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Identifying Barriers to Dental Care Among Hispanics in Southwest Minnesota

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Identifying Barriers to Dental Care Among Hispanics in Southwest Minnesota

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By Lissette Garza

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A Thesis Submitted in Partial Fulfillment of the

Requirements for the Degree of

Master of Science

in

Community Health Education

Minnesota State University, Mankato

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Identifying Barriers to Dental Care Among Hispanics in Southwest Minnesota

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IDENTIFYING BARRIERS TO DENTAL CARE AMONG HISPANICS IN
SOUTHWEST MINNESOTA

LISSETTE GARZA

A THEISIS SUBMITTED IN PARTIAL FULFILLMENT OF THE
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MINNESOTA STATE UNIVERSITY, MANKATO
MANKATO, MINNESOTA

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ABSTRACT

The purpose of this study was to assess the different barriers for dental health care among the Hispanic population in a rural, southwestern community in Minnesota. To collect data, an adaptation of the survey written by Vazquez and Swan (2003) was distributed to Hispanic individuals at an agricultural facility, religious organization, and an early childhood organization. The findings for the research question are presented in the cross-sectional study utilizing descriptive statistics in the form of frequencies and percentages. The results of this study indicate that not having a dental provider of the same cultural background, having a language barrier, and not being able to afford their treatment were the most prevalent barriers to accessing dental care. The majority of participants did have dental insurance, so future research is recommended to understand the association between their willingness to spend money on dental services, dental insurance, and attitudes toward oral health. Additionally, further studies regarding the influence of community oral health workers in the dental health care system will help understand how to best address the cultural and linguistic barriers.

Chapter 1: Introduction and Background

Background

Dental caries and periodontal disease are ongoing as one of the most prevalent chronic diseases among adults in the U.S. (Velez et al., 2017). The human mouth is home to over 700 different species of bacteria (Alpert, 2017). Left undisturbed, these bacteria, both good and bad, quickly multiply to form the biofilm layer over the teeth, also known as plaque. Some of the bacteria are fueled by sugar to rapidly increase in number, spread out, and damage the teeth to form dental decay, while others hide in anaerobic environments to cause periodontal disease (Wein, 2019). With insufficient education on oral hygiene practices and a deficit in access to dental services, oral diseases can infect the mouth (Alpert, 2017). Untreated dental caries and periodontal disease cause pain in the individual and lead to tooth loss (Ju et al., 2021). Long-term consequences of tooth loss can lead to complications with masticatory function that leads to reduced nutrition, altered speech, loss of self-confidence, and embarrassment of aesthetics (Dosumu et al., 2014).

Diseases of the oral cavity have negative consequences on total-body health (Ju et al., 2021). Associations have been made between oral diseases and systemic conditions (American Dental Association, 2021) based on the shared inflammatory pathways that connect the oral cavity to the rest of the body (Akl et al., 2021). Systemic inflammation influences the onset and severity of oral diseases, while oral bacteria traveling through the blood stream influences systemic inflammation (Akl et al., 2021). Individuals with poor oral health have a higher risk level for complications with heart disease, heart

failure, chronic stress (Han, 2019), type 2 diabetes, kidney disease, and Alzheimer's disease (Ju et al., 2021). In cardiovascular disease, it has been shown that individuals fifty-five years and younger have a fifty to eighty percent increase in the risk of developing cardiovascular disease associated with periodontitis (Alpert, 2017). In type 2 diabetes, a bidirectional link between uncontrolled diabetes and periodontal disease has been proven (Akl et al., 2021). The oral-systemic link shows that a person's quality of life diminishes as their oral health declines (Han, 2019).

Maintaining good oral health habits is important to prevent the accumulation of unhealthy bacteria in the mouth. The accumulation affects the teeth, gums, and the rest of the body (Alpert, 2017). According to the American Dental Association (ADA) (2021), good oral hygiene is characterized by brushing the teeth twice daily with fluoride toothpaste, cleaning in between the teeth once daily, replacing toothbrushes every three to four months, and eating a balanced diet. Additionally, regular dental visits are essential to the maintenance of optimal oral health (Velez et al., 2017). The intervals at which these dental visits occur are determined by the dentist and tailored specifically to patient needs (American Dental Association, 2021). These routine dental visits are imperative for early identification of disease, prompt treatment, and management of risks associated with oral disease (Macy et al., 2018).

A disproportionate distribution of dental services among different racial groups exists in the United States (Han, 2019). Hispanics make up 18.5% of the population, making it the largest and fastest-growing ethnic minority in the U.S. (Ramos-Gomez and Kinsler, 2022). Compared to the general population, Hispanics have lower access to care,

less education, increased poverty, and cultural barriers that hinder their ability to navigate healthcare systems (Macy et al., 2018). In addition, the Hispanic population bears one of the highest oral disease burdens in the United States (Ramos-Gomez and Kinsler, 2022). From 2015 to 2018, 34.2% of Mexican-origin adults, aged sixty-five and older, had untreated dental caries compared to 16.9% of not Hispanic or Latino white adults sixty-five and older (Centers for Disease Control and Prevention, 2019). Hispanic adults, thirty years and older, have the highest prevalence of periodontal disease among all ethnic groups (Ramos-Gomez and Kinsler, 2022).

Barriers to dental services can include financial restrictions, discrimination and distrust, transportation, language, and education (Velez et al., 2017). These barriers to dental care can particularly affect various ethnic groups, specifically the Hispanic/Latino population. Within this population, differences in culture, language, and level of acculturation present challenges in accessing dental care and having incidences of dental diseases (Kbani et al., 2020). There is a lack of evidence reporting barriers that the Hispanic population experiences in accessing dental care. Due to few studies, there is a lack of evidence and other barriers may exist for the Hispanic population.

Statement of the Problem

Vazquez and Swan (2003) conducted a study evaluating access to oral health care among the Hispanic population in Wichita, Kansas. The results of this study showed that oral health education and literacy, and access to a Spanish-speaking provider were the two most prevalent barriers to Hispanics accessing care. In a similar study, Velez et al. (2017) evaluated barriers to dental care for Mexican women in North San Diego County.

This study found that immigration status was viewed that the main barrier to accessing dental care. Other barriers identified were insurance, cost, discrimination, negligence/dissatisfaction, and wait time (Velez et al., 2017).

In southwest Minnesota, it is currently unknown what barriers to dental care exist that are unique to the Hispanic population of this area. There is a need for research to understand what barriers to dental care arise for Hispanics living in rural communities. Without this understanding, there will not be measures in place to minimize the barriers that occur between the Hispanic population and dental services. Without access to dental services, an increase in the severity of oral health diseases will arise, and a decline in total body health will follow.

