Proper Oral Hygiene Habits in Adults and Children

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Introduction

In the United States, 92% of adults ages 20 to 64 have had dental cavities, also known as dental caries, on their permanent teeth. Dental caries are permanently damaged portions of the tooth that eventually progress into holes (NIH, 2018a). Additionally, 28% of children ages 2 to 5 and approximately 57% of children ages 6 to 11 have had dental caries on their teeth (NIH, 2018b). Dental cavities can cause further damage to an individual's oral health by increasing the risk for less reversible diseases such as periodontal disease or oral cancer. Periodontal disease is the result of continued poor oral hygiene habits which cause infections and inflammation of the gums and bone which can eventually lead to permanent tooth loss. Periodontal disease is prevalent in the United States, where 47.2% of adults ages 30 to 65 and 70.1% of adults ages 65 and over have some form of gum disease in their lifetime (CDC, 2013). Although poor oral health does not directly result in mortality, it can lead to morbidity in other areas of the body such as the cardiovascular system. For example, it is hypothesized that periodontitis and dental cavities can contribute to a proinflammatory state which can lead to coronary heart disease and other serious heart conditions (Kim et al., 2013).

The prevalence rates of oral diseases can be dramatically reduced with proper oral hygiene habits. Practicing proper oral hygiene is crucial for maintaining a healthy oral environment and decreasing the risk of developing further oral diseases. Such habits include brushing twice a day, flossing daily, avoiding excess amounts of sugary food and drinks, avoiding smoking and vaping, and visiting the dentist at least semi-annually. However, it is difficult for many individuals to practice proper oral hygiene due to the wide range of factors that oral health encompasses. According to the NCBI, 41% of Americans floss at least once a day; however, 20% of Americans never floss (Fleming et al., 2019). Relating to dietary habits, the average daily intake of added sugars was 17 teaspoons for individuals 2 years and older, which is well above the recommended daily intake of 12 teaspoons of sugar (Gunnars et al., 2021). Soda drinks have excess amounts of sugar as well as high levels of phosphate, a chemical that is harmful to bone health (Harvard School of Public Health, n.d.). Lastly, in 2019, over one-third of the U.S. population did not visit the dentist to have a dental checkup or cleaning in the past 12 months (Cha et al., 2021). These percentages were even lower in rural and lower income areas. Based on these statistics, the U.S. population is highly susceptible to oral health diseases due to lack of proper oral health habits which can be remedied by proper intervention strategies that view oral health in a holistic way.

The Healthy People 2030 objectives are a collection of goals published each decade by the Office of Disease Prevention and Health Promotion to increase awareness of the determinants affecting overall health. These objectives emphasize the need to combat oral health issues such as disease prevalence and

limited access to care. One of the main goals of Healthy People 2030 is to increase the overall use of the oral healthcare system (OH-08). This objective can be achieved by increasing access to oral health insurance, which many minorities, elderly, and low-income Americans do not have access to. In 2015, the percentage of individuals without dental insurance was 29% in the general population, however this number was much higher at 62% for senior citizens (Cha et al., 2021). An additional goal is to reduce the prevalence of lifetime tooth decay in children and adolescents (OH-01). If children and adolescents are able to have more one-on-one visits with their dentist to learn how to maintain their oral health and improve their diet, their likelihood of creating and maintaining healthy and effective oral hygiene habits can increase.

Theory

Health theories are crucial in helping health professionals identify and understand certain health behaviors to develop appropriate interventions. Theories aid health professionals in guiding health promotion and creating disease prevention programs which can cover an array of behaviors. Two of the most common theories applied to oral hygiene habits and their relation to oral health include the Health Belief Model and the Transtheoretical Model.

Health Belief Model

The Health Belief Model (HBM) is a social-psychological health behavior change model that illustrates that individuals will achieve optimal behavior change if they are able to change their attitudes and beliefs. The Health Belief model is derived from behavioral and psychological theories and its foundation is made up of two components 1) the goal is to avoid illness, and 2) the belief that a specific health behavior will prevent an illness. The model is composed of six crucial constructs including perceived susceptibility, perceived severity, perceived benefits, perceived barriers, cues to action, and self-efficacy. The HBM can clearly and effectively be applied to measure people's motivation to practice proper oral health behaviors. Researchers have examined the perceptions of those who practice healthy or unhealthy oral hygiene habits, their perceived susceptibility and severity to oral health diseases related to oral hygiene habits, the barriers to practicing healthy oral hygiene habits, and the belief in one's own ability to keep up with healthy and effective oral health habits (Xiang et al., 2020).

