

## **Prevalence of Periodontal Disease in the Fresno Hmong Community**

**By**

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### **ABSTRACT**

There has been no research conducted in the past or present to examine the dental health of the Hmong population in California. Having lived and emigrated from the hills of developing countries, such as Laos, Vietnam, and Thailand, where there are a lack of resources and community outreach on basic oral care, the Hmong population received very minimal attention in regards to dental health. The purpose of this research paper is to analyze the statistical data collected at a private dental clinic run by a Hmong dentist, Dr. Kao N. Vang, to illustrate the prevalence of the periodontal diseases, gingivitis and periodontitis. The intention of this quantitative research is to obtain a general overview of dental health in the Fresno Hmong community, as well as to explore how the intersection of vulnerabilities, such as Western acculturation, socioeconomic status, and the lack of a formal education among Hmong people, have contributed to the deprivation of basic oral care and affected the overall dental health of the population.

### **RESEARCH QUESTION**

What is the prevalence of the gum diseases, gingivitis and periodontitis, among Fresno Hmong patients between the ages of 16–50 at a private dental practice?

### **INTRODUCTION**

#### ***Periodontal Disease: Gingivitis and Periodontitis***

The gum tissues in the oral cavity are the foundation for the growth and support of teeth. When an infection occurs on or within the gums, it can lead to many dental health-related problems, such as painful inflammation of the gums and major tooth loss. Periodontal disease refers to an oral condition where the gum tissues become infected due to an irritant or pathogen; this can progress to damaging the bone that supports the teeth and lead to tooth loss. There are two distinct forms of periodontal disease: gingivitis and periodontitis. Gingivitis is the early developmental stage of periodontal disease where bacteria first inhabits the gums and plaque build-up occurs. The inflamed tissues may become sensitive to brushing, and the gums experience redness, bleeding and swelling. This early form of periodontal disease is considered mild and often reversible if patients begin and maintain a healthy routine of oral hygiene. Because the conditions of gingivitis are reversible, it does

not always lead to the advanced form of periodontitis. In the cases where gingivitis is left untreated, it has great potential for advancement to the irreversible stages of periodontitis. The bones that support the teeth become physiologically compromised and the recession of the gums creates pockets around the teeth, which makes them more susceptible to future infections. As described on the patient charts from the dental clinic where the data was collected, there are three stages of periodontitis. "Slight Periodontitis" is having minor to moderate bone loss and sockets with a depth of 3-4mm. "Moderate Periodontitis" is having moderate to deep pockets, moderate to severe bone loss, and sockets with a depth of 5-7mm. "Advanced Periodontitis" is described as having deep pockets, severe bone loss, and a depth of 8mm or greater. The last stage of periodontitis is one of the most common causes of tooth loss. This occurs as a response to the infection of the gum where the body's immune system breaks down the components supporting the teeth, which are the bone and connective tissues. It is important to note that the depth of a pocket does not always predict the amount of bone loss.

### ***Who are the Hmong people and how are they a vulnerable group?***

Hmong refers to a widely and globally dispersed tribal minority group of Southeast Asian refugees who immigrated to the United States primarily from the hills of Laos. In 1961, the United States government saw the Hmong as effective guerrillas and advantageous in defeating the communist regime in Southeast Asia; therefore, they began recruiting Hmong men and boys in Laos to secretly fight in the Vietnam War (UCLA International Institute). This collaboration became the debut of a haunting experience for the small, marginalized Hmong population in Laos. After the war ended in 1975 and the United States troops pulled out, the Hmong became the target for a massive genocide implemented by the communist regime in Southeast Asia. "The war took a heavy toll with a third of the estimated 300,000 Hmong dead or injured from being recruited to fight for the warring factions, and half of the total Hmong population forcibly displaced in various areas" (Lee 3). Many Hmong families escaped persecution by seeking refuge in remote, mountainous forests and fleeing across the Mekong River to Thailand. In exchange for their survival, they encountered family separation and loss, as well as having to accept their displacement into refugee camps as a lifestyle.