Severity of Problem

The Hispanic population faces a grand challenge for oral health. It is estimated that the Latino population will be thirty percent of the total United States population by 2050 (Valencia et al., 2012). This population is seventy to eighty-seven percent less likely to have a regular source of dental care compared to whites (Valencia et al., 2012). Using the Iowa Child and Family Household Health Survey, Latino children ranked lowest for having regular dental care and highest for decay. Fifty-two percent of Hispanic children, aged two to nineteen, have decayed teeth, ranking highest among non-Hispanic Blacks, non-Hispanic White, and Asians (Ramos-Gomez and Kinsler, 2022). Mexican American adults have more decayed teeth and less restorative work completed when compared to non-Hispanic Whites (Han, 2019).

From the Medical Expenditures Panel Survey conducted in 2016, six percent of Hispanics reported having an unmet dental need (Taylor et al., 2021). From this same survey, it was found that Hispanics were less likely to report an unmet dental need. This finding may be due to having less expectations for dental care or less perceived need for dental care. Spanish-speaking Hispanics are reported as the most disadvantaged, compared to English-speaking Hispanics and non-Hispanic Whites, due to having the lowest education and income, foreign-born citizenship, and worst oral health results (Han, 2019).

Overall, the research is similar in findings, continually pointing towards dental health disparities among the Hispanic/Latino population (Valencia et al., 2012). Without proper dental care, dental diseases will progress. Poor oral health in this population will lead to an increase in the severity of oral diseases, infection, tooth loss, and overall poor systemic health (Pullen et al., 2018).

Purpose Statement

The purpose of this study is to assess the different barriers for dental health care among the Hispanic population in a rural, southwestern community in Minnesota.

Research Question

What barriers to dental health care exist among the Hispanic population in southwest Minnesota?

Limitations

One limitation of the study is the small sample size. With the small sample size, the majority of respondents were female, so there was not accurate representation

between gender. Also, this study was limited to a confined area of the state of Minnesota. Choosing convenience sampling was also a limited due to the potential for bias.

Additionally, two questions on the survey did not match up correctly between the English and Spanish version. Question seventeen asked about time for traveling to the dentist. On the English survey, respondents could choose from fifteen minutes, fifteen to thirty minutes, and thirty minutes to one hour. On the Spanish survey, the previous three options were listed with the addition of one to two hours. Question twenty-five asked about number of times the individual flosses. On the English survey, respondents could choose from never, once, twice, and three times. The Spanish survey included the previous four options mentioned with the addition of more than three times.

Delimitations

The study was delimited to the Hispanic/Latino population in southwestern Minnesota. To be included in this study the individual had to be Hispanic or Latino and be above the age of eighteen to assess barriers to dental care in adults. The individual could have been born in the United States or in a Hispanic/Latino country and could speak English or Spanish. These delimitations will ensure that the participants will provide the necessary data to conduct this study.

Assumptions

In the self-reported survey, it is assumed that the respondent is answering the questions to the best of their ability. Additionally, it will be assumed that the sample population chosen will be representative of the Hispanic population in southwest Minnesota.

Definitions

- Dental Anxiety

    o "An aversive emotional state of apprehension or worry in anticipation

    of dental procedures" (Yokota et al., 2019, p. 2353).

- Dental Fear

    o An "unpleasant emotional reaction to threatening stimuli that is related

    to dental treatment" (Alenezi & Aldokhayel, 2022, p. 6444).

- Dental Home

    o A dental office in which an individual has "established an ongoing

    relationship with the dental team and benefit from comprehensive,

    coordinated, oral health care that is continuously accessible"

    (Piedrasanta et al., 2021, p. 29).

- Level of Acculturation

    o "Relation of an individual in an ethnic or minority group to the host

    society" (Silveira et al., 2020, p. 421).

- Oral health

    o "The health of the teeth, gums, and the entire oral-facial system that

    allows us to smile, speak, and chew" (Centers for Disease Control and

    Prevention, 2022, p. 1).

- Periodontal Disease

    o "There are two forms of gum disease: (1) gingivitis… causes localized

    redness, swelling, and bleeding. (2) Periodontitis is a more severe

form… that can damage the soft tissue and bone that surrounds and supports the teeth by a combination of bacteria accumulation in pockets formed as the gum pulls away from the teeth and the bacteria trigger the body's natural immune response" (Alpert, 2016, p. 57).

- Preventive Dental Care

  o "Check-ups, dental cleaning, radiographs, fluoride treatment, or sealant" (Downing et al., 2022, p. 1)

Conclusion

Overall, oral health is a broad topic that encompasses many factors. Periodontal disease and decay are associated with other factors that can complicate an individual's health. The Hispanic/Latino population is a fast-growing minority group in the United States and often time, falls into the low-income population as well. There are barriers making accessing dental care more difficult for this population and research is needed to assess these for rural southwestern Minnesota.

Chapter II: Literature Review

Oral health care is a matter of public health and should not be taken lightly. Objective AHS-05 of Healthy People 2030 states "reduce the proportion of people who can't get the dental care they need when they need it" (Office of Disease Prevention and Health Promotion [ODPHP], n.d., Oral Conditions section). Six percent of adults in the United States have reported an unmet dental need (Taylor et al., 2021). In addition to unmet dental needs of the public, the Hispanic population needs to be analyzed separately due to the rapid increase in population (Sanders et al., 2014). According to the U.S. Census Bureau, the Hispanic population accounted for eighteen percent of the U.S. population in 2019 (Krogstad, 2020). It is estimated that by 2050 this percentage will increase to 29%, while non-Hispanic whites will account for less than 50% of the population (Sanders et al., 2014). This increase in population will create a shift in the population demographics, making it important to analyze the Hispanic's oral health status and understand their barriers to dental care (Sanders et al., 2014). To maintain good oral health, routine dental services are essential to prevent the onset of oral disease and/or have early diagnosis and intervention with treatment (CDC, 2021). This review will be focused upon exploring existing literature on oral health, access to dental services, and the barriers to dental care specific to the Hispanic population. This literature review will be a guide through the barriers to dental services including cultural and financial factors, geographic location, oral health education, and discrimination.

Oral Health

Dental plaque is a complex formulation of bacteria, also known as a biofilm, that varies significantly when found on tooth surfaces below and above the gumline (Jakubovics et al., 2021), the tongue, and oral mucosa (Gurenlien, 2007). Above the gumline, the initial bacteria that colonize on the tooth structure are essential to the benefit of the individual's health (Jakubovics et al., 2021). Within seconds after brushing, the body is already starting the process over to form the dental biofilm, within six hours the plaque seen above the gumline is formed, and in twelve weeks the plaque has been established below the gumline and harmful bacteria have dominated (Huang et al., 2011). The use of fluoride in toothpaste or mouthwash also has an impact on how the bacteria impact the tooth structure. First, fluoride increases the intake of minerals in the enamel, so it is more likely to withstand the acid in the mouth. Second, fluoride is capable of inhibiting the bacteria's mechanisms of producing acid (Medjedovic et al., 2015). Thus, mechanical removal of dental plaque twice a day with fluoride toothpaste, cleaning in between the teeth once daily, and regular dental visits are recommended for good oral hygiene (American Dental Association, 2021).

