communist government, the United States ceased trade with Cuba. However, the Cuban Airlift that ended in 1973 provided guaranteed asylum to 260,561 Cuban political refugees. Moreover, the Catholic Church, and later the U.S. government, helped them acculturate through providing English language courses and loans to start their own small businesses. Later, the Mariel Boatlift and the *Balsero* Rafter Movement allowed many immigrants—legal and otherwise—to enter the United States (González 2000:108-116).

Each of these subgroups has its own cultural background and unique history relating to the United States. These experiences may contribute to differences in English language abilities and cultural norms for seeking out medical care and insurance.

Definitions of English Language Proficiency

Language proficiency is difficult to measure or classify. The four areas usually used to determine an individual's level of language proficiency are: listening, reading, writing, and speaking. Quantifying constructs and capturing the level of proficiency is difficult. The literature contains numerous definitions for labeling certain levels of language fluency. Accordingly, each author of the studies I use in Chapter 1 and 2 has chosen to use their own definition(s) of English language proficiency. Proficiency and fluency is also used interchangeably throughout. In each case, I have maintained the original author's terminology. Monolingual, English or Spanish dominant, academic language proficient versus conversational proficiency, and Limited English Proficient (LEP) are some of the terms used by these authors. In this study, I understand that people are in different stages of acquiring English proficiency, but have are not fully proficient. After reviewing these studies, LEP individuals are not proficient enough to hold a conversation in a specialized, highly-demanding context. However, LEP is a

government term that is not widely used in the field, and is usually considered by scholars to be pejorative.

In an effort to clarify the different levels of foreign or second language proficiency, I use the Interagency Language Roundtable (ILR) scale. It is a set of descriptions of abilities to communicate in a language originally developed by the United States Foreign Service Institute. It is commonly known as the FSI scale, and contains five levels of fluency. It was last updated in 1998, and has existed since 1984. There are many other systems used to determine levels of proficiency by individual authors, schools of thought, and even particular state school boards. However, it is arguably the most consistent and well-known of these scales, and therefore can give a broad understanding of the commonly accepted different levels of fluency (Higgs 1984:217).

The first level is S-1, or Elementary Proficiency. It is characterized by the ability to satisfy routine travel needs and minimum courtesy requirements; can ask and answer questions on very familiar topics, within the scope of very limited language experience; can understand simple questions and statements, allowing for slowed speech, repetition, or paraphrasing; and has a speaking vocabulary which is inadequate to express anything but the most elementary of needs, making frequent errors in pronunciation and grammar, but can be understood by a native speaker.

Level two, or S-2, is Limited Working Proficiency. It is characterized by the ability to satisfy routine social demands and limited work requirements; can handle with confidence, but not facility, most social situations including introductions and casual conversations about current events, as well as work, family, and autobiographical information; can handle limited work requirements, needing help in handling any complications or difficulties; can get the gist of most

conversations on non-technical subject, and has a speaking vocabulary sufficient to respond simply with some circumlocutions; has an accent which, though often quite faulty, is intelligible; and can usually handle elementary constructions quite accurately but does not have thorough or confident control of grammar.

Level three is Professional Working Proficiency, and is demonstrated through the ability to speak the language with sufficient structural accuracy and vocabulary to participate effectively in most formal and informal conversations on practical, social and professional topics; can discuss particular interests and special fields of competence with reasonable ease; has comprehension which is quite complete for a normal rate of speech; has a general vocabulary which is broad enough that he or she rarely has to grope for a word; and has an accent which may be obviously foreign, but has a good control of grammar and whose errors virtually never interfere with understand or disturb the native speaker.

S-4 is Full Professional Proficiency, and is able to use the language fluently and accurately on all levels normally pertinent to professional needs; can understand and participate in any conversations within the range of own personal and professional experience with a high degree of fluency and precision of vocabulary; would rarely be taken for a native speaker, but can respond appropriately even in an unfamiliar situation; makes quite rare and unpatterned errors of pronunciation and grammar; and can handle interpreting informally from and into the language.

The fifth level is native or bilingual proficiency. It is characterized by a speaking proficiency equivalent to that of an educated native speaker; and has complete fluency in the language, such that speech on all levels is fully accepted by native educated speakers in all of its

features, including breadth of vocabulary and idiom, colloquialisms, and pertinent cultural references.

Choosing to take a questionnaire in Spanish rather than English does not necessarily indicate actual language ability level. The individual could have chosen to take the survey in Spanish simply because it was offered or because he/she was not familiar with the specialized English terminology associated with medical care. Thus, due to the level of technical language used when describing health care and access to insurance and medical care, I believe that LEP refers to a certain level of day-to-day fluency without mastery of technical, specialized language. Therefore, while the respondent may be able to navigate his/her daily life in English, Spanish may remain the dominant language, and he/she may not have a high level of specialized language acquisition. Relating this to the ILR scales, LEP could encompass an individual from S-1 to S-3. However, I consider most individuals who are capable of S-4 or above English proficiency may feel comfortable to respond to the oral questionnaire in English. Therefore, in this study, LEP refers to individuals characterized by S-1 to S-3 proficiency in English and who would not normally be able to complete the survey without interpreter or aid of a dictionary.

CHAPTER 2 LEP AND INSURANCE ENROLLMENT

Theoretical Framework

In this review of the literature, I attempt to answer the question: Are Latinos enrolled in health insurance programs at a lower rate than whites due to limited English language proficiency? Understanding the causes of Latino underutilization and lack of access to health insurance and medical services is a difficult task. While there have been many proposed explanatory models—the racial-genetic model, health-behavior model, and socioeconomic status model—the most promising one seems to be the social structural model. Dressler et al. (2005:231-237) states that the social structure model needs to be revised to reflect two distinct frameworks that better explore minority health inequalities.

In updating this model, Dressler et al. have identified the psychosocial stress model and the structural-constructivist model. The psychosocial stress model explicitly attempts to include the biological pathways along which perceived discrimination and stress from not being a part of the dominant social group may result in unequal and negative health outcomes. The structural-constructivist model proposes that social, psychological, and biological processes take place at the intersection between external superstructures and the social relationships in which individuals are embedded. The constructivist perspective refers to a socially-amalgamated, shared understanding of the reality of life. Without these models, it is impossible to accurately evaluate the mechanisms through which ethnic health inequalities may occur.

The first salient argument is one that falls under the socioeconomic status model for understanding ethnic disparities in health outcomes. Without being able to speak English, Latino immigrants and Latinos who maintain Spanish as their primary language through community and home monolingualism are at a severe disadvantage in their possible earning power. Without

speaking English fluently and being able to, at the very least, graduate from high school, Latinos are less likely to earn enough money to be able to afford health insurance plans while supporting their households (Dressler et al. 2005:237-239). Moreover, undocumented Latino immigrants are de facto not able to enroll in any such plan regardless of their desire to, simply because of their illegal status.

The second argument consists of a structural-constructivist mode of questioning, considering that English is the dominant language in the United States. Spanish speakers, even when they have access to medical care and insurance, may be more likely to be dissatisfied with their health care experiences. The structural-constructivist model attributes this to the combination of cultural and language barriers between monolingual Spanish speakers and their English-speaking doctors and medical staff. Latinos responding in English experience cultural barriers but not severe language barriers, leading to their relative satisfaction level being intermediary between whites responding in English and Latinos responding in Spanish (Dressler et al. 2005:239-243). Latinos responding in Spanish frequently face cultural and language barriers to communication, which may make them most at risk to be the most dissatisfied with their health care.

Interpreter Use

Interpreters Mitigating Language Proficiency Effects

Jacobs et al. (2004:866-869) examined the costs and benefits of professional interpreter use among Spanish speakers in four hospitals in Massachusetts. Because most persons who do not speak English well are provided no interpreter services, they do not receive needed or quality health care. Reliance on ad hoc untrained interpreters, such as friends, family members, children, or non-clinical employees, who have very little technical knowledge, is shown to have negative health consequences rather than positive effects. To create a cost-benefit analysis, the

authors of the study created a group that utilized an interpreter at all hospital visits for one year, while comparing them to a control group. The authors found that while the cost for providing interpreter services significantly increased the cost per person for treatment in the interpreter group, it also was followed by increases in preventive care visits, number of physician visits, and utilization of prescription drugs. This indicates that the limited English speakers' access to care was enhanced by the interpreter services at a moderate cost, which was then associated with better health outcomes. The authors of the study concluded that the cost was justified in relation to normal reimbursement procedures during the years of their study, and note that the increase in preventive care utilization may very well save money in the long run. Thus, according to this argument, Latinos with limited English language proficiency are being structurally excluded from receiving effective, quality health care, even when they are enrolled in a health insurance plan. This, in turn, may lead to higher rates of preventable disease and health consequences, leading to higher insurance company costs in the long term.

