Oral Health Diseases in the Hispanic-American Population:

Solutions to the Disparities between the Hispanic-American and Caucasian Populations.

An Honors Thesis (HONR490)

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Abstract

The importance of oral health has grown significantly over the last few centuries, especially with the advancement of medical technology. The movement towards obtaining adequate oral health is a trend that is growing; however, it is still behind the care which patients take for their overall health. The knowledge of oral health within the Hispanic-America community has become a topic of major discussion because of the poor oral health trend that has been found. Studies, done many times by the American Dental Association (ADA), have highlighted that Hispanics in the United States suffer much higher rates of oral health disease at all ages.

The focus and analysis of this paper will involve providing general information about the importance and the consequences of poor oral health. Of major importance are the diseases which correspond with poor oral health. Further, the disparity among the Hispanic population in comparison to the Caucasian population will also be explored. A central issue here is the impact of dental insurance on Hispanics being able to receive adequate care. One topic in particular will be the implications for those who do not have dental insurance. Other important factors such as social, socioeconomic, and generational issues will be explored as well.

This topic is of major relevance because there has been a large gap in studies done about oral health of the Hispanic-American population. It is quite easy to find studies about Hispanic oral health leading into the late 1990s and early 2000s; however, studies become more scarce and harder to find as the years approach 2010. During this same period, the Hispanic population within the United States boomed. From 2000-2010 alone, the Hispanic-American population increased by 43%. The frequency of studies about Hispanics should have
increased with the rate of the Hispanic-American population, although it appears this has not been the case.

The last issue explored will be how oral health diseases can be reversed among the Hispanic-American community. Further topics discussed will be the implementation of dental programs to teach oral health, where to implement these programs, and how effective English only programs will be. The end goal of this thesis is to identify the problems that exist among the Hispanic-American community and solutions to help rectify them. This thesis will analyze current issues among the Hispanic-American community which have plagued their oral health, and the next steps needed to reduce these concerns.

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Process Analysis Statement

This thesis was created by bringing the issues of oral health down to a micro-level. Many of the oral health issues discussed within the United States include the whole population, and the individual differentiated statistics are not always visible. By looking deeper into the oral health statistics, it is easy to see that one group sticks out, the Hispanic population. By first identifying a group to study, it was easier to examine the oral health issues based on age, economic factors, and social factors. The first pages of this paper serve to break down the importance of strong oral health, but also to show the major impact oral health has on one's physical health. To make this thesis relevant with the time period, studies were taken from the 1990s through the 2000s to measure how oral health has changed within the Hispanic community.

The importance of this topic is to explain the poor oral health trend within the Hispanic-American community. The Hispanic community has become a growing portion of the United States. From 2000-2010 alone, the Hispanic community grew by 43%. However, during this same period the Hispanic community has been a leader in poor oral health problems, and as recent as 2013, 36% of the community suffered from some sort of untreated oral health disease. These oral health diseases are linked to previous physical health problems and lead to further health problems. Many of these oral health problems can be prevented with proper oral hygiene, however, proper oral hygiene must be taught first. One of the best steps for oral care is preventative care. First, it reduces the risk for oral health diseases and other physical problems, but is also less expensive than late-term dental procedures. Taking preventative measures such as dental sealants has been shown to reduce the risk of cavities by up to 80%. Dental sealants,
along with proper brushing, flossing, and the use of mouthwash can help reduce this risk further. Applying proper oral hygiene can help reduce the risk for infection, lost work time, need for reconstructive dental care, and overall expenses.

Teaching the Hispanic-American community proper oral hygiene, can lead to a larger portion of the United States becoming healthier. Because of the direct connection between oral health and overall health, the benefits of good oral health are two sided. Taking preventative action leads to reduced time spent in the dental office while simultaneously freeing up dentists to see other patients. Another benefit of preventative hygiene is the reduced stress on dental insurance companies. As the number of claims charged to a dental insurance company increases, the greater likelihood that the cost of premiums and deductibles will also increase.