Related Health Conditions

The etiologic agent for dental caries and periodontal disease is the biofilm that lives in the mouth as dental plaque either above or below the gumline (Gurenlien, 2007). Individual factors such as systemic conditions, stress, and environmental factors contribute to the magnitude and variation in which the biofilm impacts the individual (Bhuyan et al., 20202). Periodontitis is listed as the sixth complication of diabetes

mellitus and diabetes mellitus is an established risk factor for periodontal disease (Shetgaonkar et al., 2022). In individuals with diabetes mellitus, 90% are diagnosed with type 2 diabetes (Wu et al., 2020). A bidirectional relationship between periodontal disease and type 2 diabetes has been established. Biologically, type 2 diabetes influences periodontal destruction because causing a hyperinflammatory response and decreased bone repair processes (Wu et al., 2020). In turn, periodontal disease increases systemic inflammation which increases insulin resistance (Wu et al., 2020).

Similarly, recent evidence supports the fact that poor oral health is a risk factor for cardiovascular disease (Joshy et al., 2016). The research reports that periodontal disease can induce harmful bacteria in the bloodstream that impacts vascular infection and also the association of systemic inflammation and cardiovascular events (Lockhart et al., 2012). One study found that individuals reporting no teeth and poor oral health were more likely for all-cause mortality and be hospitalized for ischemic heart disease (Joshy et al., 2016). Also, individuals with less than twenty teeth or no teeth at all had a two-fold increase in risk for heart failure, peripheral vascular disease, and all-cause mortality (Joshy et al., 2016). This evidence supports the importance of good oral hygiene, and the impact oral health has on systemic health.

Hispanic Population

The National Healthcare Quality and Disparities Report revealed that Hispanics experienced reduced access to healthcare when compared to non-Hispanic Whites in 70% of the measures examined (Piedrasanta et al., 2021). Individuals living below the poverty line are 40-50% less likely to receive preventive dental services (Khouja et al., 2020). In

2005, Hispanics were two and a half times more likely to live below the poverty line when compared to non-Hispanic whites (Scott and Simile, 2005). Additionally, an estimated 49% of Hispanics had a dental visit at least once per year, compared to 66.8% for non-Hispanic whites (Scott and Simile, 2005). In 2015, 85.2% of Hispanics had a household income less than $25,000 (Phan, 2019). Additionally, an average 33% of Hispanic individuals had a dental visit in the previous twelve months (Phan, 2019).

The employment opportunities at industries that require low-wage and low-skilled workers are gravitating the Hispanic population toward rural areas (Cristancho et al., 2008). Cristancho et al. (2008) used focus groups with participants that were purposely sampled from three communities in the upper Midwest of the United States who identified as Hispanic. Results indicated that most children and pregnant women were insured through Medicaid. These individuals struggled to find health care providers in rural communities that accepted new Medicaid patients (Cristancho et al., 2008). With this, participants were unable to travel to other cities to receive dental services due to only one car per household, no driver's license, or no financial means to pay for gasoline (Cristancho et al., 2008). Additionally, participants recognized a deficit in Hispanic providers and professional Spanish-speaking interpreters in rural dental offices (Cristancho et al., 2008). Overall, the Hispanic population in rural communities face unique challenges in accessing care. However, there is a need to conduct a similar study that is current.

In regard to periodontal disease, the Hispanic population has the highest prevalence compared to non-Hispanic whites and non-Hispanic blacks (Jimenez et al.,

2014). Singer et al. (2018) evaluated the association of periodontal disease and cardiovascular disease (CVD) risk among 7,379 Hispanics. This study found that 46% of participants had moderate to severe periodontal disease and over 50% were prediabetic or diabetic (Singer et al., 2018). For men, 54% had a moderate to high risk for CVD, which increased to 85% if they had severe periodontal disease (Singer et al., 2018). Laniado et al. (2022) evaluated 7,827 Hispanic participants on the association between periodontal disease and incidence of prediabetes and diabetes. This study found that 44.8% had moderate to severe periodontal disease and 68.1% were prediabetic at the start of the study (Laniado et al., 2022). These studies provide evidence that not only does the Hispanic population face challenges with prevalence of periodontal disease, but also systemic conditions that impact the severity of periodontal disease as well.

Barriers to Dental Care

An individual's utilization of dental services is dependent upon factors such as access to care, financial restrictions, attitudes toward dental care, and dental fear, that in turn vary upon geographic location and demographics (Heaton et al., 2004).

Cultural Factors and Acculturation

The unique cultural factors of the Hispanic culture impact accessing dental services. Maupome et al. (2014) studied dental hygiene practices of Mexican-America adults and teenagers in the Midwest of the United States. Within the Hispanic culture, common practices for finding information on dental care include relying on social networks, folk hearsay, and other informal sources (Maupome et al., 2014). There is also evidence that societal norms within this culture only encourage dental services when a

problem is severe enough to warrant spending the time and money to address the dental need (Maupome et al, 2014). Periodic preventive dental care is often a luxury within this population because there is no perceived need to be treated (Macy et al., 2018). Pullen et al. (2018) studied how social networks predict dental help-seeking among Mexican immigrants in the Midwestern United States. In this study, the Mexican immigrants that had not visited a dentist in the previous twelve months had social networking circles with low dental knowledge. Results showed that participants were driven to seek medical advice from these social circles instead of from credible sources (Pullen et al., 2018). Mexican immigrants in this study also delayed dental care in the United States based on the preference of receiving their dental care in Mexico (Pullen et al., 2018). These are cultural norms and beliefs that play a role in accessing preventive dental services among the Hispanic population.

Hispanic cultural beliefs are also impacted by level of acculturation. This concept mainly deals with immigrants and is important to the Hispanic population because one-third of Hispanics in the United States are immigrants (Kabani et al, 2020). Kabani et al. (2020) conducted a study in the United States to assess oral health in relation to household acculturation. In this study, a low level of acculturation indicated that the primary household language was not English and at least one parent was foreign-born (Kabani et al, 2020). Results showed that 49.3% of participants had a low level of acculturation (Kabani et al., 2020). When looking at the results within each level of acculturation, 32% of children in the low level of acculturation experienced dental caries as compared to only 16.9% in the high level of acculturation (Kabani et al, 2020).

