A BIOMEDICAL AND BIOCULTURAL APPROACH TO THE HISPANIC PARADOX

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Proposal

I.   Intent of Project

The intent of my senior project is to evaluate and analyze the phenomenon known as the "Hispanic Paradox" from a biocultural perspective. This approach suggests that Hispanics have increased longevity, as opposed to other ethnicities in the United States, despite the many cultural barriers that are encountered. I will consider the possible explanations behind the validity of the Hispanic Paradox, and expand upon those theories. I intend to explore this Paradox to bring awareness to multiple dimensions of this subject. Primarily, I want to determine if the Paradox is valid for Hispanics, and if so, on what grounds. Secondarily, I want to promote the effect that healthy lifestyle choices have on longevity. Lastly, I would also like to address the importance of culture for Hispanics, demonstrated either positively with close-knit familial networks, or negatively with language barriers. All these issues are extremely important to California with its rising Hispanic population.

II.   Research

I am going to be researching differing perspectives on the Hispanic Paradox in an attempt to interpret the discrepancies between the scholars that believe it is statistically significant and those that disagree. After formulating a comprehensive idea, I will evaluate risk factors for major causes of death. Therefore, I will utilize statistics of several prominent diseases such as heart disease (including myocardial infarctions, strokes, atherosclerosis, etc) and various cancers (lung, breast, prostate). After gathering the statistical data for Hispanics and Caucasians, I will apply the biocultural approach and research any lifestyle choices that contribute to increased longevity.

III.   Thesis

Through all of my research gathered, I hope to better understand the Hispanic Paradox through a biocultural lens. I hypothesize that if the Hispanic Paradox is statistically significant, increased longevity is attributed to lifestyle changes. Some of the chosen lifestyle choices have an enormous beneficial effect on overall health (such as lack of smoking). Therefore, understanding the mechanisms will help promote overall health and wise lifestyle choices.

Annotated Bibliography

Blue, L. (2011). The Ethnic health advantage. *Scientific American*.

Blue's article addresses the exceptions to the statement that, "People with greater income of formal education tend to live longer and enjoy better health than their counterparts who have less money or schooling"(2011). She states the two exceptions as the healthy immigrant effect and the Hispanic Paradox (the healthy immigrant effect is able to be included in the latter). She addresses the resilient character of the healthy immigrant, culture, and healthy lifestyle choices such as nutritious foods and physical fitness. However, the fundamental explanation provided is smoking. In this article, lung cancer is associated with smoking. Data from the National Health Interview Survey states, "Hispanics are not only less likely to be smokers or former smokers but that the smokers among them are also less likely to smoke heavily" (Blue, 2011). This article aligns with my thesis that lifestyle, and specifically smoking, is the catalyst in the Hispanic Paradox. It describes smoking in terms of the Hispanic community and positive outcomes that can be attained with simple lifestyle changes.

Centers for Disease Control and Prevention. (2010). *Health of Hispanic or Latino Population: FastStats.*

This CDC has presented a wide array of statistics that pertain to the Hispanic population, such as population, birth rates, health status, risk factors, health insurance coverage, and mortality. It provides a summary of many pertinent statistics to my examination of the Hispanic Paradox. The CDC utilizes percentage of cigarette smokers as the health risk factor statistic, and states that

from 2009-2011, 17.2% of men currently smoked cigarettes and 9.1% of women did as well. Also, 31.1% of Hispanics under 65 years old do not have health insurance, which is a disadvantage when compared to Non-Hispanic Whites (CDC, 2010). However, despite access to healthcare, Hispanics live longer. These singular statistics provide a base for comparison against Non-Hispanic Whites in my biocultural analysis.

Centers for Disease Control and Prevention. (2010). *Health of White non-Hispanic Population.: FastStats.*

The CDC has an accumulation of statistics regarding the health and status of Non-Hispanic Whites. It provides demographic details such as 200.4 million United State Residents are Non-Hispanic Whites and 12.9% of people less than 65 years old do not have health insurance. The risk factors listed for Non-Hispanic Whites are cigarette smoking, obesity, and hypertension. I will argue that cigarette smoking is a key component to decreased longevity, among other lifestyle choices. The three leading causes of death are heart disease, cancer, and chronic lower respiratory disease. As opposed to Hispanics, respiratory diseases are not a prominent cause of death. These statistics will be compared against the previous Hispanic statistics and included in my comparative study.

Centers for Disease Control and Prevention. (2010). *Hispanic or Latino Populations.*

The Center for Disease Control and Prevention's webpage provided vast amounts of information applicable to my senior project. It summarized demographic information from the U.S. Census

Bureau, such as that 52.0 million Hispanics were living in the United States as of July 2011. It also stated that in July 2050 the population of Hispanics in the United States is estimated to be 132.8 million. It also proposed relevant statistics in that California had the largest Hispanic population by state (14.4 million) and 30.7% of Hispanics lacked health care. My senior project is analyzing mortality attributed to cancer, heart disease, and diabetes, which are the number one, number two, and number five leading causes of death for Hispanics. This information is imperative for providing a demographic background of the Hispanic population and instilling the importance of change for healthcare in California.

Fenelon, A. (2013). Revisiting the Hispanic mortality advantage in the United States:

the role of smoking. *Social Science & Medicine, 82, 1-9*.

Fenelon revisits his 2011 article with Laura Blue and provides more support as to why smoking is the catalyst in the Hispanic Paradox. He cites evidence such as the selective migration hypothesis and the cultural hypothesis as to why Hispanics have increased longevity. Fenelon argues that smoking is relevant because, "Cigarette smoking has a strong negative impact on individual morality and is the single greatest cause of premature death in the United States" (Fenelon, 2013, p. 2). Consequently, Hispanics confer an advantage because they smoke less frequently and smoke fewer cigarettes. The data confirmed that this advantage is consistent for Mexican-Americans, which is directly correlated to the state of California. California receives most immigrants from Mexico, and thus, information should be used in the healthcare system to improve treatment to Hispanics.

Morales, L.S., Lara, M., et al. (2002). Socioeconomic, cultural, and behavioral

factors affecting Hispanic health outcomes. *Journal of Health Care for the Poor and Underserved, 13, 477-503*. doi: 10.1353/hpu.2010.0630.

Generally speaking, Hispanics are at a disadvantage compared to non-Hispanic whites when health is considered. This article provides a holistic view to these disadvantages and states many reasons why Non-Hispanic Whites should have greater longevity provided more opportunities. For example, it examines demographics of Hispanics such as socioeconomic status and occupation. Non-Hispanic Whites usually have higher socioeconomic status with stable, well paying jobs, when compared to Hispanics. It next describes smoking, obesity, etc, as unhealthy behaviors that are accompanied by low socioeconomic status. I would argue that the most relevant disadvantage is access to, and use of the health care services. Hispanics lack access to health care facilities in many ways such as geographical, financial, structural, and personal barriers. Those that are unable to obtain health insurance and do not have a nearby healthcare facility are less likely to get the care that is needed. Another obstacle is the language barrier between physicians and patients. This mutual lack of understanding is deleterious to the patient and the physician; consequently, these obstacles discourage Hispanics from visiting the doctor frequently. The above barriers should be considered and altered to insure that each patient receives that best care possible. This is increasingly important in the California health community as population projections display a Hispanic majority by 2050. A simple understanding between two parties could increase the trust between Hispanics and healthcare.