Satisfaction and Cultural Concordance

In a related article by Morales et al. (1999:409-417), the authors investigated how satisfied Latinos are with the communication they receive from their health care providers. The objective of their study was to determine if Latinos who respond in Spanish or English will be more or less likely to be satisfied in comparison with English-speaking whites. The authors controlled for not only the normal socioeconomic and demographic variables, but also a Spanish language response variable (SLVR). The SLVR statistically controls for differences in ratings between Spanish and English language respondents attributable to linguistic and cultural differences in using the response scale alone without any other mitigating reference source. The study found results that would generally satisfy the socioeconomic model's viewpoint, with Spanish-speaking Latinos reporting lower educational attainment, lower annual income, larger

family size, younger mean age, fewer mean number of co-morbid conditions, lower private health insurance coverage enrollment, the highest rates of reporting no insurance, and more likely to be married. Moreover, there were no statistically significant differences in physical and mental health indices reported across the groups, although Spanish-speaking Latinos reported the fewest number of health conditions. This aspect of Spanish-speaking Latinos' demographics could be attributable to a high number of undiagnosed conditions, especially when taking into account the fact that they are more dissatisfied than the other study groups with their health care provider's communication.

Ultimately, the Morales' study found that Spanish-speaking Latino respondents were significantly more dissatisfied with provider communications than English-speaking Latinos and white respondents. Greater barriers between social class and subsequent difficulties in health care provider's ability to relate to the patient may at least partially account for this disparity in satisfaction with communication. The language-related communication barrier is important on many levels. First, it establishes that Spanish-speaking Latinos seem to perceive their health care provider's communication as less than satisfactory, either because they are in fact receiving sub-par care, there is an interpreter-related problem, or the patients have different expectations than an United States-born, English-speaking individual. Secondly, Spanish-speaking Latinos' health outcomes may be affected because the doctor may order excessive tests attempting to diagnose the patients' condition(s) without a proper history, or the patients may inadvertently misuse their prescribed treatments, thereby becoming accidentally noncompliant. Many of the proposed solutions to this communication-based problem are that providing professional interpreters or bilingual doctors with adequate fluency in both languages helps facilitate better patient understanding of their disease and the necessary treatment regimen. However, the study

conducted by Morales et al. (1999) dealt only with Mexican-Americans, thereby making the applicability of inferred generalizations for all Latino groups from its results suspect.

Institutional Discrimination Resulting from Lack of Communication

Going beyond the simple use and cost-benefit analysis of utilizing interpreters, Sarver and Baker (2000:256-264) seek to determine whether patients who encountered language barriers during an emergency department visit were less likely to be referred for a follow-up appointment, less likely to be aware that such an appointment had been scheduled and/or less likely to actually attend that recommended appointment. One major difference in this study from the others is that the respondents were asked whether an interpreter was used and if the respondent thought that he/she should have used one or not. If used, the interpreter's relationship to the patient was determined. The study found that language-concordant patient-doctor combinations were more likely to discharge with a follow-up appointment scheduled, as well as the patient being more compliant. This is contrasted with both alternative circumstances, where an interpreter was used, and the patient stating that they should have used an interpreter when one was not utilized. However, nearly all the groups were aware of their scheduled appointments, with only minor differences being attributable to the location of the appointment being different than the emergency department. This was not due to a miscommunication, but to the lack of comprehensive communication available to both patients and health care providers. Because the medical personnel could not effectively communicate, they could not accurately relay the location of the follow up visit to their patient. Therefore, this seems to at least partially debunk the idea that patient compliance will be enhanced by proper interpreter use or culturally- and language-concordant medical staff being used. However, it is obvious that to increase overall patient-doctor satisfaction and the highest rates of compliance possible, professionally-trained interpreters should be used whenever possible.

Sarver and Baker (2000) suggested that possible explanations for the differences in follow-up referrals for non-English speaking Latinos could be due to physician perception of the patients' lack of compliance due to poverty or language barriers. Physicians may also have an incomplete understanding of the problems being suffered by their patients and therefore may believe that a follow-up appointment is not necessary. Doctors may also be struggling with other aspects of their care plan, with the strain to communicate effectively making care providers liable to not refer the patient for a follow-up appointment. The overarching benefits of concordant staff and/or properly trained interpreters remain compelling and well supported by the literature and this article in particular.

The socioeconomic barrier seems to be refuted by Sarver and Baker's study (2000), with Ordinary Least Squares regression models showing that there were no statistically significant differences between the three study groups (English-speaking whites, English-speaking Latinos, and Spanish-speaking Latinos) in compliance with follow-up visits, as long as the individuals are aware of the appointment at the time of discharge. However, another possible explanation could be that the passage of Proposition 187 in the area that this study was conducted had created an anti-Spanish-speaker bias. The Proposition mandates that all California hospitals refuse treatment to undocumented immigrants, and that they be reported to government officials, possibly engendering a racist attitude in the population being surveyed. Sarver and Baker pose these questions for further research, stating, "Further studies are required to determine if Latino patients are less likely to receive other types of medical care; whether care patterns differ because of communication barriers, lack of cultural awareness, or patient behaviors; and whether these differences can be reduced through programs that increase the availability of properly-trained interpreters and teaching physicians how to handle cultural and linguistic barriers to care"

(2000:264). Their study raises important questions about why Latinos are treated differently than whites and if this inequality is due to limited English language proficiency.

Patient Assessment of Care: Differing Expectations

Intrinsic to providing quality health care—more than simply providing interpreter services—is having health care providers who are culturally aware (Pérez-Stable 1987:216-217). For example, *personalismo*, or “polite friendliness,” is considered a staple mode of interaction for Latino patients with their doctor. Moreover, a level of *dignidad*, or the dignity and decorum of the patient-doctor relationship, is expected, and the rapport can quickly dissolve if this is overlooked. Part of cultural awareness is either being bilingual to the extent of being able to communicate well and accurately, correctly choosing an interpreter if a professional is not available, and/or also physically situating yourself in a way that will allow the interpreter to translate without obstructing patient-doctor eye contact and body language/.contact exchange.

According to Hubbell et al., Latinos are less likely than any other ethnic group to have health insurance (1991:414-417). In the Dr. Robert Wood Johnson Foundation national telephone survey in 1986, blacks were twice as likely as Latinos to have health insurance, and whites were three times as likely. These statistics are surprising considering that blacks and Latinos are both minorities that have long-standing histories within the United States. One would think that they should be at similar levels of incorporation and reflect similar health inequalities (at least for some Latino groups). However, according to Hubbell et al., 38% of Latinos and 60% of undocumented Latinos reported not having health insurance (1991:417). Hubbell et al. also reported deficiencies greater than blacks in other important measures of access to health care, such as having a regular source of care or at least one office visit a year (1991:417-418). Something distinct still occurs within Latino populations that restricts access to health insurance and medical care, which may be related to limited English language proficiency.

While the article by Hubbell et al. does not specifically address the issue of English language proficiency, the survey was administered by specially-trained, bilingual interviewers from the University of California, Irvine. The respondents were given the choice of taking the survey in English or Spanish. This effectively limits the applicability of the survey's findings on the structural impediments of mono-linguistic health insurance systems in the United States influencing Latinos' access to medical care.