Based on the Health Belief model, proper oral health beliefs are essential for improving oral health behaviors. Various studies have been conducted to demonstrate the effectiveness of the Health Belief Model in predicting oral health behaviors. The Oral Health Behavior Questionnaire for Adolescents, the first authenticated questionnaire surveying adolescents' oral health, was developed and used in this study

to measure the factors that affect oral health behaviors based on the HBM. The questionnaire measured the frequency of brushing, sugar consumption, and dental visits. Perceived barriers, including dental anxiety, served as a predictor for dental visit patterns and flossing, while self-efficacy beliefs greatly promoted brushing habits. It was indicated that the decision to perform regular, healthy oral hygiene practices was influenced by one's self confidence to do it successfully. The study showed that the perceived barriers in relation to visiting the dentist included lack of time, financial constraints, and accessibility to a dental office nearby. Moreover, cues to action and perceived susceptibility were also constructs influencing flossing habits (Xiang et al., 2020).

In another study, the application of the HBM focused on how oral health behavior education increases the likelihood of individuals taking preventative oral health measures. This study was conducted by using a questionnaire that measured the quality of brushing and flossing. This questionnaire was administered once before an oral hygiene educational program took place and once after. In this study, the case group took part in the educational program while the control group did not. Before the educational program, there was a weak perception of perceived severity to oral health diseases, which included tooth decay and loss and a poor understanding of preventative and healthy oral health behaviors in the case group. However, after the educational program took place, there was a significant change in perceived susceptibility and severity for the individuals and an increase in healthy oral hygiene habits including flossing and brushing (Solhi et al., 2010). This study shows the crucial difference that educational programs created using the basis of the Health Belief model can make on individuals in regards to changing their beliefs and perceptions about their oral health behaviors.

As shown in the previous study, intervention programs, such as the educational program based on the HBM played a crucial role in increasing the rate of healthy oral health behaviors practiced among these individuals. If the HBM implications regarding oral health behaviors were used to implement world-wide educational programs among schools and community health centers, it would be able to change the narrative and practices surrounding effective oral health habits. Additionally, more research regarding the HBM and oral health behaviors needs to be conducted in several diverse populations to help health professionals and policy makers understand the various needs of the communities that they are serving and what barriers to changing behaviors exist.

Transtheoretical Model

The Transtheoretical Model attempts to explain health behaviors by examining one's progress through different stages when making behavioral changes. The five stages of this model include precontemplation,

contemplation, preparation, action, and maintenance of behavior. By applying these different stages to an individual's progress in changing or starting a healthy behavior, researchers can better understand individuals' motivational readiness to change their behavior. Additionally, constructs such as self efficacy and decisional balance are considered in this model as they both influence an individual's confidence and importance placed on making change. From this knowledge, appropriate interventions can be implemented to target individuals during specific levels of the model to influence better health outcomes.

In one study, adult patients with chronic periodontitis were given questionnaires based on the Transtheoretical Model after four successive dental appointments to track progress over time. Close-ended questions such as "Do you brush your teeth twice daily?" and "Do you intend to start brushing your teeth twice daily?" were asked to determine which stage in the model an individual was categorized in. Relating to decisional balance measures, participants also completed a Likert scale questionnaire to rank the importance of brushing twice a day from "not important" to "extremely important". A pro and con score was determined for each stage to measure the level of perceived benefits or barriers to attending dental appointments and maintaining healthy oral habits. The precontemplation group had the highest con score, whereas the maintenance group had the highest pro score. Such results indicate that later stages experience greater interest, higher self efficacy, and more repetition of behaviors and dental visits compared to individuals in earlier stages. The results of this study ultimately indicated that, compared to earlier stages, individuals in the maintenance stage were most likely to attend their dental appointments, thus they experienced better oral health outcomes (Emani et al., 2016).

The Transtheoretical Model indicates that individuals who have increased knowledge and experience with a behavior are more motivationally compliant compared to individuals who are not even considering the behavior. Researchers have ascertained that impactful dental interventions should target individuals in the earlier stages using methods such as education to bring awareness about proper brushing techniques and the importance of oral self care. Oral health education specialists can implement more educational programs to not only target individuals at the precontemplation stage, but also follow and support patients as they progress through the stages. Individuals in the preparation and action stages must also be provided continuous education, counseling, and proper self care products to prevent the relapse of oral diseases and promote them to the maintenance stage for long term change (Emani et al., 2016). While many studies regarding the implementation of the Transtheoretical Model help understand adult behaviors, they indicate that there still needs to be more research conducted about how oral health counseling in schools can positively affect adolescents' oral health outcomes and increase self efficacy at a young age.

Intrapersonal Factors

Intrapersonal factors focus on an individual's personal knowledge, beliefs, attitudes, experiences, socioeconomic status, personality traits, genetic predispositions, race, and gender. Intrapersonal factors can be voluntarily controlled or involuntary, and help measure one's motivation to start practicing or maintain the practice of oral hygiene habits.