Thomson, E. F., Nuru-Jeter, A., et al. (2013). The Hispanic paradox and older adults' disabilities: is there a healthy migrant effect? *International Journal of Environmental Research and Public Health, 10, 1786-1814*. doi: 10.3390/ijerph10051786.

The Hispanic Paradox has many theorized explanations; however, the three with the most validity are the healthy migrant effect, lifestyle and health behaviors, and the Salmon Effect. The first suggests a selection method for migrants in which one must have physical and mental strength. These migrants are determined to achieve a life with benefits, and thus were strong enough to come to America. The second hypothesis explores the cultural relationships of Hispanics. It outlines the extensive social network and support generated between the communities. It also provides information on diet, smoking, and acculturation. The Salmon Effect describes reverse migration once the immigrants become sick and age. It hypothesizes that the immigrants return to their home countries later in life and are not accounted for in mortality statistics in the United States. This article goes into great detail about the hypotheses, which are critical for understanding the Hispanic Paradox. This information will give readers a background on possible explanations and increase the validity of my thesis.

U.S. Census Bureau. (2010). *Newsroom: Profile America Facts for Features.*

The United States Census Bureau provides various statistics that describe the Hispanic population in the United States. It confirms a number of the statistics stated on the CDC website, and offers additional angles. The Census Bureau states that 4.7 million Hispanics reside in Los Angeles County, and 97% of the population in East Los Angeles, California, is Hispanics. These

figures reaffirm an examination of the healthcare system, in regards to Hispanic populations in California. Statistics on socioeconomic status, health insurance, and education are also presented. These facts and figures are essential for a biocultural approach to the Hispanic Paradox.

U.S. Department of Health and Human Services Office of Minority Health (2012). *Cancer and*
  Hispanic Americans.

The Office of Minority Health has created a profile of Hispanic health in contrast with Non-Hispanic White health, focusing on cancer. It contributes various categories such as new cases of cancer per 100,000 men and women with various forms of cancer including prostate, breast, stomach, etc. It also displays cancer incidences (separated by male/female) and death rates. For example, Hispanic men are 20% less likely to have prostate cancer than Non-Hispanic White men and Hispanic women are 30% less likely to have breast cancer than Non-Hispanic White women (U.S Health Department of Health and Human Services Office of Minority Health, 2012). Another interesting component of these statistics is the implementation of percentages of medical procedures such as a colonoscopy, Pap smear, mammogram, or a sigmoidoscopy. Non-Hispanic Whites led every category except the percentage of women that had a Pap smear. This information will contribute to my comparison of Hispanic health and Non-Hispanic White health by providing data to support cancer incidences and use of the healthcare system.

U.S. Department of Health and Human Services Office of Minority Health (2012). *Diabetes and*

    Hispanic Americans.

Once again I am utilizing statistics provided by the Office of Minority Health to create a holistic comparison of health in Hispanics and Non-Hispanic Whites. As opposed to other diseases such as cancers and heart disease, Hispanics have a higher incidence of Diabetes. For example, 9.3 percent of Hispanics are diagnosed with diabetes per 100 people as opposed to 6.8 for Non-Hispanic Whites. Hispanics have higher rates of end-stage renal disease caused by diabetes and more die from diabetes than Non-Hispanic Whites. The incidence of diabetes is one cited case in which longevity is decreased for Hispanics and a possible exception to my analysis.

U.S. Department of Health and Human Services Office of Minority Health. (2012). *Heart*

    Disease and Hispanic Americans.

The Office of Minority Health has created a profile of Hispanic health in contrast with Non-Hispanic White health, specifically on heart disease. Heart disease is the number one cause of death for Hispanics, and is one of the categories I wish examine in my analysis. It compares percentages of coronary heart disease, heart disease death rates, high blood pressure, high cholesterol, percentage of smokers, and many other categories for both Hispanics and Non-Hispanic Whites. The Office of Minority Health states that Hispanics were 20% less likely to have coronary heart disease and were 40% less likely to die from heart disease, compared to Non-Hispanic Whites (U.S. Department of Health and Human Services Office of Minority Health, 2012). This information is vital to my analysis, especially because it compares the two

target groups against each other. It portrays a favorable outcome in longevity for Hispanics associated with heart disease, supporting my research.

Willey, J.Z., Rodriguez, C.J., Moon, Y.P., et al. (2012). Coronary death and myocardial infarction among Hispanics in the Northern Manhattan study: exploring the Hispanic Paradox. Annals of Epidemiology, 22, 303-309. doi:10.1016/j.annepidem.2012.02.014.

This article describes the experiment and the results of the Northern Manhattan Study that examined if the Hispanic ethnicity was associated with lower episodes of heart related problems such as myocardial infarction and coronary death. It was hypothesized that Hispanics would have higher risk factors for cardiovascular disease compared to Non-Hispanic Whites, based on lower socioeconomic status and high vascular disease risk factors. The researchers found that Hispanics had lower incidences of vascular death and coronary death when compared to non-Hispanic whites. This data supplements the Hispanic Paradox in my research with regards to heart disease. Heart disease is a major cause of death and a decreased prevalence would increase longevity.

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5. Conclusion

Acculturation, or the process by which members of one culture assimilate to the beliefs and practices of another group, has always been a multidimensional topic in regards to the United States of America. The USA is known as a "melting pot" that is comprised of numerous ethnicities and immigration waves originating from across the globe. Universally, this is one component we identify with that makes us as Americans, unique. However, Americanization is a current process that eliminates cultural elements from immigrants and leads to the assimilation of the American culture. Is acculturation beneficial to these immigrants, or can it lead to deleterious effects in subsequent generations? This is a question I would like to address in regards to the health of Hispanic populations in America, specifically focusing on the Hispanic Paradox.

Generally speaking, those individuals with higher economic status, and consequently more resources tend to live longer. This universal statement encompasses a wide variety of advantages such as education, healthcare (insurance, availability, etc), food security, safety, stable jobs and wages, etc, that are positive influences on longevity. However, recent research has suggested that this universal fact may have an anomaly, notably the Hispanic Paradox. The Hispanic Paradox is a controversial topic in which data suggests that Hispanics in the United States live longer than their Non-Hispanic White counterparts regardless of the social disadvantages experienced. This advantage in longevity can be seen in chronic diseases that plague the American population today, such as heart disease and cancer. Although the validity of the Hispanic Paradox is not completely agreed upon today, it is very important to understand the implications the Hispanic Paradox can have on future generations.