Patient assessments of health care are linked to service utilization, the decision to switch health plans, and treatment compliance. Therefore, it is important to accurately assess Latino trust in the health care systems. To this end, Hunt et al. (2005:555-558) constructed "trust" indices and conducted a telephone survey in both English and Spanish, attempting to use the data to show relative trust levels. The subjects' trust in their health care providers varied widely on an individual basis, and Spanish-speaking Latinos had the lowest overall trust compared to whites, English-speaking Latinos, and African-Americans. One possible reason behind the lower levels of trust exhibited by minorities is that they are disproportionately enrolled in more restrictive health care plans than are whites, thereby accounting for some of the heretofore racially-attributed variance in trust. More restrictive health plans include HMOs and PPOs, where access to primary care physicians is dictated by the company's participation with medical care providers, and all specialist visits must first be prescribed by a primary care provider. These plans are also associated with high deductibles and co-pay fees, raising the overall cost of care when added to the plans' enrollment costs. Ordinary Least Squares regression revealed a correlation between restrictiveness of the insurance policy and trust in the health care provider on a case-by-case basis, but these trends break down when looked at across race lines. There are variables in the survey that confounds the evidence that perhaps there is a structural or perceived

social cause that makes non-English speakers distrust the health care system, or to have a less satisfying health care situation. However, it may be that more restrictive plans further exacerbate the prevalent problems of language and cultural barriers and tie the hands of the providers to give the best possible care—thereby resulting in Latinos' lower trust in the health care system.

Discontinuity of Care Leads to Health Inequalities

Discontinuity of care is associated with lower levels of access to health care and health insurance, as well as negative health outcomes. Doescher et al. (2001:78-89) show that the site where care is administered is critical to the continuity of care with the same doctor and with regular follow-up and preventive care visits. Having a sustained relationship with a doctor is considered to be a core component of quality primary care and preventive medicine; improves compliance; reduces number and duration of hospital admissions; reduces the use of primary care resources; and increases patient and provider satisfaction. Therefore, it makes sense that insurance companies, policymakers, health care providers, and the patient would all perhaps wish to create a rapport which results in a lasting relationship. In this particular survey, Spanish-speaking Hispanics were most likely to reside in low-income areas, be non-smokers, be less educated, and lack insurance coverage. They were also unlikely to identify a regular site of care, thereby signaling that they were suffering from an exacerbated health inequality. Moreover, the study found that non-English-speaking Latinos were disproportionately more likely to be seen at a clinic or hospital, thereby making it impossible to see one doctor consistently. High turnover rates among trained physicians working in health centers and physicians-in-training in hospital clinics account for some of the provider discontinuity based on site of treatment. There remain inequities based on structural barriers likely created by language differences between patients and health care providers.

Morales et al. discovered that when working with HIV patients, having health insurance was not statistically correlated to English language proficiency (2004:1119-1121). This result surprised the study authors, with weak associations between access to care and acculturation indices, survey language, and citizenship status. The authors cite the possibility of under-representation of Hispanics in the portion of the survey which consisted of patients who have no insurance or are incarcerated and therefore did not receive care for their HIV infection. There are several alternative explanations. For one, most HIV patient will quickly establish a primary care physician/specialist who may adequately address their needs. Secondly, community organizations, if not family members or friends, are more likely to provide interpreter services for non-English speakers. Thirdly, there are many community-based groups that seek to help HIV sufferers who do not have access to health insurance or their medicines because of the prohibitive costs associated with them. This support structure could very well provide a network of continuity of care and mitigate the effects that lack of English language proficiency normally would have on individuals suffering this particular disease.

Undocumented Status Affects Health Care Access

The effects of language barriers and undocumented status are again seen in the study performed by Granados et al. (2001:1806-1807). The rationale for the study was that Latinos constitute approximately 8% of the US population and nearly 25% of Latino children in the US are not covered. The study surveyed a predominantly Latino community and broke the respondents down into three categories: both parents were United States-born, one parent was United States-born, and both parents were foreign-born. Language was strongly associated with the child having or not having insurance, but was also a confounding factor associated with nation of origin.

Findings showed that United States-born children with two immigrant parents were more than twice as likely as mixed-citizenship homes to not have health insurance, with their lack of access being six times more likely than United States-born children with United States-born parents. This could be explained by the fact that immigrants were forced into low-paying jobs without fringe benefits such as insurance access due to their low educational attainment, or it could be viewed as immigrant status being associated, in some cases, with undocumented status. Therefore, it would be unlikely for undocumented parents to provide health insurance to their children even if they can afford to do so, leading to intergenerational transfer and compounding of health inequalities through Geronimus' "weathering" mechanisms (1992:207-218).

The "weathering" mechanism is a manner in which the ramifications of socially-constructed concepts of race and inherent genetic difference based on superficial appearance are transmuted into biological and chemical changes. This is most clearly demonstrated through the womb environment. If a woman is malnourished or not properly educated on eating a healthful diet all her life, and especially during pregnancy, her womb will be a subpar environment compared to higher SES women (Geronimus 1992:210-218). Now her child will most likely grow up in a similar low-SES environment, and will have a comparatively more sub-optimal womb environment for her children. This cycle continues, constantly exacerbating the gap between the poor and rich individuals. The Granados et al. 2001 study's implications will, in effect, begin to remedy this intergenerational transfer of inequality.

Language at Home and Community Outreach

Flores et al. (2005:418-425) extend prior research by including home language use. The authors state, "Speaking a non-English language at home or having parents who choose to be interviewed in a non-English language are associated with impaired health status, a lower likelihood of having an usual [or no] source of medical care, and impaired access to care for

children with special needs” (2005:419). The study overtly demonstrates that there is an inverse relationship between English language proficiency and insurance enrollment rates: the better the parents report speaking English, the higher the enrollment in a health insurance plan. Moreover, there was a direct “dose response” relationship to parental English language proficiency and private health insurance enrollment, with individuals who speak English “very well” at the top with over a quarter of the respondents enrolled.

Most of the discussion of parental characteristics serves to reinforce the preconceptions that the majority of anthropologists accept of the Latino population. Some of these are the higher the English language proficiency, the more likely they were to graduate from high school, and undocumented or expired visa status was an indicator of lower educational attainment and lower English proficiency, as well as lower income levels. In all analysis models employed by Flores et al., LEP parents were associated with a three hundred percent increase in their offspring having a fair or poor overall health status, and a two hundred percent increase in the odds of the child having to spend at least one day in bed due to illness in the last year (2005:422). Overall, their children were at an elevated risk of not receiving necessary treatment due to cost issues, transportation problems, difficulty making appointments, being uninsured, the medical staff not understanding the family’s culture, and/or the health care facility being inaccessible due to distance.

There seems to be hope in our efforts to address these language and cultural barriers to access to health care and quality preventive medicine. According to Baughman (2007:1-22), Individuals in the Hispanic communities who are exposed to Spanish-language outreach programs are able to recognize when they are eligible for certain public health initiatives even when they did not think they had access before. This is due to a series of laws that were passed

in an effort to “decouple” welfare eligibility from government-sponsored Medicare equivalents in some states. Thus, according to Baughman (2007), once Latinos were aware that even though they were not eligible for welfare or they might have been undocumented, the state would provide their children with enrollment in a health insurance plan for little or no cost to them, they quickly took advantage of it. While there may be language barriers, access to resources in patients’ first language may increase participation in available programs—thereby lessening the impact of Latino-white health inequalities.

Conclusion

Language barriers, cultural impediments, and discrimination are perceived to exist (American Anthropology Association 1996:569-570). We can empirically recognize white-minority health inequalities which need to be addressed. English language proficiency seems to be one of the strongest predictors for health insurance enrollment among Latinos and their children. It also corresponds to a more critical interpretation of their received health care services, if they are accessible in the first place. However, language- and culturally-concordant physicians and medical support staff, or interpreter-facilitated interactions, appear to increase the level of satisfaction as well as reduce miscommunication-caused lapses in compliance with follow-up care and visits. While Latinos have similar socioeconomic profiles to blacks, the challenges that face them are quite different, and some scholars would argue that these barriers are more pronounced due to the language differences creating concrete walls between Latinos, potentially higher-earning jobs and better educational attainment, and health care providers.

Further compounding these difficulties is the radically diverse backgrounds and circumstances surrounding each Latino group’s immigration status. Most of the possible explanations seem to fall in the structural-constructivist mode of understanding the situation, with most of the inequalities occurring because of the lack of interpreter services, lack of English

language proficiency and socioeconomic factors, as well as the dominant governmental agencies controlling which programs Latinos may enroll in, irrespective of immigration status or language ability. However, psychosocial stress models pervade the literature as well, with trust in the health care system and satisfaction with office visits going down as English language proficiency decreases, showing perceived discrimination or perhaps a form of marginalization due to the patients' emergent ability to speak English. One thing is evident: at the confluence of these two phenomena, we see unequal health outcomes that need to be addressed.