The massive rates of the Hmong fleeing and migrating across nations after the Vietnam War have made the diaspora of the Hmong people a global phenomenon. Currently, the Hmong are dispersed worldwide in areas of the United States, Vietnam, Laos, France, Australia, Canada, and China (Lee 3). In the United States, the Hmong population grew after the Vietnam War in 1975, reaching more than 260,000 U.S. Hmong residents in the 2010 U.S. Census. There are smaller Hmong communities dispersed all over the United States and a few larger cities that have a significantly higher concentration of Hmong people. According to a report by Hmong National Development (2010) surveying the 2010 Census for a statistical count of the Hmong population in the United States, California currently has the highest concentration of Hmong people at 91,224. Out of the 91,224 residents in California, 31,771 of them reside in Fresno, making it the second largest Hmong community in the United States.

Refugees and other populations with similar experiences and backgrounds are considered to be some of the most vulnerable groups in the United States (Finney, Lamb, Smith 161). A vulnerable population is defined as a “group at increased risk for poor physical, psychological, and social health outcomes and inadequate health care,” which is shaped by “political and social marginalization and the lack of socioeconomic and societal resources” (Derose, Escarce, Lurie 1258). For instance, dental health is an emphasized concept of health care in the United States, but the emphasis and practice of daily brushing and flossing may not exist in immigrant and refugee communities such as the Hmong. Scholars argue that immigrants and refugees from third world countries, where there are no available dental services, are the least likely to utilize the available dental services (Marrcus, Maida, Guzman-Becerra, Belloso, Fidell). Many of the developing countries that the Hmong emigrate from do not have a stable health care system where the public is informed about disease control and preventative measures, especially towards dental health (Her 3). Furthermore, the villages in Laos where the Hmong people lived are in the rural areas and sometimes difficult to reach by car. This creates geographical barriers where residents did not, or very minimally, have access to health care facilities and dentists. The geographical isolation suggests that the idea of visiting dentists for check ups is probably a foreign idea and an uncommon routine for them. Her states that, “very often, this lack of awareness and knowledge is funneled through the process of migration and persists in the lives of immigrants and refugees in the United States” today (Her 3).

The immediacy of the migration and resettlement process for the Hmong often deposits them into poor communities and into the margins of governmental public assistance, which may have resulted in lower employment rates and public assistance programs being the core of financial support for many Hmong families. This notion categorizes them as dependents and often limits their ability to establish financial, social, and health stability. Recent researchers Baker, Dang, Ly, and Diaz (2010) theorize that the Hmong population in the United State face certain health care barriers, such as immunization, due to nativity, socio-economic position and the use of traditional Hmong healing practices. Likewise, the Office of Global Health Affairs (2004) identified the major risk factors affecting the Hmong community as the following: the traditional practice of health care, lack of a formal education, and low rates of English literacy. Only 61% of Hmong residents in the United States have received a high school education and higher, 14% have obtained a Bachelor’s degree or higher, and 43% of the Hmong are not proficient in the English language (Asian American Center for Advancing Justice). These percentages are among some of the lowest within the Asian American and Pacific Islander population. Among Asian American ethnic groups, the Hmong also currently hold the highest rank in the category of “poverty rate” at 26% and they have one of the lowest average annual incomes at \$10,949 (Asian American Center for Advancing Justice).