In this biocultural analysis of the Hispanic Paradox in the framework of acculturation, I will examine several of the diverse disadvantages experienced by the Hispanic population in order to create a foundation that stresses the inconceivable enormity of the Hispanic Paradox. I

will also address demographics of the Hispanic population in the United States to exhibit the growing minority that have become the majority in states such as California. This will provide a foundation for my argument that if the Hispanic Paradox is statistically significant, the healthcare industry and the government need to collaborate on a new set of policies that will take this issue into account and accurately provide care that is needed and deserved. Following the prior analyses, I will investigate if the Hispanic Paradox is statistically significant by creating a comparison of chronic illnesses between the Hispanic population and the Non-Hispanic White population. The two main illnesses of inquiry are heart disease and cancer, two of the most devastating illnesses to Americans, and worldwide today. The Hispanic Paradox is significant in the United States today, and is attributable to cultural and social factors in the Hispanic community. Cultural practices/traditions and their effect on health will be discussed in the closing of my argument on the Hispanic Paradox, as well as the overall impact of culture on the well being of Hispanics.

Hispanics are a major component of the United States population, and according to the U.S. Census Bureau, the Hispanic population in the United States on July 1, 2011 was 52.0 million, 16.7% of the nation's population. This makes Hispanics the largest minority group present in the United States. This percentage will continue to increase, as demographers project the Hispanic population will reach 132.8 million as of July 1, 2050, 30% of the population (U.S. Census Bureau, *Hispanic or Latino Populations*, 2010). More specifically, this study seeks to explore states and areas in the United States with clusters of Hispanics; one included in this study is targeted towards California, which had the largest Hispanic population of 14.4 million as of July 1, 2011 (U.S. Census Bureau, *Hispanic or Latino Populations*, 2010). Consequently, in the city of East Los Angeles, 97% of the population is Hispanic, as of 2010 (U.S. Census Bureau,

Facts for Features, 2012). California has a very prevalent Hispanic population that is still in the process of growth. According to an article on CBS News, demographers predicted that Hispanics in California will equal that of Non-Hispanic Whites in 2014, which has occurred. In 2010, Hispanics were already the majority in nine out of California's 58 counties (*Hispanics predicted to become majority in California in 2014*, 2013). The Pew Research center reported earlier this year that California is the second state, behind New Mexico, where Hispanics are the majority as opposed to Non-Hispanic Whites (Pew Research, 2014). The Hispanic population has grown slowly overtime as immigration from Central American and Latin American countries have increased. An article in the Immigration section of the Los Angeles Daily News examined the increasing population of Hispanics in California from 1970 to the projected population in 2020. The numbers used in the article are outlined in the the graph below, and present the demographic trend of the increasing Hispanic population and the decreasing Non-Hispanic White population in California.
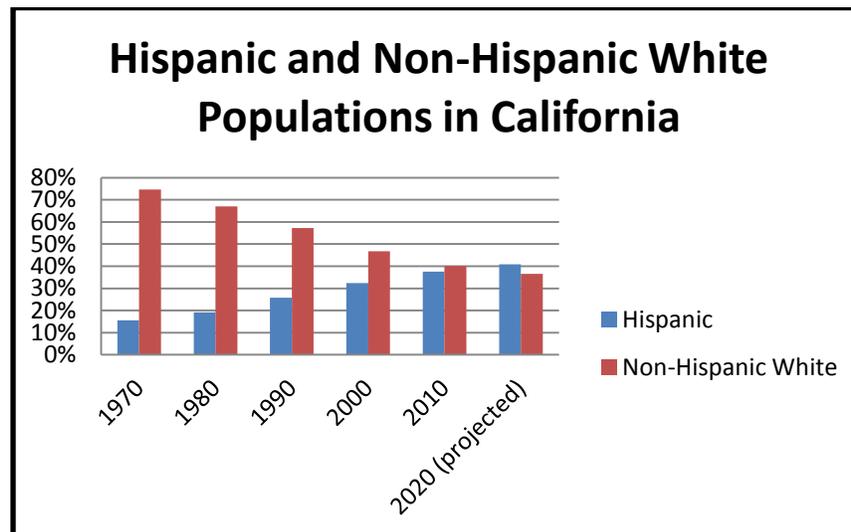
This graph displays the shifting trends in California demographics and insists that changes need to be discussed in the healthcare system in order to fully grant healthcare access to all. As the

demographics are undergoing change in America, certain ethnic groups are not being represented in ways that ensure their prosperity.

Despite the ever increasing presence of the Hispanic population in California, a majority are still ill-equipped to face medical assistance. Hispanics face many barriers such as geography, transportation, insurance, and linguistics, outlined in the article, "Socioeconomic, Cultural, and Behavioral Factors Affecting Health Outcomes," by Morales, Lara, et al. Hispanics (specifically in California) are lacking access to necessary healthcare facilities. The Morales et al. article states, "In a survey of physicians across California, communities with higher proportions of black and Hispanic residents were four times as likely as communities with high proportions of white residents to have a shortage of physicians, regardless of income" (Morales et al., 2002). This creates a geographical barrier to the Hispanic communities and deters utilization of these services. People are less likely to visit these facilities when located far away, and especially if transportation becomes a problem. Elderly are less likely to commute to health facilities, and studies have shown that Mexican Americans are less likely to commute than Non-Hispanic Whites (Morales et al., 2002). More difficulty arises when one is required to take time off work to either drive themselves or family members to facilities. Hispanics may be unable to afford time away from work in order to keep their wages and support themselves and their family. This creates a conundrum in which facilities do not have convenient locations, and people are unable to travel to get the care they need. In either case, healthcare is not being provided.

Yet another barrier to administering healthcare is language. Receiving instructions on patient history, diagnosis, correct medication, and medicine dosage can be confusing enough to understand if you speak the same language as the physician. However, this relay of information between the physician and the patient becomes almost impossible if there is a disparity between

languages. In this case, both parties are unable to receive what they need- the physician is unable to get holistic background information on past medical history or symptoms, and the patient is unable to understand prescriptions and critical directions to accompany the medical dosage. Patient's testimonies in the article, "Quality of Life Among Immigrant Latina Breast Cancer Survivor's: Realities of Culture and Enhancing Cancer Care," found that language was a huge barrier, even if the patient spoke English. One woman's lack of communication with her healthcare worker left her, "Not being able to communicate exactly and not knowing how to express myself- and [express] all that I felt so that they understood me" (Lopez-Class, et al., p. 730, 2011). Patients are not able to understand physicians, and similarly physicians are not able to understand the patient. Therefore, effective communication is lacking in both directions. However, there has been an increase in the demand for Spanish speakers in the medical field, especially in areas where Hispanics are the majority. This can be utilized as a useful tool for beneficial communication, but it does not always work smoothly. Some of these women still were not satisfied with the presence of an interpreter. They felt as if their questions and concerns were not conveyed accurately to the doctor (Lopez-Class, et al., p. 730, 2011). Similarly, other cultural factors can lead to distrust between patients and healthcare employees. Misunderstanding of the Hispanic culture leaves patients with feelings of isolation and discourages patients from visiting in the future.

The most institutionalized barrier to health is the lack of insurance. According to the U.S. Census Bureau, about 30.4% of Hispanics under 65 do not have insurance coverage. This percentage is more than halved when compared to Non-Hispanic Whites without insurance, with 12.7% uninsured. (U.S. Census Bureau, *FastStats*, 2010). Consequently, these people that do not have insurance are responsible for their entire bill whenever medical assistance is needed. Due

to this fact, many uninsured Hispanics avoid using healthcare facilities, and only seek out help when they are in critical condition, if at all. If insurance was provided to all, preventative screenings, lifestyle choices, and education and treatment would be able to be implemented and would alert consumers and healthcare practitioners to the signs of illness sooner. By denying the uninsured the opportunity for affordable healthcare, they are also essentially denied routine visits, lab tests, surgeries, and any form of treatment.