This topic was of importance to myself because of my Hispanic background. The family on my father's side immigrated from Mexico and primarily resides in the Chicagoland area. I know from personal experience that they suffer from many of the oral health problems which will be later discussed. This was the main reasoning behind writing the paper, however, the growing Hispanic population in the United States also makes it timely. Hopefully one effect of this paper is to increase in the studies done on Hispanic oral health within the United States. While researching for this thesis, there appeared to be a large gap from the early 2000s to 2010 where Hispanic-American oral health was not a major topic. However because of the booming population it would be logical to assume these studies should have become more frequent. Although this topic stresses the importance of oral health within the Hispanic community, it should be eye-opening for all types of health within minority communities because the minority population is only growing. By failing to take measures in addressing Hispanic-American oral health, we are ignoring
1/5 of the population. By addressing issues with this community and taking the successful educational programs, they can then be applied to other minority groups.
Oral Health Diseases in the Hispanic-American Population:

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The Importance of Oral Health

At one time, the importance of oral health was likely one that had no value. However, this is no longer the case. Poor oral health affects millions of people throughout the world, often leading to further diseases throughout the body. By taking simple measures such as brushing one's teeth and regularly visiting the dentist, the risk for oral health diseases can be reduced drastically. Receiving sealants at the dentist alone has been shown to reduce the risk of cavities by nearly 80%. However, even with this information being wide spread, there is still a large disparity among minority populations in the United States when it comes to oral health diseases, and the Hispanic population is at the forefront.

The consequences of having poor oral health can last a lifetime, which necessitates the importance of resolving issues early. Maintaining oral health is essential for every person because this often influences their overall health. The human mouth hosts hundreds of different bacteria, most of which are not harmful but those that are can seriously jeopardize one's health. According to Colgate, there are over 700 different strains of bacteria that have been detected in the human mouth. While some are beneficial, many others cause tooth decay and gum disease. The number of bacteria in our mouth can be even more dangerous because the mouth is covered in a very thin epithelial tissue, which is easily damaged because of the few layers it possesses. The purpose of this thin epithelial tissue is to allow for secretions of enzymes to breakdown food, salivate the mouth, but also to provide a layer of immunological defense. Because of the thin tissues, even the slightest bump or scrape can cause our mouth to bleed, which can then allow bacteria to travel almost anywhere in the
body. Although there are few dangerous bacteria in the mouth, one would not want them traveling to their heart or other vital organs.

There are dozens of diseases that correlate with poor oral health. The ADA found that the most common oral health problems associated with diabetes were tooth decay, infection, gum disease, and inflammation of the gums. In addition although diabetes often only appears to affect blood sugar levels, it also has severe implications on oral health. The longer one has diabetes, the more likely they are to suffer from periodontitis because of diabetes' side effects, which include red or swollen gums, painful chewing, loose or sensitive teeth, and bad breath. Those with diabetes commonly suffer from high sugar levels throughout the body, including in the saliva. The high sugar levels in the mouth slowly lead to the breakdown of a person's teeth, further lowering their immune system.

One disease which can stem from the after effects of diabetes is periodontitis. High sugar levels in the mouth can help bacteria and plaque thrive. Further, one leading cause for periodontitis is gingivitis, the inflammation of the gums caused by a build-up of plaque on the teeth. Throughout the United States, 27% of people suffer from gingivitis. Eventually gingivitis can lead to deterioration of the gums, teeth, and even facial bones. As these parts of the mouth are compromised, they open areas for bacteria to enter and cause infections.

Another consequence of poor oral health is increased risk for damage to important organs in the body. A study published in 2006 showed that patients with 0 to 24 teeth had an 80% increased risk of stroke compared to patients with more than 25 teeth (the average adult has 28 teeth not including wisdom teeth). Further, periodontal disease patients younger than
55 had a 50-80% increased risk for Coronary Heart Disease. The scientists and doctors of the study found that those with less than 25 teeth were less likely to care about their oral health but also were less likely to care about activities relating to cardiovascular health. Although not every patient suffers from these diseases, by brushing one's teeth and regularly visiting the dentist, the likelihood of periodontal disease can be reduced as well as the risk of damaging essential organs.

Additional risks with oral health are seen as the patient's age increases. It is more common among adults over the age of 65 to take medications, and even more common for those over the age of 80. A study done by The American Dental Association in 2015 showed that Xerostomia, or dry mouth, affects 30% of patients over the age of 65 and 40% of patients over 80. The increase in Xerostomia was more likely to occur in those who took four or more daily prescription medications. The effects of dry mouth include caries, cracked lips, and deep grooves in the tongue. Further, older adults have an increased risk for oral problems because their gums start receding. Although this study by the ADA includes the general population, further importance should be put on the aging Hispanic-American population because of the likelihood they will have suffered from oral health diseases at younger ages and more frequently.