Overall, it was shown that low level of acculturation is associated with a greater risk for dental caries in Hispanic children (Kabani et al, 2020).

English Proficiency and Language

Within the Hispanic/Latino culture, Spanish is the primary language. Han (2019) examined oral health disparities among 12,307 Non-Hispanic Whites, Non-Hispanic Blacks, and Hispanics that were twenty years or older using the National Health and Nutrition Examination Survey between 2011-2016. English proficiency is listed among barriers to accessing health care (Han, 2019). Results indicated that Spanish-speaking Hispanics had the most disadvantaged social risk factors and the worst oral health status (Han, 2019). Additionally, participants in the study that were not English proficient had increased difficulty in acquiring dental insurance and making appointments, leading to detrimental effects to their oral health (Han, 2019).

Gomez and Kinsler (2022) addressed the inequality of oral health among immigrant and non-English-speaking Hispanic adults in the United States. Linguistic and cultural uniqueness of the Hispanic population poses as a unique barrier to accessing dental services (Gomez & Kinsler, 2022). Seventy-one percent of study participants spoke another language other than English at home and 28.4% were not fluent in English (Gomez & Kinsler, 2022). When Spanish was listed as the primary language, 70% of participants presented with tooth decay compared to 47% if English was the primary language (Gomez & Kinsler, 2022). This study identified that language plays a critical role in oral health care. Oral health information needs to be presented in a format and language that Spanish-speaking Hispanics can understand so that they are able to benefit

from that information (Gomez & Kinsler, 2022). The benefit of understanding oral health information can lead to an increase in preventive dental services and lower oral disease rates (Gomez & Kinsler, 2022).

Although the Affordable Care Act requires covered dental practices to provide translation or interpreter services, but the U.S. Department of Health and Human Services does not require any dental practice to offer these services (American Dental Association, 2023). The challenge for limited English proficiency (LEP) Spanish speakers is that translation services may not be readily available (Nathenson et al., 2016). One study sought out to analyze the accessibility of interpreter services for LEP Spanish-speaking patients at federally qualified healthcare centers across the US. The results of this study showed that a third of emerging healthcare centers offered no Spanish accommodation at all (Nathenson et al., 2016). Additionally, if a translator was available, they were less likely to be available or unable to be reached for any service prior to the appointment (Nathenson et al., 2016).

Geographic Location

Geographic location and transportation can have an impact on access to dental services. Heaton et al. (2004) studied the difference in use of dental services between urban and rural communities in Kentucky. Results showed that participants living in an urban community reported more frequent dental visits, thought dental care was more important, and were more likely to have treatment completed (Heaton et al., 2004). The participants from the rural community were less likely to have dental insurance and more likely to avoid the dentist due to financial concerns and not having a dental need (Heaton

et al., 2004). Interestingly, participants from the rural community believed that dental care was perceived as useful, when necessary, but not a necessity for overall health (Heaton et al., 2004).

A study conducted by Senturia et al., (2018) was aimed at assessing oral health in rural villages in Alaska using interviews and focus groups with three rural villages that are a part of one healthcare organization. Discussions were had on the effectiveness of their dental providers and associated barriers. One major challenge noted was difficulty recruiting dental providers to rural communities (Senturia et al, 2018). This challenge is not specific to Alaska. Rural communities have been known to have difficulty in finding dental providers that will travel to provide dental care or have a sustainable practice in the community (Senturia et al., 2018).

Oral Health Literacy

"Health fatalism is the belief or set of beliefs that one's health outcomes are predetermined and inevitable, and therefore outside individual control" (Pullen et al., 2018, p. 400). Pullen et al. (2018) surveyed 322 Mexican immigrants in the Midwest portion of the United States. Health fatalism emerged as a prevalent belief among Hispanics that corresponds to less oral health knowledge and positive oral health behaviors (Pullen et al., 2018). Seventy-nine percent of participants believed that they would lose most or all of their dentition in old age, demonstrating health fatalistic views and low oral health literacy (Pullen et al., 2018).

In a study conducted in Iowa by Patino (2016), Hispanic/Latino participants were surveyed on their oral health knowledge using the Comprehensive Measure of Oral

Health Knowledge (CMOHK) survey. Results showed that sixty-seven percent of the participants that had high dental literacy also had received dental services in the past year (Patino, 2016). In oral disease prevention, forty percent did not know the reason for community water fluoridation (Patino, 2016). In relation to periodontal disease, fifty-five percent did not know that periodontal disease is more likely to occur in individuals with diabetes (Patino, 2016). Overall, the CMOHK mean score was 14 revealing low oral health knowledge among the participants (Patino, 2016).

Financial Restrictions and Insurance

Han (2019) studied oral health disparities among different racial groups and results indicated that an uneven distribution of dental care and socioeconomic status exists among different racial groups. This study concluded that Spanish-speaking Hispanics have the most disadvantaged socioeconomic factors related to oral health that include lowest education level and lowest family income (Han, 2019). The lack of dental insurance, high cost of dental services, poverty, and not finding a dental office that accepts Medicaid insurance contributes to the financial barrier for the Hispanic population (Cristancho et al., 2008).

One-fourth of Hispanics live in poverty (Velez et al., 2017). Velez et al. (2017) studied Mexican migrant families in San Diego County on barriers to dental care. The consensus from the participants was that the high cost of dental services and lack of dental insurance contributed to the barriers to access quality dental services (Velez et al., 2017). Piedrasanta et al., (2021) examined the influence of dental insurance on the utilization of dental services among the Hispanic population in Massachusetts. The

results showed that 18.9% of Hispanic adults lacked dental insurance compared to 6.5% of non-Hispanic whites (Piedrasanta et al., 2021). Of those Hispanic adults that were covered by a dental insurance, one-fourth did not know where to go or what dental office would accept their insurance (Piedrasanta et al., 2021). This study also indicated that oral health utilization is related to whether or not the individual has dental insurance. Hispanic adults with dental insurance were more likely to have visited the dentist in the past twelve months, had a dental home, and visit the dentist in the next twelve months (Piedrasanta et al., 2021).

Discrimination

Although the Affordable Care Act prohibits discrimination in health, it can still be a barrier for this population (American Dental Association, 2023). Velez et al. (2017) discussed this in their study on Mexican migrant families in North San Diego County. Many participants reported being treated differently or feel unwanted during dental visits. Participants felt this due to their race, language, and insurance status. The focus group detailed general feelings of distrust between the provider and the patient, in addition to disrespect from dental providers and office staff, long wait times, and dissatisfactory care (Velez et al., 2017). In a similar study conducted by Cristancho et al. (2008), reports of discrimination include patients believing they are treated with sub-standard care due to language, ethnicity, and social class.