A final deterrence to Hispanics receiving the deserved treatment is poor socioeconomic status. According to the U.S. Census Bureau, the average income for a Hispanic family in 2010 was $37,759 as compared to $54,620 for Non-Hispanic Whites. Non-Hispanic Whites make significantly more than Hispanics every year. Consequently in 2010, 26.6% of Hispanics were considered to be living in poverty. Non-Hispanic Whites living in poverty were less than half of that percentage at 13% (U.S. Census Bureau, *Newsroom*, 2010). Based solely on income and poverty, Hispanics are at a socioeconomic disadvantage when compared to Non-Hispanic Whites. A second component that applies to socioeconomic success is education. In 2010, 62.2% of Hispanics 25 years or older had a high school education, and only 13% had earned a bachelor's degree or higher (U.S. Census Bureau, *Facts for Features*, 2010). Education and socioeconomic status are indicators of healthcare coverage, health, and overall safety. Hispanics living in poverty and without education are not given equal opportunities to take control of their health and are disadvantaged in many aspects of everyday life. Poor socioeconomic status is a major determinant of poor health outcomes, as it is intertwined with so many variables.

Despite the many potential health disadvantages that Hispanics face every day, they seem to have increased longevity when compared against Non-Hispanic Whites. This phenomenon is known as the Hispanic Paradox. Three possible explanations have been cited in the literature,

and were described in an article in *The International Journal of Environmental Research and Public Health. The* first explanation given is the "Healthy Migrant Effect." This explanation suggests, "There is a healthy selection effect due to the substantial physical and mental demands of migration" (Thomson, Nuru-Jeter et al., p. 1788, 2013). It is stating that only those who are mentally and physically robust choose to immigrate because they are well aware of strenuous demands on health and emotional stability. Those that are young, old, weak or sick will not choose to immigrate due to their current state. Thus, influxes of physically robust and emotionally stable immigrants make the journey. It seeks to advocate for the type of person that immigrates to other countries and this facet contributes to their better health outcomes after migration.

The second explanation put forth is that of Hispanic lifestyles and health behaviors. This theory is centered on the Hispanic culture and explains, "The Hispanic mortality advantage is a result of strong social ties, more extensive social networks and healthier behaviors related to diet, smoking, alcohol consumption, and other health behaviors" (Thomson, Nuru-Jeter et al., p. 1789, 2013). Hispanic culture can be viewed as a protective mechanism for these immigrants when they finally reach their destination. Some examples for the Hispanic population are the importance of family, expansive social networks, the reliance on community, and the lack of smoking prevalent in Hispanic culture. Even though Hispanics arrive in a new place, these ties to former habits give them courage and the energy needed to persevere in the face of hardships. However, this protective mechanism begins to decline when immigrants become more acculturated to their new region.

The third explanation presented in the literature is known as the "Salmon Effect." This explanation believes that the immigrants return home after aging, retiring, or suffering from

illness. These immigrants return home to once again reconnect with their family where they feel the most comfortable and supported. Consequently, these deaths are not included in the United States mortality rates and decrease chronic illnesses among Hispanics (Thomson, Nuru-Jeter et al., p. 1790, 2013). This explanation seems most applicable to those immigrants from Mexico due to geographic proximity to the United States. The explanations listed above have been the three prominent theories when describing the Hispanic Paradox. All three have some data that support its validity, but none have been deemed comprehensively conclusive.

The Hispanic Paradox is perceived to be true when applied to numerous chronic illnesses. In this paper, the top two leading causes of death for Hispanics and Non-Hispanic Whites will be analyzed: heart disease and cancer. Heart disease is a broad term that encompasses coronary heart disease, heart attack, congestive heart failure, congenital heart disease and many more. Risk factors include smoking, high cholesterol, high blood pressure, obesity, less than standard diet, and lack of exercise. The Office of Minority Health compared heart disease in Hispanics to heart disease in Non-Hispanic Whites. In general, Hispanics are less likely to suffer from heart disease and are less likely to die from heart disease than Non-Hispanic White adults. In 2010, Hispanics were 20% less likely to have heart disease, and in 2008 Hispanics were 40% less likely to die from heart disease when compared to Non-Hispanic Whites. 5.2% of Hispanics suffered from coronary heart disease compared to 6.6% of Non-Hispanic Whites in 2010 (Office of Minority Health, *Heart Disease and Hispanic Americans*, 2010). Here are some of the general death rates by sex:

Age-Adjusted Heart Disease Death Rates per 100,000 (2009)

	Hispanics/Latinos	Non-Hispanic White	Hispanic/Non-Hispanic White Ratio
Men	153.8	231.1	0.7
Women	99.8	142.1	0.7
Total	124.2	180.9	0.7

Table 1: Office of Minority Health. *Heart Disease and Hispanic Americans*. 2010.

To quantify these results, the following equation was used to determine Hispanic cases against Non-Hispanic Whites:

$$\frac{Actual\ (Hispanic) -\ Expected\ (Non-Hispanic\ White)}{Expected\ (Non-Hispanic\ White)} \times 100$$

Hispanic men were 33.4% less likely to die from heart disease and Hispanic women were 29.8% less likely as well when compared to Non-Hispanic Whites. Hispanics also displayed lower risk factors that contribute to heart disease than Non-White Hispanics. Hispanics displayed a lower percentage of adults with high blood pressure, and 22.5% of Hispanics had high blood pressure compared to 23.9% of Non-Hispanic Whites. Hispanics are also less likely to be smokers, which will be described in detail later on in this paper (Office of Minority Health, *Heart Disease and Hispanic Americans*, 2010). Numerous research articles have confirmed these findings, such as "Coronary Death and Myocardial Infarction among Hispanics in the Northern Manhattan Study: Exploring the Hispanic Paradox." These researchers studied 2,671 participants in the Northern Manhattan area that were over 39 years old and had never been diagnosed with a stroke. They hypothesized that Hispanics would be at a higher risk for coronary death due to a higher burden of risk factors along with stressful societal factors. However, they found that Hispanics had a lower risk of coronary death and vascular death than Non-Hispanic Whites

(Wiley et al., 2012, p.304-307). Despite the burdens placed upon them, being Hispanics confers a longevity advantage when it comes to chronic heart disease.