## **METHODOLOGY**

Given that Fresno has one of the largest populations of Hmong people, a local Fresno private practice run by a Hmong dentist, Dr. Kao N. Vang, was the selected site for this study. The first one hundred patients, between the ages of 16-50, who visited the clinic as

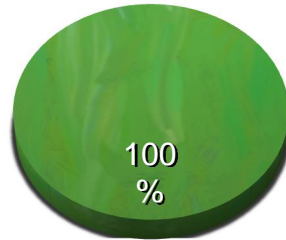
first-time patients from August 2010 to August 2011 were selected for the study. The variables that were collected and used for analysis include: age, sex, occupation, insurance provider, date of first visit, and dental diagnosis. The insurance providers are indicators for the socioeconomic statuses of the patients, and they are used to make comparisons between groups with different socioeconomic statuses. The purpose of selecting first-time patients was to track them on a one-year time frame to see how often they make visits to the dental office and how many of them fall into the category of being a "common patient." The "common patient" variable is used to determine Western acculturation and to see how the rates of periodontal disease differ between patients who are making regular visits (acculturated) and those who do not (unacculturated); this follows the assumption that someone who is more acculturated practices the Western norm of making regular dental visits. Dr. Vang defines a common patient as one who visits every six to seven months or twice a year for regular check ups. Patients who are requested to return to the clinic for additional dental work do not count towards common patient status. This allows us to see and understand whether or not acculturation factors into the dental health of the Hmong community. The available diagnoses found on the patient charts include: gingivitis, slight periodontitis, moderate periodontitis, and advanced periodontitis. In the data and results section of this paper, gingivitis is labeled as 1, periodontitis is labeled as 2, and the 3 stages of periodontitis are labeled as A, B, and C; with A being slight, B being moderate, and C as advanced.

## **DATA AND RESULTS**

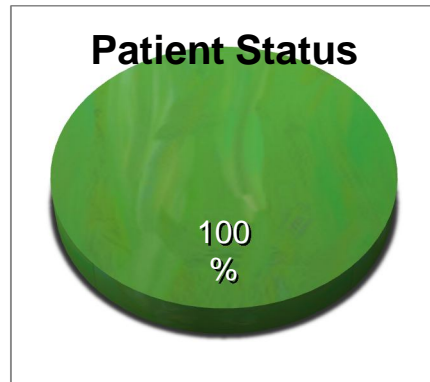
For this research, there were a total of 100 Hmong patients from ages 16 to 50 who were all residents of Fresno County and patients of Dr. Kao N. Vang; 50 males and 50 females. The patient pool suggests that the majority of the patients at Dr. Vang's clinic were students in the age range of 16 to 20 years old; 72 of the 100 patients were 20 years and younger, and 42 of them listed "student" as their occupation. More than half of the patients were Denti-Cal recipients which is a program under Medi-Cal to provide coverage for dental health services, 25% of them had private health insurance, 11% of them had low-income health insurance such as Healthy Families, and 9% were uninsured. Referencing Dr. Vang's definition for common patients, the data show that 66% of the patients were uncommon and only 34% of them were common patients who made regular check ups. Overall, 93% of the patients had some form of periodontal disease, either gingivitis or periodontitis; 76% of them had periodontitis. Referring to Figure 6, it is apparent that the rates of periodontal disease between males and females were equivalent; 47% of females and 46% of males were diagnosed with periodontal disease. However, more males had periodontitis compared to females. Contrasting the differences between common and uncommon patients in Figure 7, we can see that periodontal disease exists in both common and uncommon patients, but all of the patients with moderate to severe periodontitis were uncommon patients.