Oral health requires serious attention because infections can lead to severe complications for an individuals' overall health. Those suffering from periodontal disease are often prone to being diagnosed with cardiovascular disease. Periodontal disease increases the risk for Coronary Heart Disease by 25%, and Coronary Heart Disease is responsible for one-third of deaths in the U.S. each year. Also, 50% of those with severe periodontal disease have
By failing to maintain healthy oral hygiene, the bacteria located in the mouth can pass into the bloodstream. When the bacteria enter the heart, the chances of being diagnosed with infective endocarditis are increased, an infection of the heart’s lining or heart valves. Infective endocarditis is more common among people with poor oral health because bacteria find their way into the bloodstream easier than in those who maintain good oral hygiene.

Those with infective endocarditis can suffer from further complications while attempting to fix their problem. Treatments for infective endocarditis often necessitate taking antibiotics during dental procedures to counter bacteria’s easy access to the bloodstream. However, the dental procedures increase the risk for further infections because it causes more areas for bacteria to enter. Additionally, while taking antibiotics kills some of the bacteria, stronger bacteria forms. A common example of this is Methicillin Resistant Staphylococcus Aureus (MRSA), which is highly antibiotic resistant because of bacteria which have survived the initial antibiotics and passed the resistance onto their offspring.

This affects overall health because the body is continually fighting off stronger bacteria to prevent infections. Over time, this contributes to the development of drug-resistant bacteria. Those who do not try to fix their oral health while suffering from infective endocarditis continue to suffer as infections spread further throughout their body. Infective endocarditis is only one of many cardiac diseases that can result from poor oral health, such as Atherosclerosis and stroke are others.

As seen, the overall benefits of having strong oral health can be a major benefactor in preventing other overall health problems. Although only a few diseases were listed, there a
many others that result from poor oral health, but are also easily preventable with proper hygiene such as regular dental visits, flossing, brushing one’s teeth twice a day, and rinsing the mouth with mouthwash.
Social Factors Influencing Oral Health

A study done by Watson, Horowitz, Garcia and Canto in 1995 showed that only 53% of children ages 2-5 were caries free, while another 26% needed immediate care. The importance of their study stemmed from the knowledge of the children’s parents. Approximately 52% of the parents knew the purpose of fluorides, while only 7% knew the purpose of sealants. Fluoride is used by many water treatment facilities because of its ability to protect the teeth from demineralization caused by acids. Sealants are used mainly on the chewing surfaces of teeth to form a barrier on the enamel to prevent tooth decay.

Another separate study done on the Hispanic-American Oral Health per the ADA in 2013, found the rate of untreated oral health disease in Hispanics to be 36%, nearly double the rate of non-Hispanic whites at 22%. However, this number has only decreased slightly from 2005 when it was at 40%. Further, another study found that 17.7% of Hispanic children had never visited the Dentist. With the rate of oral health diseases significantly higher among Hispanic-Americans, it raises the question, why?

In 2015, Doctor Damon Tweedy stated that “As a general rule, black patients are more likely to feel comfortable with black doctors. Studies have shown that they are more likely to seek them out for treatment and to report higher satisfaction for their care”. Although Tweedy makes the reference to black patients, this same idea can be applied to Hispanics because they also are a minority within the United States. But there is a major disparity between practicing Hispanic dentists and the Hispanic population in the United States. The Hispanic population makes up nearly 15% of the U.S. population; however, only 7% of practicing dentists are Hispanic.
The lack of Hispanic dentists is a likely contributor to the near 40% of Hispanics who have untreated oral health diseases. There also appears to be a direct correlation between parental knowledge of dental sealants to the rate of oral health disease as a 1999 study found that only 7% of parents knew the purpose of sealants, 52% knew the purpose of fluorides, and 9% thought toothpaste could prevent tooth decay. This same study found that only 10% of Hispanic children aged 8 years received sealants, compared to 29% of their non-Hispanic white counterparts.