The second chronic disease in my analysis is cancer. The prevalence and examination of cancer can become complex due to the various types of cancers and multiple causes. Certain exceptions to the Hispanic mortality advantage can be seen in certain types of cancers in which Hispanics have decreased incidence rates and death rates when compared to Non-Hispanic Whites. However, cancer is such a complex disease that such a universal statement cannot be applied. Therefore, I am choosing to focus my research on prostate cancer, breast cancer, and lung /bronchus cancer. To give a holistic background on cancer statistics, below are charts that encompass various types of cancers, cases, incidences and death rates:

Cancer Death Rates per 100,000 - Men (2005-2009)

Cancer	Hispanic Men	Non-Hispanic White Men	Hispanic/Non-Hispanic White Ratio
All Sites	152.1	217.3	0.7
Liver & IBD*	12.3	7.1	1.7
Prostate	19.2	21.3	0.9
Stomach	7.6	3.9	1.9

Cancer Death Rates per 100,000 - Women (2005-2009)

Cancer	Hispanic Women	Non-Hispanic White Women	Hispanic/Non-Hispanic White Ratio
All Sites	101.2	153.6	0.7
Cervical	2.9	2.1	1.4
Liver & IBD*	5.4	2.9	1.9
Stomach	4.4	1.9	2.3
Breast	14.8	22.7	0.7

New Cancer Cases per 100,000 - Men (2009)

Cancer	Hispanic Men	Non-Hispanic White Men	Hispanic/Non-Hispanic White Ratio
All Sites	385.1	537.1	0.7
Prostate	116.8	145.0	0.8
Stomach	15.0	8.7	1.7

New Cancer Cases per 100,000 - Women (2008)

Cancer	Hispanic Women	Non-Hispanic White Women	Hispanic /Non-Hispanic White Ratio
All Sites	319.3	439.8	0.7
Breast	91.4	138.0	0.7
Cervical	10.4	6.5	1.6
Stomach	8.1	3.7	2.2

Cancer Incidence Rates per 100,000 - Men

Cancer	Hispanic Men	Non-Hispanic White Men	Hispanic/Non-Hispanic White Ratio
All Sites	409.7	558.9	0.7
Kidney & Renal Pelvis	20.1	21.7	0.9
Liver & IBD*	18.3	9.1	2.0
Stomach	14.9	8.3	1.8
Colon & Rectum	45.5	52.1	0.9
Esophagus	5.2	8.4	0.6
Lung & Bronchus	40.6	79.1	0.5
Oral Cavity & Pharynx	9.3	18.0	0.5
Pancreas	12.1	14.0	0.9
Prostate	125.8	148.2	0.8

Cancer Incidence Rates per 100,000 - Women

Cancer	Hispanic Women	Non-Hispanic White Women	Hispanic/Non-Hispanic White Ratio
All Sites	323.2	441.2	0.7
Kidney & Renal Pelvis	11.1	10.9	1.0
Liver & IBD*	6.9	3.0	2.3
Stomach	8.6	3.8	2.3
Breast	90.8	133.4	0.7
Cervical	10.9	7.2	1.5
Colon & Rectum	31.6	39.3	0.8
Lung & Bronchus	26.3	58.7	0.4
Pancreas	10.6	10.7	1.0

Table 2: Office of Minority Health. *Cancer and Hispanic Americans*. 2010.

The same equation used for heart disease was utilized to quantify cancer incidences, prevalences, and death rates. Hispanic men were 9.9% less likely to die from prostate cancer than

Non-Hispanic White males, and Hispanic women were 34.8% less likely to die from breast cancer than their Non-Hispanic White counterparts. When analyzing new cases, Hispanic men were 19.4% less likely to have prostate cancer and women were 33.8% less likely to be diagnosed with breast cancer in 2009 and 2008 respectively. Cancer incidence rates also displayed increased longevity for Hispanic males and females. Beginning with males, they were 38.1% less likely to be diagnosed with esophageal cancer, 48.7% less likely with lung and bronchus cancer, and 15.1% less likely with prostate cancer when compared to Non-Hispanic Whites. Women were 31.9% less likely to be diagnosed with breast cancer and 55.2% less likely to be diagnosed with lung and bronchus cancer compared to Non-Hispanic White women (Office of Minority Health, *Cancer and Hispanic Americans*, 2010). This decreased incidence for Hispanics could be attributed to the Hispanic cultural view of smoking, which will be discussed as a cultural protective mechanism for Hispanics. As seen above in the data collected for the Office of Minority Health, Hispanics have increased longevity from certain chronic diseases such as cardiovascular disease and certain forms of cancer, but these observations should not be applied to every form of cancer without more research.

Despite all the disadvantages presented in the introduction of this paper, Hispanics seem to fare better in chronic diseases and outlive their Non-Hispanic White counterparts. Some theories of this Paradox have been cited in the literature, but a holistic view has not yet been attempted. Numerous components of the Hispanic culture could serve as a possible explanation to the stated discrepancies. To begin with, Hispanics place enormous value on their families and social networks. This idea has been labeled by social scientists as "familismo." As noted in "An Anthropology of Familismo: On Narratives and Description of Mexican/Immigrants," familismo is a concept in which Hispanics are strongly attached to nuclear and extended families, and place

the needs of their family before everything else, including the individual. It is an obligation to your family to provide support, either economic or social (Smith-Morris, et al., p. 36-37, 2012). The researchers categorized familismo into three different components: familial obligations, perceived support from the family, and family as referents. Immense value is placed upon the family and their opinions, which forms an identity for Hispanics. It is a comfort that is able to provide emotional support and meaning to everyday life. This identity is so engrained in their culture that it is carried in their minds and hearts as they immigrate.   The authors of this article completed an ethnographic account on Mexican immigrants in the United States and Mexicans from Mexico regarding the importance of family. The samples were selected specifically, in Dallas, Texas, El Gusano, Mexico, and Dolores Hidalgo, Mexico. Answers were organized into categories regarding culture, and one category of their findings concerned migrant familismo. Many of the subjects interviewed cited "family" as a reason for migration. One of the most common reasons was to provide a better life for their family back at home, to be with family, or they were brought with family at a young age.   Many of the subjects with families back in Mexico vowed to return in the future to be reunited (Smith-Morris, et al., p. 44-47, 2012). This displays that the family was a crucial determinant in the immigrant process and seeked to put family's needs before that of the individual.

Even though families can be stressful and have negative influences on some, the positives of a familial support system outweigh the negative stressors. An example of positive familismo was demonstrated in Lopez-Class, et al.'s article that discussed realities of culture and the effect on breast cancer in Hispanic women. The article described multiple Hispanic core values and how the values were either deleterious or beneficial for the patients. Specifically for familismo, patients stated that challenges did occur within the family, but most viewed the support as a

beneficial factor in recovery. A few of the women had family visitors from far away to help care for them, while others commented on experiencing emotional distress without their family being present. One patient even expressed more concern for the separation from her family than her present health condition (Lopez-Class, et al., p. 729, 2011). A final example of familismo is that family members would selectively disclose information about other pressing issues in family to the patient. They would not share upsetting news with the patient in fear that their condition would worsen. This displays the cultural concept of elevating the family's needs above personal needs (Lopez-Class, et al., p.730, 2011). Family is the forerunner in all decisions, especially when concerned with the health of a family member.