## Data Demographics

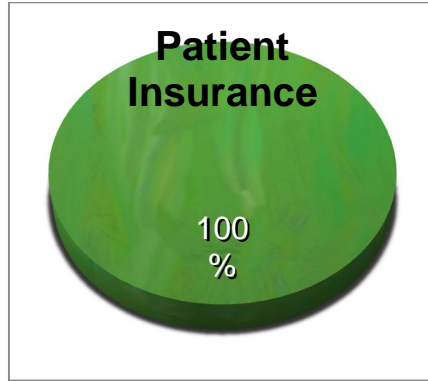
### Patient Age Demographics



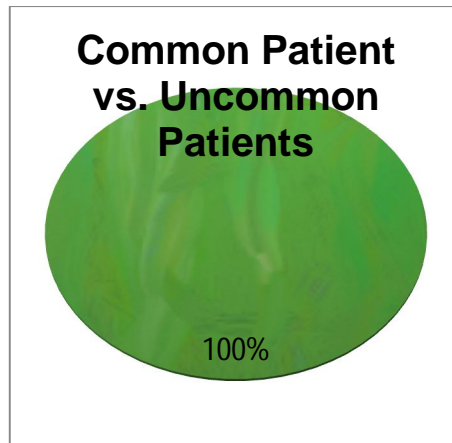
**Figure 1.** Pie Chart of Patient Age Demographics: *The pie chart illustrates the age demographics of the 100 patients. A majority of the patients were 20 years of age and younger.*



**Figure 2.** Pie Chart of Patient Statuses: *The pie chart indicates that most of the patients were students; 42% were students; 28% had some sort of career/job; 29% did not list their status; 1% were unemployed.*

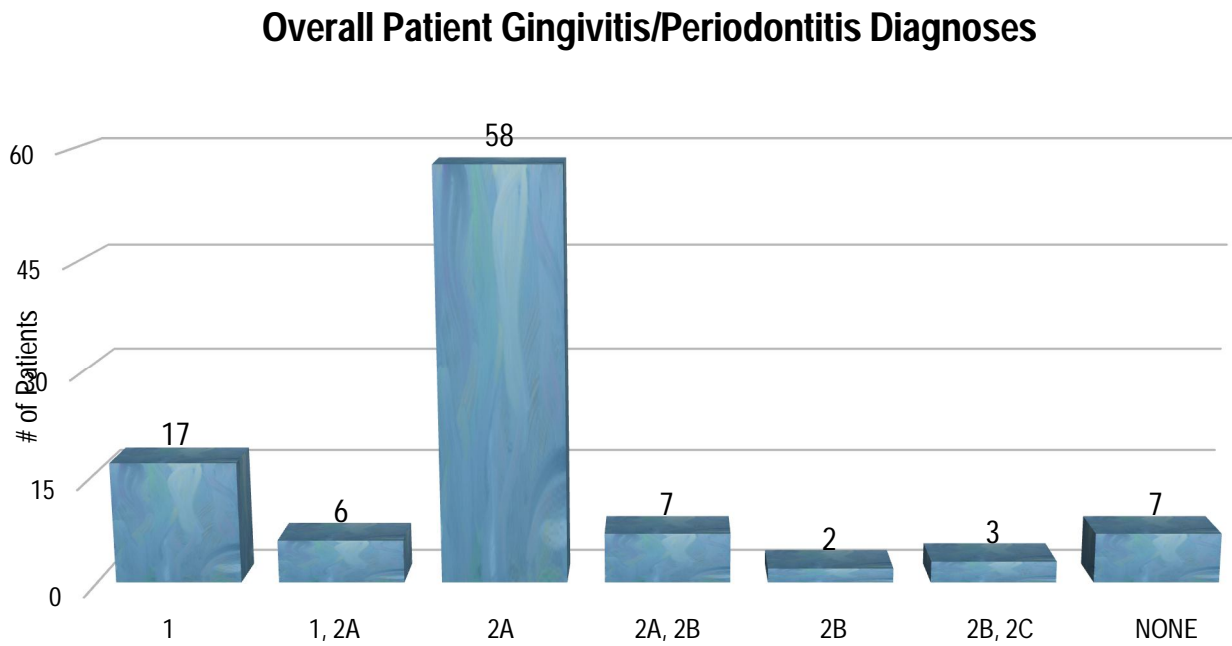


**Figure 3.** Pie Chart of Patient Insurance: *Out of the 100 patients, more than half of them were strictly under Denti-Cal. 11% of them had low-income health insurance, such as Healthy Family. 9% were uninsured.*