CHAPTER 3 DATA AND METHODS

The source of the data used in the subsequent analyses was the Behavioral Risk Factor Surveillance System (BRFSS), a yearly survey conducted throughout the country by each state, and carried out in coordination with the Center for Disease Control and Prevention's (CDC) National Center for Health Statistics. The BRFSS is the world's largest ongoing telephone health survey system, tracking health conditions and risk behaviors of noninstitutionalized adults in the United States since 1984.

The history of the BRFSS reflects the evolution of health-related research. In the early 1980s, studies clearly showed that personal health behaviors played a role in premature morbidity and mortality, yet there were few national-level data sets that addressed this issue. This deficiency represented a critical gap in knowledge for state health agencies whose primary responsibility was reducing behavioral risks and their consequent illnesses. As the significance of personal health behaviors received wider recognition, telephone surveys emerged as an acceptable method for determining the prevalence of many health risk behaviors. Telephone surveys were especially desirable at the state and local levels, where the necessary expertise and resources for conducting area probability sampling for in-person household interviews were not available. The objective was to collect data on actual behaviors, rather than on attitudes or knowledge, that would be especially useful for health policy planning (<http://www.cdc.gov/brfss>).

When sampling weights are used, the BRFSS data can be generalized to the entire population of the United States (including each ethnic/racial group, given that the BRFSS is a random-digit dial sample of all households in the 50 states, Puerto Rico, the District of

Columbia, and Guam). The sampling weights also adjust for households with multiple phone lines and for non-response bias.

To conduct this study, I downloaded the data for 2005 from the BRFSS website as an ASCII file and then imported the data into the Statistical Package for the Social Science (SPSS 15.0). For each variable used in the multivariate analyses, all cases that contained refusal to respond or non-response answers were excluded from the data set. The three groups I analyzed are Hispanic (referred to as Latino), non-Latino whites, and total respondents. The Latino group was analyzed excluding Puerto Ricans who live on the island of Puerto Rico. I excluded them from the data set because all their communication with the insurance providers was in Spanish. Specifically, speaking Spanish on the island of Puerto Rico circumvented the confounding experience of not being able to speak the necessary language to have enrolled in health insurance. Therefore their experience, while valid, was not needed in the regression except to provide a “whole country” look at the experience of *all* individuals of Hispanic origin associated with the United States. However, it was informative to compare island Puerto Ricans to their mainland counterparts. The demographic data and the regression results provided base line comparisons between the two populations, and correspond to the findings reported in Chapter 1 and 2.

Sociodemographic Data

Table 3-1 shows selected sociodemographic characteristics of each population. Central to the analysis is the fact that national rates of medical insurance enrollment are corroborated by the sample in the 2005 BRFSS. Mainland Latinos, at 33% uninsured, were far less likely to have a health plan of some type—either Medicare, Medicaid, an HMO-PPO, or private insurance—than their white counterparts. Moreover, only 59% of mainland Latinos chose to answer the questionnaire in English, while 100% of Non-Latino whites chose to do so. Interestingly, the

mainland Latino category did not obviously differ from the Puerto Ricans on the island-inclusive category, “All Latinos.” In the mainland Latino category, there were 18,147 respondents. The mean age was 42.32 years, with an average of 12.47 years of schooling. The mean income range was \$25-35,000. Figure 3-1 shows the distribution of income among mainland Latinos compared to whites. In the aggregate Latino category, 28% reported that they were uninsured, 56% took the questionnaire in English, there were 21,368 respondents, mean age was 43.75 years, average years of schooling was 12.5 years, and the average family income was also \$25-35,000 a year.

In contrast to the Latino population, the Non-Hispanic white category contained 275,491 individuals, with an average age of 51.3 years, and 14.04 years of schooling. The mean income range was \$35-50,000, which is substantially higher than the comparable value among both mainland and island Latinos. The total category combined the two groups in an effort to determine if, controlling for all the socioeconomic and educational inequalities between Latinos and Non-Hispanic whites, there was still a measurable difference in insurance rates associated with English language proficiency. There were 297,777 total respondents, with a mean age of 50.78 years. They had an average education of 13.93 years, 97% took the questionnaire in English, the mean family income range was \$35-50,000, and 88% had a health care plan of some type.

The proportion of the sample that was male is roughly 40% for all groups. This is interesting because it shows that most of the men may have been out of the house when the telephone survey was conducted. If this were the case, the study may have been positively selective for female respondents depending on the time of day the data are collected. Also, mean age was very high in the Non-Hispanic whites category, at 51.3 years. It was similarly possible

that the study positively selected for older respondents, which have traditionally been shown to be more likely to have health insurance. However, the logistic regression statistically controlled for the effects of the potential age disparity.

The educational attainment of Latinos compared to Non-Hispanic whites is found in Figure 3-2. This creates a baseline for the socioeconomic inequalities between the two populations. While mean education for Latinos is 12.47 years, implying that most Latinos graduate high school, the Figure shows otherwise. While 70% of mainland Latinos surveyed have completed high school or higher, roughly 30% of Latinos dropped out before completing 12 years of schooling. Moreover, 9.7% of whites do not graduate from high school. In contrast, Latinos report a rate of 15.4% only completing the 8th grade. This shows a gap in scholastic achievement, compared to only 3.2% of whites. 90.2% of whites complete high school or higher. Moreover, 60% of whites attained at least an associate's degree or equivalent, with 33% completing a bachelor's degree or more.

The marked differences between Non-Hispanic whites' and Latinos' educational attainment is commonly associated with gaps in income, health indicators, and access to health insurance/care. As shown in Figure 3-2, educational disparities are reflected in the measure of combined household income. Here, the magnitude of the differences is even more evident. While the BRFSS does not ask for an exact income amount, it codes income into categories. This is not as useful as an exact mean, but the fact that the average mainland Latino family makes between \$25-35,000 and the average white family makes between \$35-50,000 illustrates a large wage gap that has repercussions in other aspects of life. As the Figure shows, compared to Latinos, almost three times as many white respondents were earned over \$75,000. Approximately 20.6% of white families reported living under the federal poverty line of \$20,200,

while 36.3% of mainland Latinos were also in this category. While lowering poverty rates is important, it appears that these efforts may need to be doubled to benefit the Latino community. Similarly, more than ½ of the Non-Hispanic whites surveyed had incomes \$50,000 or above, while only 22.8% of mainland Latino respondents experienced similar incomes. In fact, the opposite is true: 80% of all mainland Latino respondents fall in the \$35,000 or under categories, with half of them at or below the poverty line.

Detailed descriptions of the methods, design, and operation of the BRFSS are provided on the CDC's website (<http://www.cdc.gov/brfss>).

Variables

The main dependent variable is the respondent's enrollment in any health insurance plan (coded "1" for yes and "0" for no). The exact wording of the question is: "Do you have any kind of health care coverage, including health insurance, prepaid plans such as HMOs, or government plans such as Medicare?" This is a broad, all-encompassing question designed to measure the insured status of each population. If the survey is administered in Spanish, an equivalent version is administered but is not available on the website. In the case of Latinos, approximately 67% responded "Yes," or "Sí," to that question. While many would claim that this is a high proportion, the average age of the sample was also 42.32 years. The literature provides many studies that show a positive correlation between increasing age and having health insurance coverage. Therefore, the results may be positively skewed towards having health insurance.

The results vary according to state of residence. The highest proportion of individuals with health insurance in any of the populations surveyed was recorded in Puerto Rico, where 94.5% of the respondents indicated that they had some form of health coverage. This is in contrast to many areas throughout the United States. While Puerto Rico has a high enrollment

rate, states like Nevada (56.1%) and Texas (55.4%) have exceptionally low rates of enrollment. A possible explanation for the unusually high enrollment in Puerto Rico, even compared to Non-Hispanic whites in the United States, is that the Puerto Rican government sponsors a program called “La Tarjetita,” or the Little Card. La Tarjetita is a state-run form of Medicare for which more than half of the Puerto Rican population qualifies for coverage. In addition, it is important to note that all forms that people have to complete in order to obtain health insurance in Puerto Rico are written in Spanish, thereby facilitating enrollment among that group. Compared with this, only 40.1% of the Latinos from Nevada who chose to take the questionnaire in Spanish had health insurance, compared to 72% of their English speaking counterparts. To illustrate this pattern, Maine has a 91.4% Latino enrollment in health care coverage, but none of these self-identified Latinos took the survey in Spanish. These statistics show us that even before logistic regression, there is a disparity between English and non-English-speaking Latinos’ access to health insurance.