Of the Hispanic age groups studied, 12-19 and 20-64, it was found Hispanics aged 20-64 were at the highest risk for untreated dental caries. After adolescence, the burden of going to the dentist usually falls on the individual, instead of their parental guardian. After leaving their parent's insurance (if they had it at all), it can be hard for individuals to pay for their own dental insurance. Further, if they never had dental insurance, there is an increased chance they would not view it as a priority. With the average cost of a check-up being $288 alone, and the rate of untreated oral disease in Hispanics nearly 40%, the necessity for strong oral health is growing.

Another social factor influencing Hispanic oral health is the timing when one brushes their teeth. Many Americans have a routine of brushing their teeth after they wake up and before they go to bed; however, because many people brush their teeth in the bathroom, the likelihood for this routine to pass along to their children is decreased. Further, many children learn their hygiene habits from their parents so if the parents do not have a healthy hygiene routine, there is a better chance their children will not as well. Parents can promote strong oral health in their children by starting young and at least using a washcloth or gauze pad to wipe down their baby's mouth. Further, by familiarizing their children with the idea of having a
toothbrush in their mouth, the children are more likely to mimic their parents.¹⁹
**The Cost of Dental Care**

With the importance of oral health growing, the importance of having proper insurance coverage for dental care is also growing. Currently, the average cost of dental insurance for a single individual is $360 per year.\(^\text{20}\) Although this appears to be a minimal amount, when factoring in for a family of four, it can become much more of a financial burden. The cost to cover a family of four through one of the largest dental insurance providers, Delta Dental, was $115.02 per month, or $1380.24 for the year, assuming parental ages of 27 and children ages of 4 and 8. However, as age increases, the cost of dental insurance also increases.\(^\text{21}\) In addition the cost goes up the more family members visit the dentist. A study done by Thomas Wall and Albert Guay through the ADA found that the average cost per-patient dental visit was $685 in 2013.\(^\text{22}\) The average cost of one filling, tooth extraction, and crowns range from $50-$250, $75-$600, and $328-$776 respectively.\(^\text{23}\) Some procedures listed do not appear to have high costs associated with them, but when adding in these procedures for multiple teeth, and multiple family members the cost can be significant.

Another important factor to consider with dental care is the urgency of matters. Those who have ever had a tooth ache or their wisdom teeth growing in understand the importance of receiving adequate care quickly. To cause further complications with dental care, many offices require payment before leaving the office, no matter how urgent the matter. Requiring payment before leaving the office can cause a strain on the patient because of the high costs for procedures. In 2013, the Hispanic Dental Association partnered with Proctor and Gamble and found that 45% of Hispanics lacked dental coverage, and 18% had not visited a dentist in the previous two years. In comparison, 40% of Americans lacked dental coverage and 12% of
the general population had not visited the dentist in the previous two years. As of 2015, there were 56.6 million Hispanics in the United States. If 5% more Hispanics had dental coverage, over 3 million people would be able to receive better oral care.
One of the factors that can directly affect the oral health of an individual is income. If income sources are limited or lacking, it can make it more difficult to obtain dental insurance. As stated, the average cost of dental insurance in the United States for a single individual is $360 per year, which only becomes more of a financial burden for growing families. Per the United States Census Bureau, the average income of Hispanic families in 2015 was $45,150, however, the poverty rate among Hispanics was also 21.4%. In contrast, the average income of a Caucasian family in 2015 was $60,109. To be considered below the poverty line in 2015, a family had to make less than $24,339. When factoring in the cost of dental insurance to the percent of the Hispanic population below the poverty line, it is easier to see why a large portion of this population suffers from oral health problems.

For those living below the poverty line, there are likely many more concerns, such as food and housing. However, the necessity of dental care should also be a priority because of the numerous diseases which are correlated with poor oral health, including diabetes, infective endocarditis, stroke, and atherosclerosis. Additionally, the cost of dental visits is also increasing, and a mere check-up cost on average $288. Dental insurance typically can be paid over a series of months, while many dental offices require payment before leaving.
Alleviating the Oral Health Crisis