An aspect of discrimination in healthcare settings is lack of culturally diverse healthcare professionals. Ramos-Gomez and Kinsler (2022) address how similarity of culture and language between the provider and the patient enhances the quality of care

and enhances patient satisfaction. In the United States, only 5.6% of dentists and 7.5% of dental hygienists are Hispanic (Ramos-Gomez and Kinsler, 2022).

Dental Fears/Anxiety

Dental fears can also be a barrier to overcome in order to receive dental services. In the literature, dental fears and dental anxiety have been used interchangeably. Dental anxiety has been associated with delayed visits, poorer oral health, and higher symptom-driven treatment (Yokota et al., 2019). This has been referenced to as the cycle of dental fear (Yokota et al., 2019). A systematic review found five studies that coincided with dental anxiety being more prevalent in females and seeing a decline in dental anxiety with age (Murad et al., 2020). One study surveyed sixty-six participants and 28% experienced high dental anxiety (Yokota et al., 2019). Of those participants with high dental anxiety, 32% only visit a dental professional when there is a problem (Yokota et al., 2019). A similar study identified fear of tooth extraction to be the main factor in avoiding dental care, but the pain ultimately overcame the fear of dental treatment (Lambert et al., 2017).

Common behaviors among individuals with dental fears include postponing, canceling, or missing dental appointments (Alenezi & Aldokhayel, 2022). The most significant factor in dental fear is a previous negative or traumatic dental experience (Alenezi & Aldokhayel, 2022). A study that surveyed over 2000 participants on dental fears showed that almost 40% stated they have fear of some dental treatment (Alenezi & Aldokhayel, 2022). Of these participants, 70% stated that they do not overcome their fear and seek out dental treatment until they are experiencing annoying pain (Alenezi &

Aldokhayel, 2022). This finding indicates that patient fear leads to a cycle of irregular dental checkups, more invasive treatments, and increased patient fear (Alenezi & Aldokhayel, 2022).

Comparably one study evaluated dental fears among the Latino population. A total of 22% of participants were categorized as being dentally anxious (Tiwari et al., 2022). These participants had a significantly higher number of decayed and missing teeth compared to non-dentally anxious participants (Tiwari et al., 2022). Additionally, dentally anxious participants were more likely to have a lower level of acculturation (Tiwari et al., 2022).

Summary

A thorough review of the literature revealed the barriers present that impact the Hispanic population. There is evidence that shows the Hispanic population has cultural, rural, literacy, financial, discriminatory, and fear-based barriers that impact their ability to access dental services. Many of the barriers addressed were similar across the literature and results showed similar experiences across participants. One common theme across the literature is that the Hispanic population in the United States is rising exponentially and continues to rank as one of the most disadvantaged ethnic minorities.

Overall, there is a need to evaluate barriers perceived by the Hispanic population in rural southwest Minnesota. There are multiple barriers to accessing dental services that can affect a population. It is crucial to understand what perceived barriers are being experienced by the Hispanic population in southwest Minnesota in order to address potential solutions.

Chapter III: Methodology

The purpose of this study is to identify the different barriers for dental services among the Hispanic and Latino population in a rural southwestern community in Minnesota. The research design, data collection procedures, subjects and sampling, instrumentation, and analysis will be central points discussed in this chapter.

Research Design

A non-experimental, cross-sectional, quantitative research method was selected based upon the nature of the research question and instrument selection. Levin (2006) states that a cross-sectional design should be used when the study is descriptive in the form of a survey and is aimed at describing a population with the outcome of interest or associated risk factors. A cross-sectional study design will be utilized to identify the Hispanic population's barriers to dental services at the time of the survey distribution. A cross-sectional design looks at a specific point in time which is important as this study is analyzing current barriers. One of the advantages of this design can be used to assess many outcomes and risk factors, which is important for this research since there are many different barriers to dental care that can be experienced (Setia, 2016). Lastly, it is useful in public health planning and the results of this study can provide insight for a future public health program for this area (Setia, 2016).

Data Collection Procedures

To reach the Hispanic population in Southwest Minnesota, one local agricultural facility, the Head Start organization, and a religious organization were utilized to distribute the survey. Each organization was communicated via email prior to the commencement of

data collection in order to gather approval for survey distribution. After IRB approval was received (see Appendix A), the local agricultural facility and Head Start was emailed the recruitment flyer, link, and QR code to access the surveys online through Qualtrics. Additionally, they received information on how to distribute the survey information. At Head Start, employees made weekly home visits to their families enrolled in the program. It was at these visits that the employee distributed the recruitment flyer to Hispanic families and provided technology for the adult to complete the survey if they chose to complete it. At the local agricultural facility, they placed the recruitment flyer in the two break rooms available on site. Additionally, they posted the information to their private social media platform only accessible to the facility's employees. This private social media platform is checked daily by employees for work updates. For the religious organization, an in-person meeting was held with the congregation. A research team member spoke about project and provided the recruitment flyer for members to access the survey online.

An electronic distribution of a web-based survey was chosen. Electronic distribution methods of surveys offer advantages to the researcher. It can be fast, provide a reduced cost for data collection, and ease in data analysis (McPeake et al., 2014). To improve response rates, participants the average completion time was included on the recruitment flyer (McPeake et al., 2014). The data collection phase began in the middle December of 2022 and concluded at the end of February 2023.

Subjects and Sampling

The priority population for this research is the Hispanic population in southwest Minnesota. The inclusion criteria will include all adults of Hispanic origin, ages eighteen

and older. Three locations in southwest Minnesota were selected based on the significant number of Hispanic individuals that gather at these locations or interact with the organizations. The first location is a religious organization that will consist of approximately thirty adult members from Hispanic ethnicity. This religious organization was chosen because it only has Hispanic members. The second location was one local agricultural facility in southwest Minnesota that consists of approximately 100 Hispanic employees. This facility was chosen based on the proximity to the researcher. Lastly, the local Head Start organization has approximately fifty Hispanic families. Head Start was chosen because they have programs in different locations throughout southwest Minnesota.

The sampling technique chosen is convenience sampling. Keeping in mind that the locations established may not provide a large enough sample size, convenience sampling is the most appropriate. The locations identified are convenient to the researcher in terms of proximity. These are centralized locations frequented by individuals of Hispanic ethnicity. To address concern of overlap in participants between the three different locations, it was specifically mentioned in the informed consent that participants may only take the survey once.