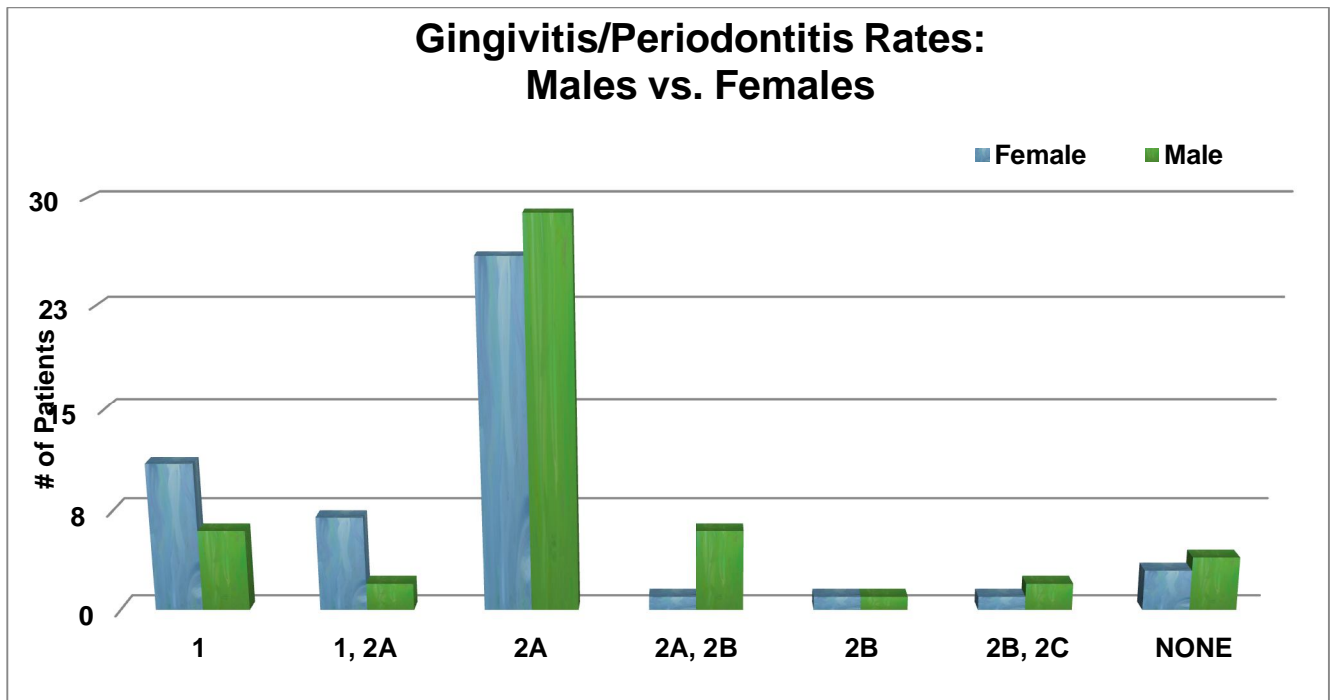


**Figure 4.** Pie Chart of Common Patients: *34% fell into the category of being "common patients." The data illustrates how the majority of these patients do not make regular dental visits.*