The objective of the multivariate analysis was to test whether the probability of having health insurance is affected by the respondents’ proficiency in the English language. Unfortunately, the BRFSS questionnaire does not include an item that directly measures the ability to speak English, as does the demographic census. Despite this limitation, it is possible to derive a proxy measure, based on the language that the respondent chose to use to respond to the telephone survey. Hence, for the purposes of this study, the primary assumption was that individuals who preferred to answer in Spanish are those who are less proficient in English (compared to individuals who completed the survey in English). The variable is named “Questionnaire Language,” and the description is “Language identifier,” which is coded “1” for English and “0” for Spanish. Normally, this variable would be suspect due to the preferences of

any given individual to use their native language, if provided the option. Put another way, the indicator of English language proficiency does not distinguish among individuals with different levels of ability. In addition, it is possible that some people may have preferred to answer in Spanish, even though they do speak English. These possibilities speak to the validity of the measure of language ability used in this study and indicate potential caveats in the interpretation of the results. However, being described by the CDC as “Language identifier,” it stands to reason that the interviewer identified the primary language of the respondent and provided them with the option to take the survey in Spanish. Since the BRFSS questionnaire uses specialized English and high level medical terminology, it is reasonable to presume that if the individual took the survey in Spanish, it was likely that he or she did not have the level of vocabulary necessary to respond in English. I hypothesized a positive correlation between taking the survey in English and health insurance enrollment.

Other demographic variables used in the regressions were highest educational attainment (quantitative variable), age of the respondent (quantitative variable), gender (dichotomous variable), and combined household income (ordinal variable). Education and age were reported in years, and males were coded “1” (females “0”). Household income was reported in eight different categorical groups (coded 1 to 8), ranging from <10,000 to >75,000. In order to include these categories in the regressions, eight dummy variables were constructed (y1 to y8). By treating each value as a separate category, the regression analysis will show the degree to which the probability of having health insurance is associated with each income level compared to the reference category of <10,000 a year.

As shown in the literature, I expected a positive relationship between higher income and higher probability of enrollment in a health insurance plan. The literature also revealed that as

age and educational attainment increase, so do the rates of insurance coverage in any specific group compared to their younger, less educated counterparts. Gender was included to determine if there were significant differences in insurance enrollment between males and females. I anticipated that males are less likely to be insured compared to females. This expectation was based on the plausible assumption that women, by virtue of their role as mothers, may be more concerned about their health and about covering costs of childbearing and rearing children. Men, on the other hand, especially young men, may be more inclined to forgo a health insurance enrollment in order to save their money.

Statistical Analysis Program

Because the dependent variable is binary, meaning that the variable has only two possible outcomes (the respondent has health insurance, coded “1,” or the respondent does not have health insurance, coded “0”), the appropriate analysis technique is logistic regression. Logistic regression applies the maximum likelihood estimation after transforming the dependent into a logit variable (the natural log of the odds of the dependent variable occurring or not). In this way, logistic regression estimates the odds of a certain event occurring. Note that the logistic regression calculates changes in the log odds of the dependent variable, not changes in the dependent itself as Ordinary Least Squares (OLS) regression does. Logistic regression is analogous to OLS regression: logit coefficients correspond to be coefficients in the logistic regression equation, the standardized logit coefficients correspond to beta weights, and a pseudo R^2 statistic is available to summarize the strength of the relationship. Unlike OLS regression, logistic regression does not assume linearity of relationship between the independent variables and the dependent, does not require normally distributed variables, does not assume homoscedasticity, and in general has less stringent requirements. Logistic regression is also preferred because, in the case of a dichotomous dependent variable (whose variation is limited to

1 and 0), OLS estimates can produce predictions that are higher or lower than the possible values.

Logistic regression tests the impact of each unit change in the independent variables on the probability associated with a unit change of the dependent variable. In the following regressions, the change is from not having a health insurance plan to having one. The main variable being analyzed is the language in which the respondent chose to answer the questionnaire. Those who opted to respond in Spanish are assumed to be less proficient in the use of English. When we focus on the language proficiency variable, the odds ratio ($\text{Exp}(B)$) value shows the increase in the probability of having health insurance that is associated with English competence, net of the effects of the sociodemographic variables included in the equation. For example, if questionnaire language is the primary independent variable, the dependent variable is enrollment in a health plan. The odds ratio is then 1.5. All else being equal, taking the questionnaire in English makes the respondent 1.5 times as likely to have health insurance as compared to a person with all the same characteristics who responded in Spanish.

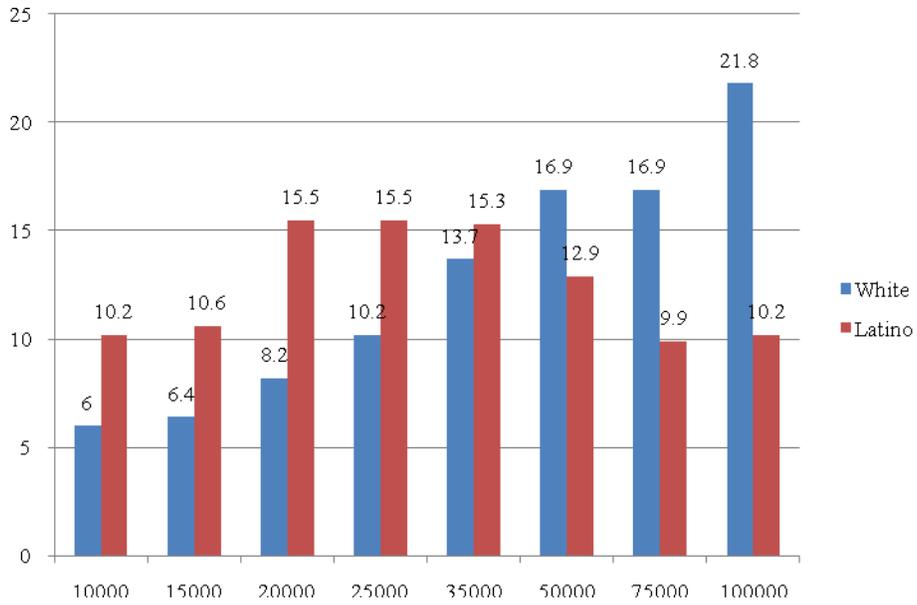


Figure 3-1. Combined Household Income, Dollars (% of Respondents)

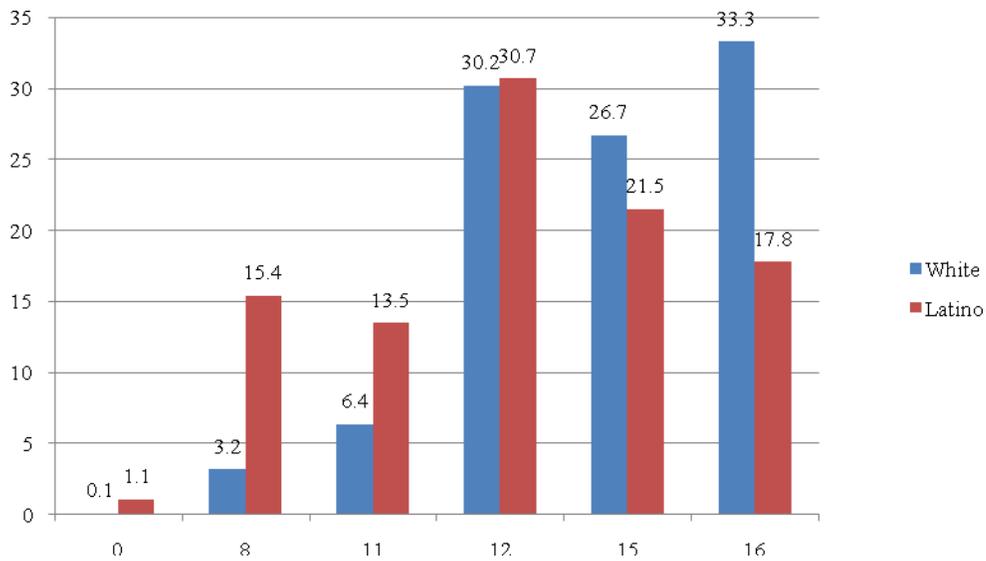


Figure 3-2. Highest Educational Attainment, Years (% of Respondents)