Instrumentation

The instrument chosen for this quantitative research is an existing survey taken from Vazquez and Swan (2003) that was modified for the purpose of this study. This survey consists of thirty-six questions that are available in Spanish and English. The estimated completion time of the survey is ten minutes. The items included in this survey

are intended to address attitudes about oral health, oral health needs, perceived barriers, insurance coverage, and demographic information (Vazquez and Swan, 2003). The survey begins with ten questions about demographics. The information collected will include gender, age, English proficiency, language, years in U.S., education, and employment. There are nine questions related to dental care and current dental practices. This includes information on recent dental appointments and dental needs. There are ten questions to address barriers to dental care. These questions include information from their dentist, insurance, transportation, culture, finances, and language. Finally, seven questions regarding oral hygiene, oral hygiene practices, and dental fears.

The original survey was designed by Vazquez and Swan (2003) after reviewing three different existing surveys that also explored access and attitudes. The resulting survey was revised by a public health research expert and a dental hygiene faculty member at Wichita State University. The Cronbach's alpha was tested on the fifteen Likert questions, which resulted in a coefficient of 0.92. This indicates an excellent level of reliability. No measures of validity are mentioned for the survey indicated for use. It is important to note that this original survey was modified for the purpose of this research, so the resulting reliability and validity of the survey instrument in unknown.

Translation of the Instrument and Documents

The survey used for this study, along with the consent form and the recruitment flyer, was available to participants in Spanish and English. The recruitment flyer was made in Spanish and English, so participants had access to the information in the language they preferred. For the survey, two individual surveys were created in Qualtrics

with their respective links and QR codes. Based on which language they preferred, the

link or QR code would direct them to the appropriate survey. The translation of the

survey was provided by the student researcher, a native Spanish speaker. Upon

completion of the translation of the instrument and consent form, two native Spanish

speakers read the survey, provided insight on the understanding of the translation, and

approved the final translation of the survey.

Analysis

Based on the research question, descriptive statistics was the appropriate method

of analysis. To analyze the survey results, data were transferred from Qualtrics into IBM

SPSS Statistics (Version 27). Frequencies and percentages were used to organize and

describe the data.

Chapter 4: Results

Overview

The results in this chapter are presented in five sections. 1) Demographics of participants 2) Oral hygiene practices 3) Dental care 4) Barriers to dental care. One question that did not fit the criteria was also reported. Numbered tables are included in the sections mention in order to present specific results.

Demographics

Fifty-one participants completed the survey. The majority of participants were female (60.8%), have lived in the U.S for eleven to twenty years (39.2%), their primary language was Spanish (86.3%), and had some English ability (52.9%). Most participants were between twenty to twenty-nine years old (37.3%) and thirty to thirty-nine years old (37.3%). Majority of participants had a high school education or GED equivalent (37.3%), were not currently employed (72.0%), and considered themselves self-employed (62.0%). Thirty-one (60.8%) participants have never visited the dentist, while twenty-eight (54.9%) participants did have dental insurance (Table 1).

Table 1

Demographics of the Sample

Gender	*n*(%)	English Ability	*n*(%)	Primary Language	*n*(%)
Male	19(37.3)	Fluent	17(33.3)	Spanish	44(86.3
Female	31(60.8)	Some	27(52.9)	English	1(2.0)
Non-binary/third gender	1(2.0)	No English	7(13.7)	Both	6(11.8)
Prefer not to say	0(0.0)				

Age			Highest Education		
18-19	0(0.0)		None	2(3.9)	
20-29	19(37.3)		1-8th grade	13(25.5)	
30-39	19(37.3)		9-12th grade or GED	19(37.3)	
40-49	9(17.6)		College	11(21.6)	
50-59	4(7.8)		Some grad. studies	6(11.8)	
60-80	0(0.0)		Grad./Prof. degree	0(0.0)	

Ever Visited a Dentist			Currently Employed		
No	31(60.8)		No	36(72.0)	
Yes	20(39.2)		Yes	14(28)	

Dental Insurance			Self-employed		
No	23(45.1)		No	19(38.0)	
Yes	28(54.9)		Yes	31(62.0)	

Oral Hygiene Practices

Among the dental home care methods, participants used a toothpick (29.4%),

flossing (64.7%), mouth rinse (56.9%), tooth brushing (94.1%), and toothpaste (84.0%).

The frequency of brushing per day for the majority was twice (60.0%). The frequency of

flossing per day for the majority was once (45.1%) or never (25.5%) (Table 2).

Additionally, participants rated their own oral health as excellent (n=2, 4.1%), very good

(n=7, 14.0%), good (n=18, 36.7%), fair (n=14, 28.6%), poor (n=8, 16.3%).

Table 2

Oral Hygiene Practices

Dental Home Care Methods	n(%)	# of Times Flossing per Day	n(%)	# of Times Brushing per Day	n(%)
Toothpick	15(29.4)	Never	13(25.5)	Once	6(12.0)
Flossing	33(64.7)	Once	23(45.1)	Twice	30(60.0)
Mouth rinse	29(56.9)	Twice	10(19.6)	Three	13(26.0)
Tooth Brushing	48(94.1)	Three	2(3.9)	More than three	1(2.0)
Toothpaste	43(84.3)	More than three	2(3.9)		

Dental Care

Approximately 60.8% of participants that have visited the dentist before do have a

dental office they routinely visit. The type of provider that these participants utilize was a

private dentist (32.6%), public clinic (34.8%), and other (32.6%). The majority of

participants either had their last dental visit more than two years ago (34.2%), or within

six months (31.6%). Similarly, the majority of participants either had their last dental

exam more than two years ago (47.4%), or within the past year (31.6%). Approximately

63.2% of participants have had a dental appointment in the last six months, and 44.7% of

participants had a regular exam and cleaning as their last dental visit. The frequency of

dental visits for participants was split between toothache only (33.3%) and every six

months (25.0%). Additionally, 66.7% of the participants did not report a current dental

need (Table 3).

Table 3

Dental Care

Last Dental Visit	*n*(%)	Frequency of Dental Visits	*n*(%)	Regular Dental Office	*n*(%)
Within 6 mo	12(31.6)	Every 6 mo	9(25.0)	No	20(39.2)
6mo – 1yr	4(10.5)	Every year	7(19.4)	Yes	31(60.8)
1-2 yrs	7(18.4)	More than a year	8(22.2)		
More than 2 yrs	13(34.2)	Toothache only	12(33.3)		
Never	2(5.3)				

Last reason for Visit		Last Dental Exam		Current Dental Need	
Regular exam and cleaning	17(44.7)	Within past year	12(31.6)	No	34(66.7)
Toothache	5(13.2)	1-2 yrs	8(21.1)	Yes	17(33.3)
Tooth pulled	8(21.1)	More than 2 yrs	18(47.4)		
Restoration (filling)	8(21.1)				

Type of Provider		Dental Appt. Past 6mo?			