Another structural social support network was analyzed in Ayón and Naddy's article in the *Journal of Community Psychology*. The researchers acknowledged the variety of roles that social networks play, such as helping with basic necessities, during emergency situations, providing emotional support and/or advice, and influencing immigrant's decisions (Ayón & Naddy, p. 363, 2012). The authors displayed their organization of social support networks into the figure below:
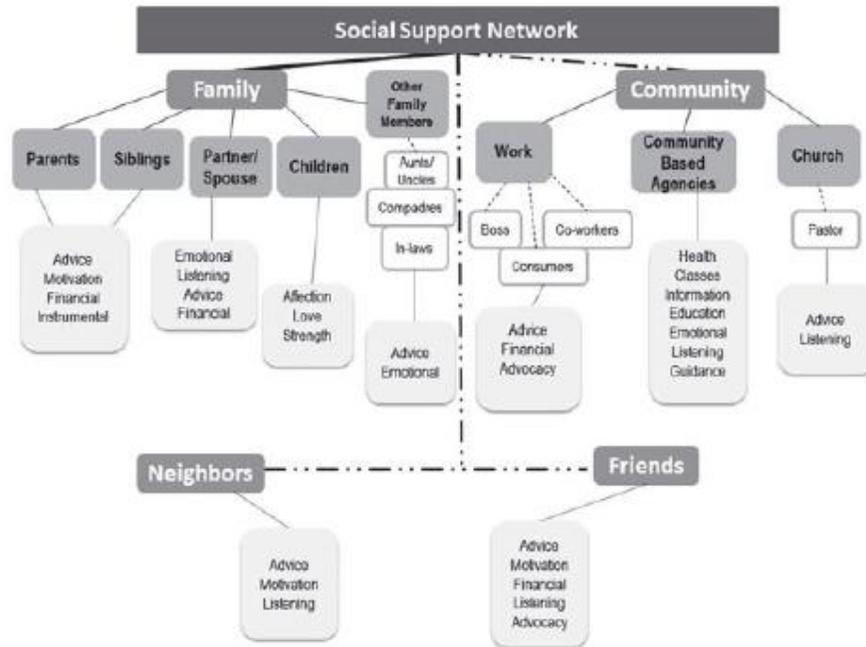
Figure 1:, Ayón, C. and Naddy, M. (2013). Latino immigrant families' social support networks: strengths and limitations during a time of stringent immigration legislation and economic insecurity. *Journal of Community Psychology, 41(3),* p. 365.

This figure broke down the social networks of Hispanic immigrant families into four different categories: family, community, neighbors, and friends. The first category, family, includes nuclear and extended family members. Within the family support network, people receive emotional and economical support (Ayón & Naddy, p. 365-367, 2012). Familial support is a protective mechanism when immigrants are feeling isolated in a new society. Having family members around decreases stress and feelings of alienation in a new place and are resources when experiencing difficulties. A second support system outlined in the research is the community. Organizations such as religious institutions, work, and community organizations allow Hispanics to begin and develop bonds outside their family. Similarly in neighbor support systems, the feelings of acceptance and support increase attitudes, especially in immigrant families (Ayón & Naddy, p. 364-368, 2012). Neighbors also are part of Hispanic support networks. Neighbors are able to take care of children and give the Hispanic family a feeling of belonging when they are welcomed into a new community. These bonds created outside the

family are crucial in avoiding feelings of isolation. A final source of support for Hispanics is close friends. Like family members, friends provide motivation, helpful skills, resources, and emotional reinforcement. Friends, even more sometimes than family, are utilized as confidants. This is especially common when possible reactions are disappointment and shame. The accumulation of all these support systems decreases the social stress and recreates the emotional support of the family. The more diverse support systems that branch over all the four areas listed are more likely to decrease stress.

Many agree that family and community support is important, but Hispanics have a cultural concept of personalismo that justifies the support given and received to an elevated level. To Hispanics, a component of self-worth is, "The amount of power a person exerts in the lives of others….It can best be achieved through the establishment of a continually expanding set of personal contacts and ties that bind or obligate others to support or assist one's family and friends," according to David Clawson's text, Latin America and the Caribbean (2012). This theory emphasizes the importance of establishing personal connections and maintaining these connections through life. Through personalismo, god parenthood has developed into a mutual support system for both parties. In our culture, god parenthood is a symbol with limited effect on dictating your life. In the Hispanic culture, god parenthood is viewed as an important addition to the family that will economically and socially advance your child and your lives. Thus, god parenthood is centered on the maintenance of personal connections. Embedded into the Hispanic culture are the ideas of ceremonial politeness and extending bonds even to those that they come into brief contact with. The idea of personalismo is the foundation for the establishing of these large social support systems seen in Hispanics.
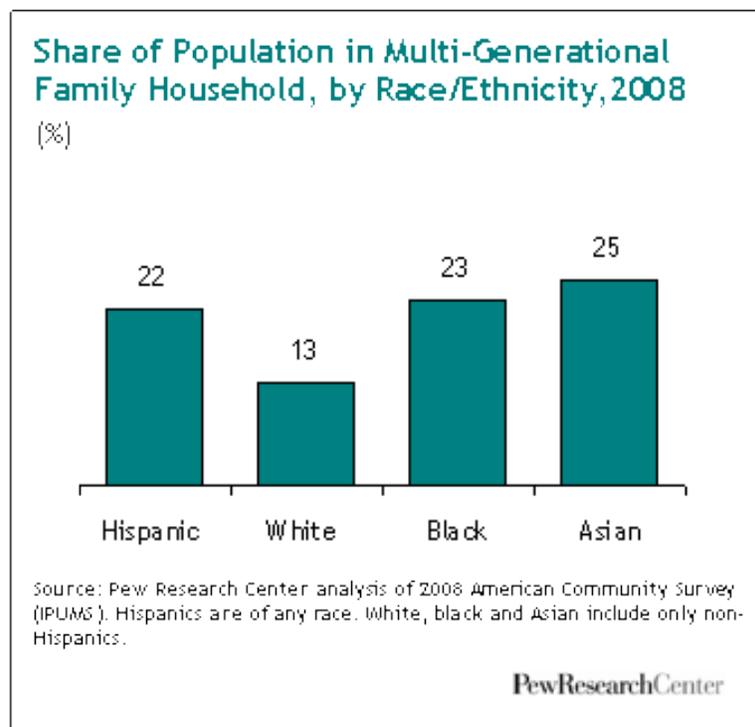
One could quantify familismo and support structures in numerous ways, but I chose to focus on the presence or absence of multigenerational households observed in Hispanic families and Non-White Hispanic families. According to Daphne Lofquist's paper, multigenerational households in America have been increasing over the years (Lofquist, 2013, p. 1). Older adults and young adults are two of the groups that are most responsible for the increase in multigenerational households, according to Pew Research Social and Demographic Trends. This study also classified three categories of multigenerational housing. First are households made up of two adult generations in one household. This category specifies that youngest adult being at least 25 years old. The second category refers "skipped" generation households, in which a grandchild would solely be residing with their grandparents. The last category involves three or more generations in one household (Pew Research, 2010). However, these three categories vary by ethnicity, and the differences can be seen in the figure below:
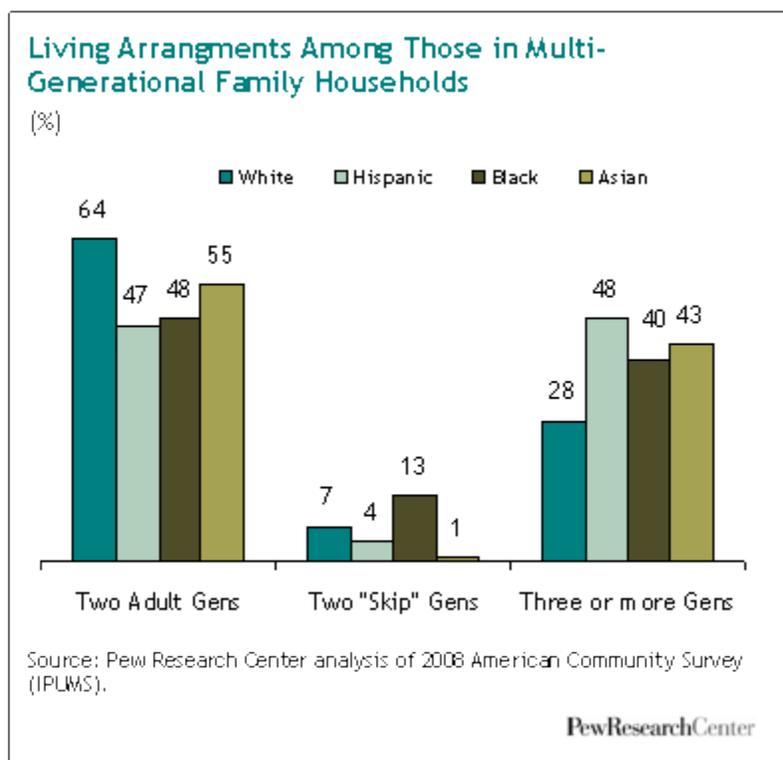
Graph 1: Living Arrangements Among Those in Multi-Generational Family Households. (2010). Pew Research.