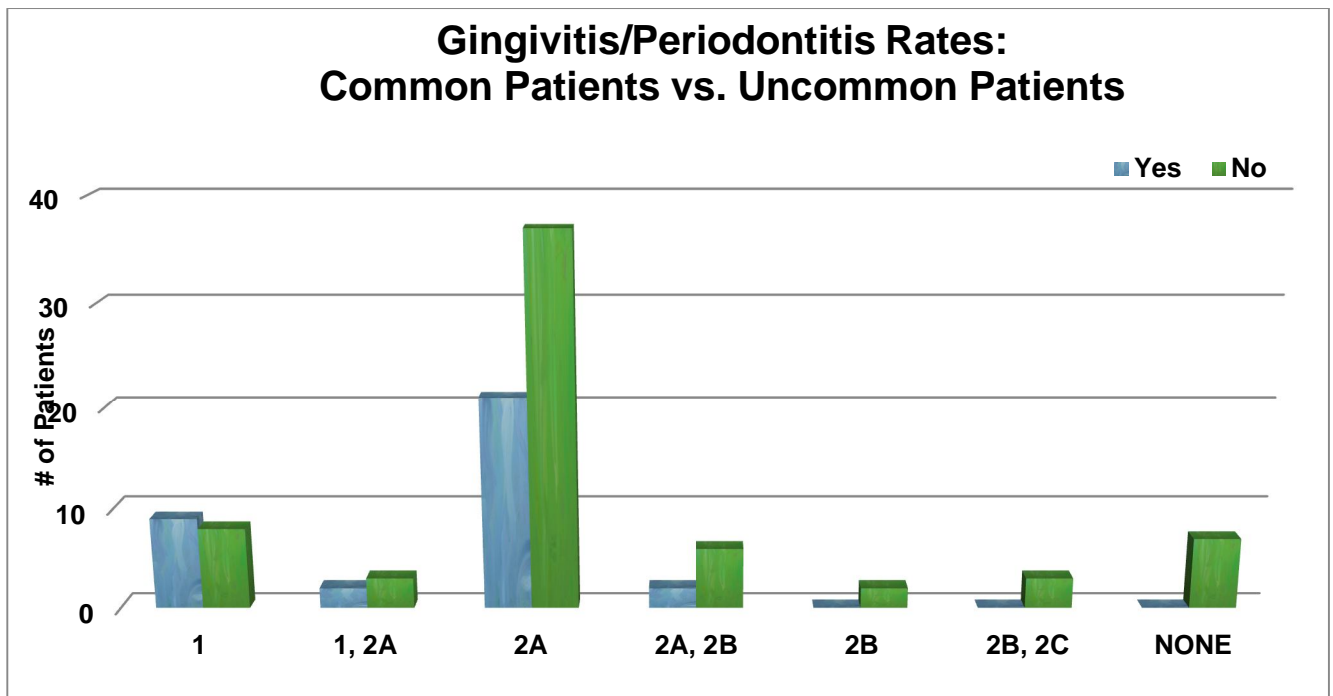
*Percentages of Gingivitis and Periodontitis*



**Figure 5.** Bar Graph comparing Overall Percentages of Gingivitis and Periodontitis: 1=*Gingivitis*; 2=*Periodontitis*, A=*Slight*, B=*Moderate*, C=*Advanced*. Out of the 100 patients, 93 of them were diagnosed with some form of periodontal disease. 76 of them have periodontitis.