Private Dentist	15(32.6)	No	14(36.8)
Public Clinic	16(34.8)	Yes	24(63.2)
Other	15(32.6)		

Dental Barriers

Not being able to find a dental office with staff of similar cultural background (42.9%) was the most commonly identified reason for having treatment inhibited for participants. Additionally, 32.7% of participants could not afford their dental treatment. Having a language barrier at the dental office inhibited treatment in 28.6% of participants. A total of 28.6% of participants identified that struggling to find time to attend dental appointments inhibited their treatment, but for 20.4% of participants, this was never a barrier. Approximately 32.7% of participants experienced long wait times for appointments 'many times' as a barrier to dental care. Thirty-two percent of participants choose to not spend money unless there is a toothache 'sometimes'. Not being able to find a dentist to provide dental care affected 30.0% of participants 'few times'. For the majority, not having time off of work (40.8%) and not having transportation (40.8%) were never a barrier (Table 4).

Table 4

Barriers to Dental Care

How often….	Never a Barrier n(%)	Few Times n(%)	Sometimes n(%)	Many Times n(%)	Every Time-Inhibited Treatment n(%)
Could you not find a dentist who could provide you dental care?	13(26.0)	15(30.0)	7(14.0)	10(20.0)	5(10.0)
Do you not have transportation to attend dental appointments?	20(40.8)	11(22.4)	7(14.3)	7(14.3)	4(8.2)
Could you not get off work to attend dental appointments?	20(40.8)	12(24.5)	6(12.2)	10(20.4)	1(2.0)
Could you not find a dental office with staff of your cultural background?	8(16.3)	6(12.3)	5(10.2)	9(18.4)	21(42.9)
Have you had to wait a long time to get an appointment?	9(18.4)	13(26.5)	3(6.1)	16(32.7)	8(16.3)
Could you not afford dental treatment?	8(16.3)	5(10.2)	6(12.2)	14(28.6)	16(32.7)
Do you have language barriers at the dental office?	10(20.4)	13(26.5)	4(8.2)	8(16.3)	14(28.6)
Do you struggle to find time to attend dental appointments?	10(20.4%)	6(12.2)	4(8.2)	8(16.3)	14(28.6)
Do you NOT spend money on dental services unless there is a toothache?	12(24.0)	10(20.0)	16(32.0)	9(18.0)	3(6.0)

Traveling less than fifteen minutes was most likely (34.0% for participants.

Additionally, 46.2% of participants listed 'other' as their reason for not receiving dental

services (Table 5).

Table 5

Dental Barriers

Time to Travel	*n*(%)	Reason Why	*n*(%)
<15 min	17(34.0)	No Need	2(15.4)
15-30 min	10(20.0)	Couldn't find Dentist	5(38.5)
30-60 min	12(24.0)	Other	6(46.2)
1-2Hrs	11(22.0)		

Approximately 56.0% of participants did not have any dental fears. Similarly,

65.3% did not fear cleaning loosen teeth and 56.0% are not afraid of pain with dental

services. The fear that cleanings will loosen teeth inhibited 8.2% of participants from

receiving treatment (Table 6).

Table 6

Dental Fears

How often do you experience…	No n(%)	Few n(%)	Some n(%)	Many n(%)	Every time – Inhibits Treatment n(%)
Any Fears?	28(56.0)	8(16.0)	9(18.0)	4(8.0)	1(2.0)
Fear cleanings will loosen teeth?	32(65.3)	6(12.2)	6(12.2)	1(2.0)	4(8.2)
Fear of pain with dental services?	28(56.0)	11(22.0)	6(12.0)	3(6.0)	2(4.0)

Summary

This chapter summarized the descriptive statistics in the form of frequencies and percentages to answer the research question. The results conveyed that the majority of participants have been to the dentist before and do have dental insurance, but list not having a dental provider of similar cultural background, having a language barrier, and not being able to afford dental services as barriers that inhibit treatment.

Chapter 5: Discussion

The purpose of this cross-sectional study was to identify barriers to dental services among Hispanic adults in southwest Minnesota.

Conclusions

The present study showed that the majority of participants did not receive dental services because they could not find a dental provider of their same cultural background. This finding is consistent with the results of earlier studies by Vazquez and Swan (2003) and Cristancho et al. (2008). This information is significant to support the need for an intervention to reduce barriers. A culturally competent health provider improves trust and communication between the patient and provider (Welch & Ayars, 2021). The result of this increases the patients' likelihood of accepting of provider recommendations and improves health outcomes (Welch & Ayars, 2021).

The second finding of significance is that the majority of participants did not receive dental treatment because they had a language barrier. This is consistent with the findings of previous studies by Han (2019) and Gomez and Kinsler (2022). For the participants in this study, the majority spoke Spanish as their primary language and only knew 'some' English. Not having a culturally competent provider can be associated with language barriers in the dental office. Understanding the components of an appointment and receiving diagnosis and treatment information from a culturally competent provider in a language that is comprehendible is one piece of the puzzle. Conversely, the patient needs to be able to communicate with the business office to coordinate appointments and

finances for treatment. Additionally, a difference in dialects and lack of interpreter services could have an impact on this as well.

The present study found that the majority of participants did not receive dental treatment because they were unable to afford it. This is consistent with the results of previous studies by Heaton et al. (2004), Cristancho et al. (2008), and Velez et al. (2017). Interestingly, the majority of participants in this study did have dental insurance. The previous studies mentioned found that the majority of Hispanics not having dental insurance was a factor in having financial restrictions as a barrier. This could be an indication that having dental insurance alone may not be sufficient in reducing this barrier. Additionally, a misunderstanding from the participant if insurance coverage is medical, dental, or both could be an explanation for the present finding.

With southwest Minnesota being a rural area of the state, geographic barriers were examined. Interestingly, while the majority of participants had to travel thirty to sixty minutes to a dental office, the majority did not experience transportation or time as a barrier to receiving care. This finding is not consistent with the previous studies by Cristancho et al. (2008) and Velez et al. (2017). Previous studies found that only having one car per household, one person with a driver's license per household, not financially capable of paying for gas (Cristancho et al., 2008), and public transportation issues (Velez et al., 2017) were factors affecting a person's ability to access dental services. One plausible explanation for this is that the previous research is dated and does not provide a current description of transportation for the Hispanic population in rural areas.

Implication for Health Educators

Macy et al. (2018) applied the Integrative Model of Behavioral Prediction (IM) to Mexican American adults and factors associated with seeking preventive dental services. The findings of their study indicated that the participants' dental beliefs were related to their attitude and self-efficacy toward seeking dental care. Additionally, their past behavior and intention were related to self-efficacy meaning those that had previously visited the dentist had more confidence in their ability to seek preventive dental services. Implications from this study demonstrate that future interventions should be targeted toward changing attitudes regarding preventive dental services and strengthening self-efficacy to seek those services (Macy et al., 2018). This present study did not research the behaviors related to self-efficacy of the participants; however, it would be recommended to understand how having a culturally competent provider and satisfactory linguistic communication affects attitudes and self-efficacy.