Table 3-1. Description of the Dependent and Independent Variables Used in the Analysis

Variable	Population Subgroups			
	Mainland Latinos	All Latinos	Non-Hispanic whites	Total
Mean age (years)	42.32	43.75	51.3	50.78
Mean education (years)	12.47	12.5	14.04	13.93
Male (%)	40	39	40	40
English questionnaire (%)	59	56	100	97
Mean family income (range, \$)	25-35,000	35- 50,000	35-50,000	50,000
Income (%), <10,000 \$	10.2	13.8	5.3	6.0
10-15,000	10.6	11.7	6.0	6.4
15-20,000	15.5	15.0	7.6	8.2
20-25,000	15.5	15.0	9.8	10.2
25-35,000	15.3	14.5	13.6	13.7
35-50,000	12.9	12.1	17.3	16.9
50-75,000	9.9	8.9	17.6	16.9
>75,000	10.2	9.1	22.8	21.8
Have health care plan (%)	67	72	89	88
Married (%)	66	60	67	67
Sample size (N)	18,147	21,368	275,491	297,777

Data source: BRFSS 2005

CHAPTER 4 LOGISTIC REGRESSIONS AND ANALYSIS

Chapter 4 presents the results of a multivariate analysis. The objective was to test the hypothesis that the probability of having health insurance is partly contingent upon peoples' ability to speak English. Specifically, the hypothesis was that, net of the effects of other factors that are associated with the outcome variable, individuals who opted to respond to the questionnaire in English are more likely to have health insurance. Hence, I used the "questionnaire language" as an indicator of the respondents' English proficiency. I interpreted the results in light of the caveats associated with this indicator of language ability, as noted in Chapter 3.

The data analysis proceeded in several steps, beginning with an analysis that deals exclusively with the Latino population, not including Puerto Ricans who reside on the island of Puerto Rico (as shown in Table 4-1). Models 1, 2, and 3 incrementally add variables to the equation. This procedure allowed me to first examine the effect of language ability on the dependent variable, and then to determine if and the degree to which that relationship is affected by the introduction of additional variables (Models 2 and 3). The values in Model 3 are particularly important because they provide the main test of the research hypothesis.

A second step in the analysis was to expand the scope of the data to model the determinants of health insurance within the population of "Non-Hispanic whites." In this case, I did not include the variable on language proficiency because, within the sample, all of the respondents chose to answer the questionnaire in English. The analysis is nonetheless of interest because it enabled me to compare the results for the two populations. Specifically, it provided insight into the similarities and differences in the magnitude of the effect of each variable on the

probability of having health insurance for both the Latino and the Non-Hispanic white populations.

As illustrated in Table 4-1 and 4-3, logistic regression analyses yielded results that are consistent with the research hypothesis. Model 1 includes only one variable, whether the respondent answered the questionnaire in English or Spanish. The results were significant: without taking into account any other variables, mainland Latinos who responded in English were 5.18 times more likely to own health insurance compared to those who did not. The relationship is statistically significant, and the estimate of variance explained is 17.4%.

The second equation, Model 2, added important variables that are commonly thought to influence the probability of having health insurance: education, sex, and age. The findings show that each of these variables is associated with the outcome variable. For example, the odds ratio for the education variable is 1.128. This can be interpreted to mean that for every increase in years of schooling, the respondent is 12.8% more likely to have health insurance. The odds ratio associated with being male is .827, which means that males are 17.3% less likely to have health insurance as women. This may be explained by the fact that women are usually the members of the family who are responsible for taking care of children. Adult males may have less reason to pay for health insurance without families, hoping to escape harm while living from paycheck to paycheck. Women may therefore be more preoccupied with providing preventive and regular health care to her children. As discussed in the previous analysis of the literature, studies have shown that as an individual ages he/she is more likely to have health insurance coverage. The logistic regression corroborates this conclusion, with an odds ratio of 1.036. English language questionnaire has an odds ratio of 3.601, which is smaller than Model 1. However, this effect is

still statistically significant at the .001 level, and the direction of the effect corroborates the hypothesis. Moreover, the R Square value increases to .245.

Model 3 adds household income into the regression. I expected the odds ratios associated with English language questionnaire, sex, and education to decrease but remain in the same direction. This is because income is a confounding factor that is interrelated to ability to speak English and years of education. The odds ratio for males dropped to .726, or a difference of 10%. This may indicate a cultural or ideological difference between health seeking behavior between men and women, or perhaps shows the results of a female-specific, targeted health insurance outreach program. Education's odds ratio value dropped from 1.128 to 1.06, which is rather small. However, if one considers an individual that, all else being equal, completes a bachelor's degree instead of only high school, he or she will be 24% more likely to have health insurance.

In Model 3, I did not expect the odds ratio for age to necessarily decrease, considering that the literature has shown that as one ages, net of all other variables, an individual is more likely to have health care coverage. Accordingly, age's odds ratio increased from 1.036 to 1.037. The effect of English proficiency, illustrated by the questionnaire language, dropped to 2.682. The decline in the size of the coefficient is due to the effects of the other variables in the equation. However the ability to speak English is still by far the largest single variable with respect to health insurance coverage.

The income categories show the odds ratios compared to an individual reporting making less than \$10,000 a year. It is worth noting that, compared to the lowest income category (which serves as a reference group in the analysis), the odds ratio for the first two groups (\$10-15,000 and \$15-20,000) are not statistically significant. These findings indicate that, with respect to the

probability of ownership of health insurance, there are very little differences among lower income families (i.e. earning \$20,000 or less).

Income becomes a statistically significant predictor of the probability of having health insurance when income exceeds \$20,000. The odds ratio for families that earn \$20-25,000 is 1.179, indicating that, compared to the lowest income stratum, they are 17.9% more likely to own health insurance, net of the effects of the other variables in the equation.

A second observation concerns the pattern of the odds ratio at other levels of income. As the figures in Table 4-1 show, there is a steady increase in income effect. It increases from 1.734 in the \$25-35,000 category, to 6.915 in the highest income strata. The pattern of increase is shown in Figure 4-1, which graphically displays the odds ratios by income category.

The Figure clearly shows that the probability of having a health insurance policy remains low and fairly constant among families with a total annual income of \$25,000 or less. Increases in income are associated with higher odds ratios. As evident in the graph, the largest jump is evident when we compare the odds ratio for the \$35-50,000 (2.98) with the odds ratio for \$50-75,000 (5.288). All else being equal, a person making more than \$75,000 a year is 6.915 times as likely as a person in the lowest income category to have health insurance.

Table 4-2 presents results similar to those in Table 4-1, but allows a comparison between island- and mainland-dwelling Latinos in the United States. The central difference among these groups is that this regression includes island-dwelling Puerto Ricans, who do not need to speak English, in the analysis. I include them to give a country-wide view of the aggregate Latino population's health insurance rate and the factors leading to that rate. Because Puerto Ricans who live on the island of Puerto Rico are offered health insurance enrollment in their own language, the effect of questionnaire language in Model 1 is immediately reduced (2.547)

compared to only analyzing their mainland Latino counterparts. Also, the R Square value drops from .174 to .061, thereby demonstrating the lack of need of English proficiency on the island. However, English language proficiency on the island has been shown to be associated with higher levels of education and income, thereby confounding their ability to procure health insurance, even if the forms are in Spanish.

In Model 2 of Table 4-2, the odds ratio for questionnaire language (1.957) is again lessened due to the interaction of other variables. Age's odds ratio is 1.046 as compared to mainland Latinos' 1.036, thereby demonstrating that age on the island is significantly more important to having health insurance. Being male's odds ratio is associated with a decrease compared to Table 4-1, from .827 to .797, again demonstrating that on the island being male makes one significantly less likely to be enrolled in health insurance. For each year of education, the respondent is 1.186 times more likely to have health insurance. This is a significant increase over mainland-only Latinos' value at 1.128. Finally, the R Square climbs to .204, illustrating the importance of these other variables on the odds ratios for Puerto Rican islanders.