Hispanics are more likely to live in a three or more generational household, exemplified with 48%, when compared to Non-Hispanic Whites, with only 28%. This displays that close knit family ties are prevalent in Hispanic households and span multiple generations. Almost half of the Hispanic families surveyed in Pew's Research were residing in multigenerational households. These facts and figures stem from the importance placed on family commitment and support theorized in the concept of familismo. Family is the most important and should be a major component of your everyday life.

This second graph outlines the distribution of multigenerational households by ethnicity in 2008:

Share of Population in Multi-Generational Family Household, by Race/Ethnicity, 2008 (%)

	Hispanic	White	Black	Asian
	22	13	23	25

Source: Pew Research Center analysis of 2008 American Community Survey (IPUMS). Hispanics are of any race. White, black and Asian include only non-Hispanics.

PewResearchCenter

Graph 2: Share of Population in Multi-Generational Family Household, by Race/Ethnicity, 2008. (2010).

Pew Research.

Familismo is also supported by the fact that overall, 22% of Hispanics live in a multigenerational household, compared to 13% of Non-Hispanic Whites. The presence of a variety of family

members is more likely to be observed in a Hispanic household as compared to a Non-Hispanic White household.

The reasons why Hispanics choose to live in multigenerational households vary, but Lofquist's article finds that those who are economically vulnerable, such as Hispanics, tend to experience lower poverty rates in multigenerational households than any other living arrangement. The U.S. Census Bureau's report, "America's Families and Living Arrangements: 2012," also confirmed the facts by stating that only 3% of Non-Hispanic Whites lived in multigenerational households when compared to 8% of Hispanics. Multigenerational houses are also associated with poverty, especially for minority groups such as Hispanics, as exemplified by the percentage of impoverished Hispanics in a multigenerational household was 24% (Vespa, Lewis & Kreider, 2012, p. 6-9). Hispanics tend to live with their parents longer when compared to Non-Hispanic Whites, because they are economically unable to support themselves, and have cultural beliefs that tie them to family members (Lofquist, 2013, p. 2-3). Immigrants also utilize multigenerational households as an adjustment period to their time in a new country. Family members are able to help alleviate the feelings of isolation and it provides them with an economic advantage as well (Lofquist, 2013, p. 3). A figure in Lofquist's article displayed the percentage of multigenerational households compared to housing costs in America and the states that had higher percentages of multigenerational households. These states were California, New York, Florida, Texas, Arizona, and New Mexico all correlate to those that tend to have the highest percentages of Hispanics residents (Lofquist, 2013, p, 11). The presence of multigenerational households among Hispanics reinforces their support systems and the cultural importance of familismo among the Hispanic population. This support system and cultural ties correlate to improved life expectancies when compared to Non-Hispanic Whites.

One of the most notable cultural advantages is the lack of smoking in the Hispanic culture. Andrew Fenelon, a graduate student at the University of Pennsylvania, was one of the first researchers to make this connection. Fenelon and Laura Blue began researching this topic and used health indicators, such as lung cancer, to extrapolate smoking-related deaths. Their preliminary findings and explanations, published in *Scientific American*, found, "That in 2000 smoking explained more than 75% of the difference in life expectancy at age 50 between Hispanic and non-Hispanic white men and roughly 75% among women" (Blue, 2011). Their research also discovered that Hispanics are less likely to smoke than Non-Hispanic Whites, and when they do smoke, they smoke less heavily and consume fewer cigarettes. Fenelon revisited the Paradox and synthesized more information in his article, "Revisiting the Hispanic Mortality Advantage in the United States: The Role of Smoking." He found that Hispanics are a heterogeneous group, and thus, his research shows the most consistent advantages for Mexicans. Fenelon continues to stand behind the role of cigarette smoking in the Hispanic Paradox for two reasons. First, cigarette smoking has a negative impact on individual mortality and is responsible for more than 20% of adult American deaths. Secondly, Hispanics residing in the U.S. tend to smoke less, smoke fewer cigarettes daily, smoke for fewer years, and have a lower prevalence. It is also notable that the Hispanic mortality advantage has stronger associations with smoking related diseases, such as lung cancers, respiratory diseases, and heart disease (Fenelon, 2013, p.2). Fenelon's revisit of his first paper confirms the importance of smoking to the Hispanic mortality advantage. More up-to-date information from the CDC finds that from 2009-2011, 17.2% of Hispanic men over 18 years old smoke cigarettes, as compared to 23.2% of Non-Hispanic White men. The same trend can be viewed in women over 18 years of age, with 9.1% of Hispanics that currently smoke, and 19.4% of Non-Hispanic White women. A larger

discrepancy can be observed for women; however, Hispanics smoke less than their Non-Hispanic White counterparts (CDC, *Health of Hispanic & Non-Hispanic White Population*, 2010).

As more Hispanics migrate to the United States and the Hispanic minority is rapidly increasing, the implications of acculturation should be analyzed. Acculturation is the process by which immigrant's beliefs and attitudes gradually fuse with those of their host culture. Acculturation can range from many areas of life such as food, language, dress, really anything that exemplifies one culture. Conversely, the *BMC Public Health's* article also defines enculturation, or the process by which immigrants choose to retain most of their culture and assimilate less to the host culture (Delavari et al., 2013, p. 2). These two concepts are intertwined and are very complex. Consequently, there is not one concrete answer that covers all the varying subtopics associated with acculturation. However, some positive and negative behaviors have been associated with Hispanic acculturation to the United States.