To alleviate the apparent oral health crisis in the Hispanic-American community, there are certain steps that need to be initiated. The problem starts at a young age and only progresses. In 2013, the ADA found that the rate of untreated oral disease in Hispanics was 36%, nearly double the rate of non-Hispanic whites at 22%. This large gap can likely be attributed to the 17.7% of Hispanic children who have never visited the dentist. Programs that help streamline Hispanic-Americans into the dental school path could have major benefits for the individual, but also for their surrounding community. However, at this point in time there does not appear to be any studies measuring the effects of teaching Hispanics the benefits of good oral health. These programs can be as simple as introducing Hispanics to the dental field during high school or showing them the possibilities beyond just being a dentist, such as specializing or doing dental research. Another beneficial program would be showing Hispanics less expensive and less time demanding programs such as a 2-year dental assistant program. Not only would these assistant programs provide an education for these Hispanics to boost their income potential, it would provide more Hispanic-to-Hispanic interactions. Based on Tweedy’s findings, this would increase the likelihood of Hispanics visiting the dentist and what they perceive as proper care. Further, Hispanic dentists will also be great resources to lead programs stressing the importance of oral health, which will be explained below.

Additionally, programs to teach the importance of oral health care should be implemented. These programs should be offered in all schools; although, those with the highest Hispanic populations should be the priority as they will likely have the highest impact. These programs should be offered to students’ parents as well because a parent has the greatest
influence on a child. However, an important factor to keep in mind is that roughly 68% of the Hispanic population speaks English proficiently, so a Spanish version would be highly beneficial and likely provide a higher rate for success.\textsuperscript{25}

Likely one of the most beneficial programs to the Hispanic community is Medicaid, which can serve at least 21.4% of the Hispanic population. This program assists Americans, including children, pregnant women, parents, seniors and individuals with disabilities. The major mandatory groups that each state is required to cover include low income families, qualified pregnant women and children, and individuals on Supplement Security Income (SSI). To be eligible for Medicaid in 2017, one must be within 133% of the Federal Poverty Line (FPL). This means that in the contiguous United States, a three-person household would need to make less than $26,800, and a four-person household less than $32,300. With more than 20% of Hispanics below the poverty line, there is already an enormous amount of the Hispanic population in the United States that qualifies for Medicaid; however, with the threshold to qualify being 133% of the FPL, there are many more who qualify who do not realize it. Further, Medicaid can assist with premium payments, copays, and deductibles for families making up to 150% of the FPL or $37,800 and $45,570 for three and four-person families respectively. This expanded coverage can make dental care more accessible, but if the families are unaware, these resources are going unused.\textsuperscript{26}

If eligibility for Medicaid is not an option, there are still further options. Many dental schools offer discounted rates for patients who are willing to allow their students to perform the procedures instead of a fully licensed dentist. Although practicing dental students are often tasked with much of the procedure, they always have a licensed dentist supervising their work
and stepping in where need be. Using Tufts University School of Dental Medicine for reference, having a cleaning, one surface white filling, root canal, or tooth-colored crown done by a dental student runs $69, $77, $525, and $811 respectively; although, having a faculty member who is a practicing dentist or specialist, would cost $117, $235, $1,479, and $1,887 respectively. The prices of the faculty member are also comparable to other private dentists. Depending on the procedures, patients can save up to 68% of the original cost by allowing dental students to perform their procedures. These types of discounted rates are offered at nearly every dental school, and often they accept private insurances and Medicaid for payment.

The importance of having Hispanics signed up for these programs as quickly as possible is to prevent further oral health problems from forming. As stated there are much higher oral health problems in Hispanic children than Caucasians, and many of these problems could be prevented with proper hygiene and regular dental visits. The combination of having Medicaid and using a dental schools' services can make for a great combination to abate oral health problems. Because of the discounted rates at dental schools, this allows for more necessary procedures to be done because Medicaid has a cap. The cap for Medicaid can vary, however once an individual hits it, they must pay everything else out of pocket.
Conclusion

The presence of the oral health disparity among the non-White, Hispanic American population is concerning; however, there are certain steps which can be taken that will be beneficial to the population. To reduce the gap between Hispanics with untreated oral health diseases from 36% in comparison with Whites at 22%, oral health education is a must. By implementing oral health education programs in dense Hispanic population areas at a young age, it will help decrease the likelihood that a child grows up with poor oral hygiene. These programs could be as simple as teaching one how to properly brush their teeth, but they will have a lasting effect. Further, by teaching these programs with parents involved, the parents can also obtain knowledge on how to prevent their own oral health problems. With the increasing availability of dental insurance, private and public, the Hispanic population should see an increase in oral health. However, this increase will likely only be seen if action is taken by both the Hispanic population and the government, which would create more oral health education programs.
Reference List