Model 3 includes the categories for household income, like Table 4-1. Again, all the coefficients for each of the variables except age declined, as they did in Table 4-1 from Model 2 to Model 3. Age's odds ratio moved from 1.046 to 1.045, but being male's changed from .797 to .73. This signifies that even with the same amount of income, education, and age, a male would be 27% less likely than a female to enroll in health insurance. Interestingly, this coefficient is the same for the regression concerning only mainland Latinos. The impact of years of education on the odds of having health insurance declines to 1.133 from 1.186. However, compared to 1.06 for mainland Latinos, this remains a strong predictor of health insurance status on the island. This effect may be explained by the targeted insurance programs on the mainland

positively selecting for lower education, or perhaps it may be a cultural priority for those individuals living on the mainland. The coefficients for income categories show a marked difference between Tables 4-1 and 4-2. Mainland Latinos in the \$10-15,000, \$15-20,000, and \$20-25,000 income categories are about as or more likely than someone making <\$10,000 a year to have health insurance. Adding in the influence of island-dwelling Puerto Ricans lowers the odds ratios to .728, .656, and .787, respectively. This shows that the indigent Puerto Ricans on the island are receiving some form of free health care insurance, while many with only slightly higher incomes are not. However, as income increases in the aggregate Latino regression, the odds ratios increase as well, albeit more slowly than in the mainland Latino regression. Again, this suggests that there may be a cultural bias selecting for health insurance enrollment among the stateside Latinos.

Table 4-3 includes regression results for Non-Hispanic whites as well as all Latinos, mainland Latinos, and Total respondents. It is not appropriate to include the language variable for Non-Hispanic whites because all the respondents answered in English. However, it is still important to determine if the other variables behave in the same way as they did for Latinos. Hence, Table 4-3 reports regressions on all the populations. This provides us with the opportunity to look at patterns that arise between the groups, and to identify inequities. For Non-Hispanic whites, the two lowest income groupings were not statistically significant due to the low number of respondents that fell into these two categories. Moreover, while for island-dwelling Puerto Ricans English language proficiency is not important to having health insurance, and they seem to be poorer on average than their mainland counterparts, island-dwelling Puerto Ricans seem to have nearly identical values for all other variables in the regression.

An interesting quirk revealed by the regressions is the fact that among mainland, all Latinos, and Total respondents, those making between \$10,000 and \$25,000 are less likely to have health insurance than those making less than \$10,000. This may well be due to the fact that there are several federal- and state-funded initiatives to provide health care to indigent individuals and their families. There are several targeted, subsidized health insurance programs in larger cities, but the problem is the enrollment of qualifying individuals. Whether the confounding factor is their immigration status, or if they simply do not know enough English to find information about the programs, these issues need to be addressed. Also, it is possible that individuals just at or above the poverty line may not qualify for any governmental aid, leading to lower rates of enrollment overall. While the Non-Hispanic whites group is not statistically significant in this area of income due to low numbers of people falling in these income groupings, those individuals right below the poverty line of \$20,200 dollars seem to be just as likely as lower income respondents to have health insurance, lending credence to the targeted health insurance program hypothesis.

Each year of added education among all Latino respondents seems to have a slightly larger impact, with an odds ratio of 1.133 compared to whites' ratio of 1.094. However, for mainland Latinos alone, years of education, at 1.06, does not play a large role in determining health insurance enrollment. This may be due to the fact that most mainland Latinos are perhaps first generation formal students, even if their families have lived in the United States for decades. Whites, on the other hand, are sometimes multi-generation descendents that are already well established economically and socially. Non-Latino whites generally strive to have health insurance, education, and income, but the odds of a white individual having health insurance are better, all other circumstances being equal, compared to Latinos.

Analyzing the high end of the income spectrum for Latinos and Non-Latino whites reveals an interesting pattern. A mainland Latino individual making over \$50,000 is about five to seven times as likely as a Latino in a lower income grouping to have health insurance. In contrast, a white in the same income category is six to twelve times as likely to have health insurance as one of his compatriots making less than \$10,000. This shows that comparatively, whites are much more likely to have health insurance, at any income level, than a Latino. Again, this may be due to the fact that insurance company regulations are difficult to navigate, and that completing the requirements to gain access to physicians and services, as well as benefits, is difficult.

Ultimately, it is easy to tease out inequalities between mainland and all Latinos, Non-Hispanic whites, and total respondents. The important observation to note is that, all else being equal, increasing years of education, age, income, and being female all have the effect of increasing an individual's odds of having health insurance. However, a strong association for Latinos compared to each other is questionnaire language. Based on the odds ratios reported in Table 4-3, mainland Latinos need to speak English more than island-dwelling Puerto Ricans. On the other hand, any Latino speaking English is associated with a substantial increase in the probability for health insurance enrollment versus a monolingual person with the same characteristics.

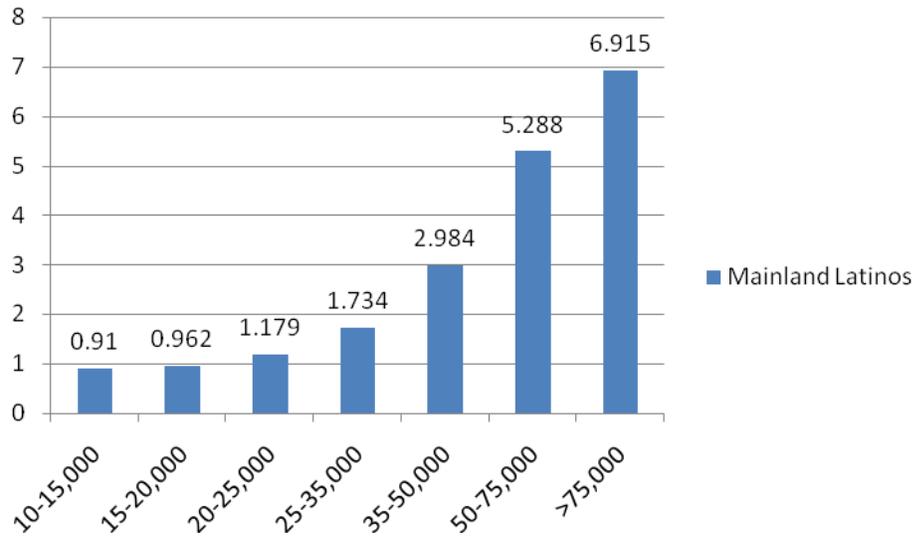


Figure 4-1. Mainland Latinos Odds Ratios for Health Insurance Based on Income, Dollars (Compared to <\$10,000)

Table 4-1. Health Insurance Regressed on English Language Proficiency, Sex, Age, and Income
 Logistic Regression on Mainland Latinos(Odds Ratio)

Variable	Model 1	Model 2	Model 3
English language questionnaire (1=yes)	5.18	3.601	2.682
Education (in years completed)		1.128	1.060
Sex (1=male)		0.827	0.726
Age (in years)		1.036	1.037
Income (reference = \$<10,000)			
10-15,000			0.910*
15-20,000			0.962*
20-25,000			1.179
25-35,000			1.734
35-50,000			2.984
50-75,000			5.288
>75,000			6.915
Constant	1.742	0.095	1.792
Nagelkerke R Square Value	0.174	0.245	0.303
Total respondents (N)	18,147	18,147	18,147

Data source: BRFSS2005

*=Not significant; all others are significant at <.001

Table 4-2. Health Insurance Regressed on English Language Proficiency, Sex, Age, and Income
 Logistic Regression on All Latinos(Odds Ratio)

Variable	Model 1	Model 2	Model 3
English language questionnaire (1=yes)	2.547	1.957	1.446
Education (in years completed)		1.186	1.133
Sex (1=male)		0.797	0.730
Age (in years)		1.046	1.045
Income (reference = \$<10,000)			
10-15,000			0.728
15-20,000			0.656
20-25,000			0.787
25-35,000			1.179*
35-50,000			2.066
50-75,000			3.563
>75,000			4.326
Constant	2.485	0.046	0.279
Nagelkerke R Square Value	0.061	0.204	0.253
Total respondents (N)	21,368	21,368	21,368