The most established negative outcome associated with acculturation is obesity in Hispanic populations. This association is made as, "People from low-to-medium-income countries who have migrated to and reside in high-income countries appear to be more susceptible to overweight and obesity than their local counterparts" (Delavari et al., 2013, p. 2). This article confirms this association to be true, despite the healthy migrant effect in which migrants tend to be healthier and more robust than others. The authors are finding this weight gain to appear in the migrants over 10-15 years after migration (Delavari et al., 2013, p. 2). Something must account for this overwhelming change in weight gain, and it was found that the more acculturated the populations were, the higher the BMI. Consequently, the BMI increased with each successive generation of the immigrants (Delavari et al., 2013, p. 7-8), leading to the

association of higher obesity rates as Hispanics become more acculturated. The *Journal of the American Dietetic Association* completed a systematic literature review of previous articles regarding acculturation among Hispanics and found that more acculturated individuals consumed more snacks, fast foods, and added fats as well as more sugar and sweetened beverages. These findings support the statement that, "The process of acculturation among Latinos is associated with suboptimal dietary choices including lack of breast-feeding, low intake of fruits and vegetables, and a higher consumption of fats and artificial drinks containing high levels of refined sugar"(Ayala, Baquero, & Klinger, 2008, p. 1342). All of these food products contribute to obesity and other related issues such as Type II Diabetes, in which Hispanics have high prevalence rates. For example, the Office of Minority Health states that Hispanic adults are 1.7 times more likely to be diagnosed with diabetes than Non-White Hispanics (2008) and were 1.5 times more likely to die from diabetes (The Office of Minority Health, *Diabetes and Hispanic Americans*, 2010). Acculturation in terms of diet is resulting in deleterious effects in Hispanics and seemingly counteracting the Paradox in some regards.

Hispanics are becoming obese due to food insecurity and lack of healthy food choices. Food security, as defined by the United States Department of Agriculture, is the ability of households to have access to enough food in order to ensure a healthy life for all of the household's members. In 2012, 85.5% of American households were deemed food secure. However, 14.5 %, or 17.6 million Americans resided in food insecure households. Food insecurity ranges on a spectrum from low food security to very low food security; nonetheless, these households are uncertain of the ability to acquire or gain access to food for their family members (USDA, *Food Security in the U.S.*, 2012). 23.3% of Hispanic households were deemed food insecure, and thus higher than the national average of 14.5%. Feeding America, our nation's

hunger-relief charity, provides statistics on Hispanic hunger to encourage others to join the cause of eliminating hunger in the United States. Latino households are twice more likely to live with food insecurity than Non-Hispanic Whites. Consequently, 28.7% of Hispanic children live in food insecure households, as compared to 16.9% of Non-Hispanic White children. These Hispanic families are also less likely to receive assistance from programs, such as Supplemental Nutrition Assistance Program, or SNAP (Feeding America, *Hispanic/Latino Hunger,* 2014). As stated as a earlier, Hispanics are living in poverty and poverty is the key component to hunger. Hispanics do not have access to healthy foods geographically or economically. Therefore, food choices are deterred from fruits and vegetables, which are more expensive and harder to find, and turned towards, inexpensive, bulk items, such as junk food with high calories, high fat content, and little nutritional value. This form of hunger, hidden hunger, is the characteristic form of hunger in the American population. As this trend of only consuming unhealthy food continues, the prevalence of obesity and Type II Diabetes will increase, especially in the Hispanic population.

Other negative associations with acculturation are outlined in "Acculturation and Latino Health in the United States: a Review of the Literature and its Sociopolitical Context," such as illicit drug use, alcohol consumption, and smoking. Illicit drug use, such as cocaine and marijuana, became more prevalent among more acculturated Latinos. This drug use is associated with lower socioeconomic status and dangerous neighborhoods that many immigrants are forced to reside in. A similar pattern is seen in the consumption of alcohol. Less acculturated Hispanics tend to drink less often than their more acculturated counterparts (Lara et al., 2005, p. 378-379). In the revisit of the Hispanic Paradox, Fenelon notes that attitudes and behaviors towards smoking change as Hispanics assimilate to behaviors in the United States. This could possibly

lead to the weakening and eventual disappearance of the mortality advantage concerned with smoking (Fenelon, 2013, p.8). Harmful substance abuse behaviors emerge as Hispanics become more acculturated to the American lifestyle. Incidence rates increase in subsequent generations as compared to earlier generations when this problem was seemingly non-existent.

As discussed earlier, acculturation is a multidimensional and complex topic. Along with the negative aspects of acculturation for Hispanics, positives can also be attributed to Americanization. Acculturation has been associated with more frequent uses of preventative treatments, such as mammograms, or pap smears (Lara et al., 2005, p. 382). This increased trend is observed as time spent in the host country increases. Some Hispanics have been able to obtain healthcare for their family and utilize medical resources. Unfortunately, this all depends on the availability of services per family. These advantages of acculturation should not be discounted; however, more deleterious outcomes tend to arise as elements of the Hispanic culture completely fade away.

The Hispanic Paradox is a biocultural phenomenon in which minority populations with tremendous social disadvantages experience increased health longevity. Hispanics experience poverty, healthcare barriers, language barriers, and many other disadvantages that should translate into poor health outcomes due to enormous burden of social stress. However, it has been found that Hispanics live longer than their Non-Hispanic White counterparts. The validation of the Hispanic Paradox has come into question as it is difficult to use this as a universal statement for all of the different ethnicities and countries that categorize their people as Hispanic. It also has experienced controversy when this Paradox only applies to certain chronic diseases and does not encompass them all. Some researchers have found it difficult to accept because it is not a universal statement. However, Hispanics are comprised of various ethnic

backgrounds, geographic locations spanning the globe, and ancestry lineages. It is almost impossible to compose a definitive statement that covers such vast adifferences. Despite these controversies, the Hispanic Paradox has been proven statistically significant, at least in the present. It has been an enigma as to what is the source of this correlation, and multiple theories have proposed answers.

I am choosing to highlight the importance of culture as the association for increased longevity in Hispanics. Hispanics come from backgrounds in which the importance of family and personal relationships define your worth. Familial obligations are ranked above everything, and you live to improve the lives of those close to you. I believe that these strong social ties protect against the devastating effects of chronic diseases such as cardiovascular disease and cancer. Stable social networks have associations with increased health outcomes and serve as support networks for the patient. A second factor is Hispanic's attitudes towards cigarette smoking. Hispanics smoke fewer cigarettes and for lesser time spans than Non-Hispanic Whites. Cigarettes are known associates with causing cardiovascular disease and cancers such as lung and oral. This lack of smoking accounts for increased longevity in these two chronic diseases. However, some academics predict that this trend will decrease over the next few generations as Hispanics become more acculturated to the United States. As they stray from their culture and become more Americanized, Hispanics seem to pick up our bad habits. This is observed as the rates of smoking and obesity are increasing in successive Hispanic generations. This begs the question if acculturation is beneficial to recent immigrants to the United States or if preserving their culture can ultimately extend their lives. The answer to this question has still yet to be decided, and we will only be able to tell as successive generations age.

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