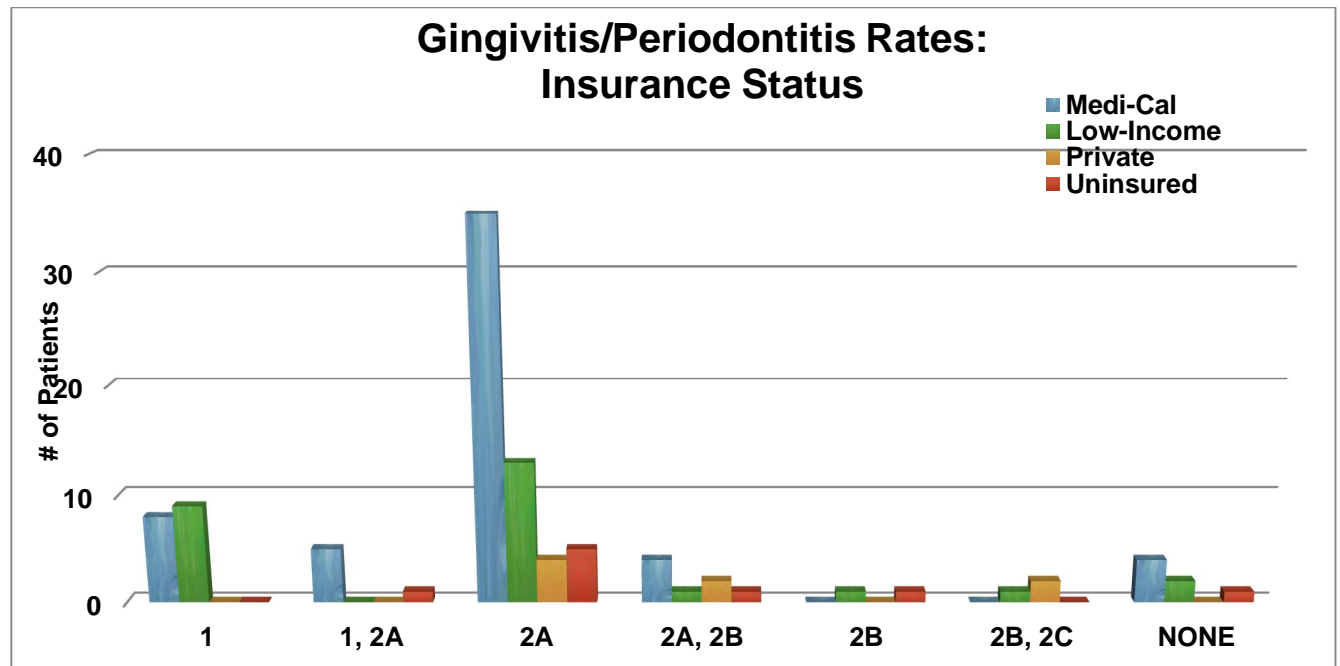


**Figure 6.** Bar Graph of Gingivitis/Periodontitis Rates, Males vs. Females: 1=Gingivitis; 2=Periodontitis, A=Slight, B=Moderate, C=Advanced. Although more females appeared to have higher rates of gingivitis, the advanced stages of periodontal disease were more prevalent in men.



**Figure 7.** Bar Graph of Gingivitis/Periodontitis Rate, Common Patients vs. Uncommon Patients: 1=Gingivitis; 2=Periodontitis, A=Slight, B=Moderate, C=Advanced. The moderate to severe periodontitis diagnoses on the graph were all among uncommon patients.





**Figure 8.** Bar Graph of Gingivitis/Periodontitis Rates, Insurance Statuses: 1=Gingivitis; 2=Periodontitis, A=Slight, B=Moderate, C=Advanced. Of the 93 patients who either have gingivitis or periodontitis, 52 of them are Denti-Cal patients.

## DISCUSSION

It is crucial to understand the relationship of dental health to an individual's overall health. Because the oral cavity is the main entry for digestion and respiration, it is more prone to bacterial infections. Manifestations of oral diseases can be indicators to other clinical diseases. For example, "recent research suggests that inflammation associated with periodontitis may increase the risk of heart disease and stroke, premature births in some women, difficulty in controlling blood sugar in people with diabetes, and respiratory infection in susceptible individuals" (Wisconsin – Department of Health Services). The Department of Health Services in Wisconsin finds that adults who have lost their teeth due to periodontal diseases have higher rates of diabetes and angina/coronary heart disease; 65% of those adults have diabetes and 72% have angina/coronary heart disease. This research serves as evidence that periodontal disease is not just a condition and problem within the oral cavity but can be associated with other ailing parts of the human body. This study shows the importance in establishing awareness and improving the dental health and dental hygiene of under-resourced ethnic minority communities including Hmong Americans.