In 2003, there was a national shortage of Hispanic health professionals (Vazquez and Swan, 2003) and there continues to be one. As of 2020, the percentage of White dental providers is 70.2% compared to Hispanic 5.9% (American Dental Association, Health Policy Institute, 2019). Within the dental admissions in the United States, there has been great effort to diversify the student population. An increase in Hispanic dental students has been shown, but still does not reflect the diversity of the US population (American Dental Association, Health Policy Institute, 2019). Additionally, the US Department of Health and Human Resources does not require all dental offices to offer interpreting services (Minnesota Department of Human Services, 2021). If a dental

practice is not required to do so, it is encouraged to have an accessibility plan and to not rely on informal interpreters (Minnesota Department of Human Services, 2021). Although, many children and relatives are still being utilized as an alternative for a professional interpreter (Nielson et al., 2020).

Based on the findings, there is a clear need to address the deficit in Hispanic dental providers and language barriers in the dental office, and community oral health workers may be the answer. Villalta et al. (2019) conducted a train-the-trainer program for community oral health workers in an effort to reduce the incidence of early childhood caries among Hispanic children. Thirteen bilingual Hispanic caregivers received oral health training to lead a series of oral health promotion workshops at local community sites. These individuals were referred to as community health workers or promotoras in Spanish. This study found that the culturally and linguistically competent intervention significantly improved knowledge, attitudes, and self-efficacy (Villalta et al., 2019). Community oral health workers could be utilized in the dental health care system to help Hispanic adults and families navigate the system in a variety of different ways. The responsibilities could include connecting the individual to a dental provider, assist in setting up the appointment and making referrals, find transportation, understanding and obtaining dental insurance, and communicating dental treatment plans (Villalta et al., 2019).

A similar intervention was studied with promotores, also known as male community health workers. Documet et al. (2020) studied how male community health workers could improve social support, healthcare access, depressive symptoms, and

decrease alcohol consumption for Latino immigrant men. Eleven immigrant Latino men were trained as community health workers and met with participants to assist them and provide social support over the course of six months. This intervention increased the participant's number of dental visits from 27% to 42% in one year (Documet et al., 2020). This study also supports the addition of community health workers into the health care system to increase access to care for vulnerable populations (Documet et al., 2020). For the Hispanic population in a rural southwestern community in Minnesota, community oral health workers could bridge the gap between the provider and patient and also assist with interpreting needs.

Planned Parenthood provides an example of how community health workers can be seamlessly incorporated into the health care system with exemplary success. They have been using Promotores de Salud since the early 1990s (Planned Parenthood, 2023). At Planned Parenthood, Latino men and women are trained on reproductive health education to bring information and resources to communities in need (Bloom-Pojar & Barker, 2020). The promotores host community events to connect Hispanic individuals to build relationships, increase trust, and decrease barriers to health care (Bloom-Pojar & Barker, 2020). This model can be replicated for oral health education in any diverse community.

Implications for Future Research

Oral health education and literacy remains as a barrier to accessing care that was not researched with this present study. Cultural and linguistic factors additionally impact an individual's ability to understand oral health and navigate the dental health system in

the United States. "Health literacy remains a neglected, final pathway to high-quality health care" (Piedrasanta et al., 2021, p. 23). Future research must examine the current oral health and dental health systems literacy of the Hispanic population. There is great potential for the addition of community oral health workers to help bridge the gap between patients and providers, but their efficacy to increase health literacy must be examined.

The findings from the financial barrier and usage of dental insurance are reasons for future research to dive further into the financial barrier for Hispanics. The addition of dental insurance may not be sufficient in reducing finances as a barrier. Also, it is important to not only examine financial status and dental insurance, but also analyze the correlation between how the individual perceives dental health and their willingness or ability to spend money on dental services. With the majority of these participants having dental insurance, but also listing finances as a barrier could indicate that there are other influential factors. Other aspects to address include only receiving dental services that are covered by insurance, only spending money on preventive services, and only spending money on restorative services. Additionally, future research should address the misunderstanding of having dental insurance coverage versus medical. This area may benefit from qualitative data for further evaluation.

Overall, there is a need to replicate this study with a larger sample size. These results indicate a need to address the Hispanic population's barriers to dental care in southwest Minnesota. A larger sample size is needed to provide a better representation of

the population and more accurate results. Additionally, it would allow for barriers to be addressed based on demographics.

Summary

This is the first study to examine barriers to dental services among the Hispanic population in southwest Minnesota. In this study, researchers investigated which barriers were present at the time of survey distribution. The results indicated that not having a provider of the same cultural background, having a language barrier, and not being able to afford dental services were the barriers experienced by the majority of participants. The limitations of this study were the small sample size and restricted geographic location of the state of Minnesota.

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Appendix A: Institutional Review Board Letter of Approval

December 9, 2022

Re: IRB Proposal [1996227-2] Identifying barriers to dental care among Hispanics in southwest Minnesota
Review Level: Exempt (Level I)

Congratulations! Your Institutional Review Board (IRB) Proposal has been approved as of December 9, 2022.

Please remember that research involving human subjects under the purview of the IRB should adhere to the most current COVID-19 guidelines available, as set by MSU, Mankato and the Minnesota Department of Health.

On behalf of the Minnesota State University, Mankato IRB, we wish you success with your study. Please remember that you must seek approval for any changes in your study, its design, funding source, consent process, or any part of the study that may affect participants in the study (https://research.mnsu.edu/institutional-review-board/proposals/process/proposal-revision/).

Should any of the participants in your study suffer a research-related injury or other harmful outcomes, you are required to report them immediately to the Associate Vice-President for Research and Dean of Extended Campus at 507-389-1242.

When you complete your data collection or should you discontinue your study, you must submit a Closure request. All documents related to this research must be stored for a minimum of three years following the date on your Closure request (https://research.mnsu.edu/institutional-review-board/proposals/process/proposal-closure/).

If the PI leaves the university before the end of the 3-year timeline, he/she is responsible for ensuring proper storage of consent forms (https://research.mnsu.edu/institutional-review-board/proposals/process/leaving-campus/). Please include your IRBNet ID number with any correspondence with the IRB.

Be well,

Julie Carlson, Ed.D.
Co-Chair of the IRB

Chelsea Mead, Ph.D.
Co-Chair of the IRB

Jason A. Kaufman, Ph.D., Ed.D.
Director of the IRB

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