Data source: BRFSS2005

*=Significant <.01; all others are significant at <.001

Table 4-3. Health Insurance Regressed on English Language Proficiency, Sex, Age, and Income
Logistic Regression on all Populations (Odds Ratio)

Variable	Population Subgroups			
	Mainland Latinos	All Latinos	Non-Hispanic whites	Total
English language questionnaire (1=yes)	2.682	1.446		1.564
Education (year)	1.060	1.133	1.095	1.103
Sex (1=male)	0.726	0.730	0.721	0.721
Age (year)	1.037	1.045	1.045	1.045
Income <\$10,000=reference				
10-15,000	0.910*	0.728	1.009*	0.951
15-20,000	0.962*	0.656	0.992*	0.921
20-25,000	1.179	0.787	1.228	1.137
25-35,000	1.734	1.179	2.036	1.868
35-50,000	2.984	2.066	3.650	3.356
50-75,000	5.288	3.563	6.799	6.240
>75,000	6.915	4.326	12.318	11.050
Constant	1.792	0.279	2.856	1.625
Nagelkerke R Square Value	0.303	0.253	0.206	0.230
Total respondents (N)	18,147	21,368	275,491	297,777

Data source: BRFSS 2005

*=Not significant; all others are significant at <.001

CHAPTER 5 CONCLUSIONS AND IMPACT

Roughly 44% of Latino respondents to the 2005 BRFSS survey chose to respond in Spanish rather than English. This suggests that language is an important factor to consider in a multilingual country such as the United States. Teaching Latinos and immigrants in general to speak English, while repressing their native culture and language, is detrimental to their integration into American society. While many scholars argue the opposite, studies have shown that additive-bilingual education shows positive learning effects for bilingual education versus standard ESOL education (Bamford and Mizokawa 1991:413-429). The Latino population group surveyed in the BRFSS illustrates this pattern. While Puerto Ricans on the island have over a 90% enrollment rate in a health insurance plan of some type, which is higher than Non-Hispanic whites' rates, Latinos on the mainland in some areas do not reach even 40% enrollment. Moreover, logistic regression analysis of BRFSS data from 2005 shows that, all else being equal, mainland Latinos who speak English are 2.682 times more likely to have health insurance than their non-English-speaking counterparts. That odds ratio for the complete model is statistically significant to a level $<.001$, and the R Square value is .303. These values reflect the fact that the odds ratio is statistically significant, the effect is large, and the regression accounts for a large portion of the variance. In effect, English language ability is a determining factor, even after including many control variables in the regression.

Suggestions for Policy Making

Results of the regression analysis indicate two possible explanations. The first is that Spanish speakers experience institutionalized discrimination because the steps needed to obtain health insurance are only available in English. Hence, their emergence of English proficiency may discourage people from enrolling in insurance, even if they can afford to do so. If this is so,

then the first set of policy implications would be to create bilingual enrollment forms and to provide interpreters at appropriate points during the enrollment process. Bilingual health insurance representatives, bilingual forms and paperwork once enrolled, and bilingual advertising, are key to the success of increasing health insurance enrollment. Targeted, subsidized insurance programs should also be advertised in the targeted neighborhoods and areas. While this initiative may be labeled by some to be a racist policy, the United States Census website is capable of producing maps showing population density for each minority, including Latinos. Distributing fliers or putting up a billboard in a predominantly-Spanish-speaking area may yield a positive response from the community. As shown in Chapter 1, Spanish-language advertising leads to a significant increase in response by individuals who did not realize that the program existed or that they qualified.

The second possible explanation is that there is a potential cultural difference between Latinos and the rest of the United States population. It could be the case that individuals of Hispanic origin are less inclined to invest their money into health insurance. This could be for cultural reasons, or for reasons associated with different and possibly negative life experiences in Latin America. If this is the case, then the policy implications are different. The appropriate method of mitigating this phenomenon would be to focus on educating Latinos as to the value of having health insurance. Putting hospital stays and even preventive care into a dollars-and-cents framework while showing the potential benefits—of adding nearly twenty years to their life expectancy—would perhaps make health insurance enrollment a priority for most.

Steps should also be taken to alleviate the strain of health insurance premiums and associated costs for those families just above the poverty line. While providing health insurance at no or little cost is obviously an important step to eliminating the disparities between high and

low socioeconomic status families, those families that are close to but not considered “living in poverty” also need to be cared for. If they were to pay several thousand dollars a year for insurance premiums, co-pays, and prescription medicine costs out of their total income, near-poverty individuals will be well under the poverty line, yet still be paying “out of pocket” for all medical care. Therefore, creating a program for at-risk families to be placed on, at the least, subsidized health insurance programs is one way to remedy the situation.

Further prospective plans of action could be to provide at-risk, poor families’ children with free preventive health care visits. Most research, including this thesis’ review of the literature, demonstrates the necessity of preventive care to make a difference in this generation’s educational and earning potentials. In a true effort to mitigate the effects of the ever-widening gap between high and low socioeconomic status families, this is the first possible step that could be taken.

Questions for Further Research

This study probes a central question regarding Latino populations throughout the United States: that of English language proficiency and access to health care insurance. However, there are additional issues to explore before leading to a full understanding of the possible pitfalls and logistical problems in enacting legislation to increase insurance enrollment among at-risk families. For one, does having access to a bilingual insurance enrollment process and bilingual staff allow for health insurance utilization at higher rates? This may show insurance companies the efficacy and relatively low costs of enacting such a policy, as well as the effectiveness thereof. If new enrollment were shown to be an effect of instituting bilingual insurance programs, then insurance companies may be more likely to implement them.

Another question for further research is, if parents were informed of a program providing preventive and emergency health care to their children, regardless of their legal status, would

they enroll? It is possible that an undocumented parent would still not enroll his or her children in such programs because of their fears about deportation. These fears are valid, considering the fact that California and other states have implemented legislation designed to limit access to emergency health care for undocumented immigrants, or to create an aggressive and anti-Spanish environment in professional specialties.

Further research may include a qualitative investigation of individuals who responded to the BRFSS. This may include conducting interviews (individual and focus groups) with respondents who do not have access to health insurance and investigating their English language ability levels in various contexts (including medicine). It is also possible to then better direct the response in policy so as to help enroll the most individuals. Moreover, it is important to detail the different experiences among various Latino communities in the United States and on the island of Puerto Rico. Ultimately, because this study is statistical and quantitative, it is difficult to know for sure the reasons behind these social inequalities. Qualitative follow-up work should be a staple part of any further research on this topic, but lies outside of the scope of this thesis.

An important part of many studies is continuity. Because the BRFSS is a continuous study, it is possible to use my statistical analysis and techniques to continue my research with new data sets as they are made available. This may be done in an effort to further corroborate my findings, or to track any changes or similarities between each year's language proficiency and access to health insurance. It also may serve to demonstrate the ever-widening divide between Latinos' and Non-Latino whites' access to care.

The BRFSS could be expanded to include more detailed questions and to have more states use the optional modules. For example, an exact number for income could be helpful in teasing out more subtle patterns in income relative to other variables. Or perhaps additional

questions could be utilized to ask for their immigration status, or to create an access to care index which could then point out at-risk groups. As it is, not every state asks extra modules about health status, health care access, continuity of health care, and other risk behaviors, like smoking or drinking. If this module could be used more uniformly, then further research could be performed to look at health care access and utilization among people throughout the United States. My original research questions was limited due to this problem. In conclusion, this study was a beginning, quantitative investigation into the relationship between English language ability (as determined through respondents' language choice in a telephone survey) and access to health insurance. This study found a strong, positive correlation between English language choice and access to health care. Further studies may investigate this topic using alternative, qualitative research methods.

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BIOGRAPHICAL SKETCH

Karl Slazinski was born in Sarasota, Florida, where he attended Pine View School for the Gifted from 2nd to 12th grades. After completing high school, he went on to New York University as a National Merit Finalist for his Bachelor of Arts in Spanish. After completing his degree in three years, he continued for a year of post-baccalaureate work in science at the University of Florida to complete the pre-medicine requirements. He finished his last semester in the Master of Arts in Latin American Studies with a specialization in Latino Studies at the Center for Latin American Studies at the University of Florida in the spring semester of 2008. Karl is interviewing for admission to medical school throughout Florida and in Puerto Rico, and plans to matriculate into the Doctor of Medicine program in the fall of 2008.