The Center for Disease Control and Prevention (2013) released a comprehensive survey estimating the rate of periodontitis in the United States to be 47.2%. The data show that almost half the U.S. population have periodontal disease, but the rates increase with the condition of having a lower socioeconomic status and a lower level of education attainment. The prevalence of periodontitis in communities living under the poverty level is a significant percentage of 65.4% and with groups that have obtained less than a high school

education, it is 66.9% (American Academy of Periodontology). Given that almost half of the people in the United States have periodontitis and a majority of the patients from the clinic in Fresno are Denti-Cal recipients, it is presumable that there is a high prevalence of periodontal disease in the Hmong community. The data from this study illustrate that 93% of the patients have some form of periodontal disease and 76% of them have periodontitis. When comparing this data to those of the CDC, it clearly shows that not only is periodontal disease very prevalent in the Hmong community, periodontitis is approximately 10% higher when compared to the data from other poverty-stricken communities and communities with lower educational attainment. It is also critical to note that out of the 93 patients in the study who had periodontitis, 52 of them were Denti-Cal recipients, 25 of them had low-income health insurance, 8 of them were uninsured, and 8 of them had private insurance. It is interesting that the prevalence of periodontal disease is high even among the patients who have a higher socioeconomic standing and are able to purchase private health insurance. However, privately insured patients made up 25% of the patient pool, but they barely made up 8% of the patients who were diagnosed with periodontal disease.

More specific to the refugee community, a study in 2004 with refugee children shows that dental health is often neglected in refugee children; 51.3% of refugee children have dental caries and 48.7% of them have untreated dental decay (Cote, Geltman, Numm, Lituri, Henshaw, Garcia 734). Although the data is not directly related to periodontal disease, it provides us with an idea of the dental health condition of younger members of refugee communities like the Hmong. As mentioned in the data and results section of this paper, 72% of the patients in the study were between the ages of 16 and 20. This implies that there may be a distinct segregation between generations, in terms of utilizing dental health care. Nevertheless, since the younger generation do make up a larger portion of the patient pool which has a high prevalence of periodontal disease, this further suggests that the rates of periodontal disease is still very high even among Hmong teenagers and young adults. This raises the question, why is the rate of periodontal disease still very high even among younger patients and what kind of barriers are contributing to this situation? These are questions that require more research and exploration. The patient demographics show that only 34% of the patients were considered "common patients" and 66% of them did not make regular dental check ups at the clinic. This serves as an indicator that many Hmong people have not adopted the Westernized practice of making regular dental visits to check up on their dental health. In addition, the prevalence of gingivitis and periodontitis is much higher in uncommon patients than common patients, suggesting that Western acculturation is a possible factor in the dental health of the Fresno Hmong community. Similar to the questions that were raised previously, this also requires additional research that involves qualitative analysis.

## **Conclusion/Further Research**

There are a few limitations to this study. Due to time constraints and limited resources that were directly related to dental health in the Hmong community, I was only able to analyze 100 patient charts from Dr. Vang's clinic. Even though the sample size is small and may not be a thorough overview of dental health in the Hmong population, it still provides us with some indication of the prevalence of periodontal disease in the Fresno

Hmong community. In addition, this study reveals that dental health in the Fresno Hmong community is potentially poor, even when compared to other communities that are poverty-stricken and have a lower educational attainment in the United States. There may not be a direct correlation between acculturation and the dental health of the Hmong but this research suggests that there are definite barriers that are affecting their dental health, including both cultural and social barriers. The research is not suggesting that the cultural views and practices of the Hmong people are contributing to the poor dental health conditions, but that there may be a lack of community outreach and information among the Hmong community about dental health and dental hygiene. The research also opens up a channel of discourse about how the aggregation of data often masks issues that are actually much larger in certain ethnic groups. In order to further and effectively address the dental health of the Hmong community, it is imperative that more and larger-scale quantitative and qualitative research be conducted to disaggregate data. Qualitative research can be conducted to establish a better understanding of how the Hmong traditionally view dental health and the methods which they have used to treat dental diseases. Having both quantitative and qualitative research available will not only provide a better and more thorough understanding of dental health conditions, but will allow us to figure out the exact barriers and factors that are contributing to the levels of dental health. This will be very useful in improving the current approaches that are being used to develop stronger awareness regarding dental health, hygiene, and related diseases in the Hmong community.

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