Educational programs increase people's knowledge and beliefs about performing a certain behavior, thus the behavior will be more likely to occur. In one study, the effectiveness of oral health education programs in educational institutions was examined. Audiovisual, hands-on, and informational presentations were used to educate children and these efforts were supervised by parents, teachers, and dentists. The results indicated that after just 6 months of participation in the program, gingival bleeding and plaque levels decreased by 17% due to receiving better education about proper flossing and brushing techniques, the avoidance of consuming excess amounts of sugary candies, and learning how to eat a proper diet. This intervention program geared the content to appeal to children, by using theatrics and puppet plays to increase engagement and excitement about the behavior. Based on this study, it can be seen that it is important to continue influencing children's attitudes and beliefs towards oral hygiene in order to instill good habits at a young age. If children can maintain appropriate oral health beliefs into adulthood, then age-related oral issues can be prevented earlier on due to long-term establishment of proper oral self care routines and beliefs (Priya et al., 2019).

Another major intrapersonal factor influencing oral health behavior is socioeconomic status (SES). In one study, people of various socioeconomic status and age groups were given surveys and questionnaires to determine the value placed on oral health behaviors. Participants were asked to categorize behaviors such as drinking fluoridated water and flossing on a scale from "not at all important" to "extremely important". Additionally, beliefs were measured by asking participants whether they believed foods such as milk and fruits help fortify their teeth and bones. The results indicated that SES in young adults in addition to childhood dental habits had the greatest influence on oral health outcomes in adults between the ages of 26 and 32. It was also shown that higher SES was correlated with more frequent utilization of dental care and improved dental habits and beliefs (Broadbent et al., 2016).

In contrast to modifiable factors such as attitudes and beliefs, gender and race intrapersonal factors are more reliant on physiological predispositions. In one study of adolescent students in Indonesia, researchers administered questionnaires to measure the students' levels of oral health knowledge and frequency of brushing and flossing. Females not only scored higher on the oral health knowledge

assessment, but also they consistently had higher frequencies of flossing and brushing. For example, 40.4% of females brushed at least twice a day, whereas only 22.8% of males brushed twice a day (Roudsari et al., 2021). To further illustrate gender and racial differences in oral care behaviors, a different study was conducted to survey black men living in low-income urban areas. Since minority groups and men have the highest rates of periodontitis, black men were surveyed to gauge disparities in the oral healthcare system. Out of the total sample of black men, 68.8% of the participants did not have dental insurance and 55% of the older men reported difficulties in accessing dental care, which helps explain why most men experience poor oral health statuses. Additionally, 89.4% of the participants had negative attitudes towards visiting the dentist due to previous uncomfortable experiences, therefore overcoming this fear was a perceived barrier. Several men also reported that hearing the dentists' negative feedback regarding their oral status dissuaded them from visiting the dentist or seeking treatment. However, 88% of the participants acknowledged the significance of brushing and flossing, while 91% wanted to play a more active role in their oral health (Akintobi et al., 2016).

In addition to gender and racial differences in oral health practices, psychological factors such dental phobias or anxiety can influence dental behaviors. The intimidating noise of the dental drill and the uncomfortable feeling of receiving a dental cleaning can hinder individuals from visiting their dentist regularly. In one study, adult men and women were given surveys to rank their levels of dental phobias. The results indicated that up to 30.6% of men and up to 22.1% of women had extreme dental phobias. Younger adults also reported higher dental phobia scores compared to older adults. Furthermore, participants with lower socioeconomic status and education levels had significantly higher phobia scores as they likely had fewer experiences with dental procedures. Overall, this study revealed a correlation between perceived dental phobias and higher levels of periodontal disease, supporting the notion that dental fears are a significant barrier to seeking dental care and experiencing better oral health outcomes (Yildirim, 2016).

Interpersonal Factors

Interpersonal factors are external determinants that can include peer influences, social support, emotional and material incentives, social norms, and behavioral modeling. Interpersonal factors are the various circumstances that affect having healthy relationships with one's self and others to create positive support systems and communities. Norms can be shaped by opinions held by people apart from the same society. Cultural interpersonal factors include language, beliefs, perspective, customs, culture and physical and social environments. These interpersonal factors play a crucial role when trying to understand what encourages certain oral health behaviors. Family is an important determinant of adolescent oral health

behavior, as children and adolescents rely on their guardians and often model the behaviors of those surrounding them. In 2021, a study was performed with the goal to understand the association of acculturation and Latino-American parental behaviors and beliefs toward oral health behaviors. As of 2021, 25% of children in the United States are immigrants and 55% of them are part of the Hispanic or Latinx population. This study is crucial because Hispanic and Latinx children experience the second poorest oral health outcomes. Acculturation is the process in which individuals, that identify with a certain community, adopt the values and behaviors from another community and culture, which can affect their beliefs. This study found that acculturation was associated with the parent's oral health beliefs, attitudes, and behaviors. Less acculturated parents generally had limited knowledge about proper oral health behaviors. Moreover, less acculturated parents had more perceived barriers to accessing the oral health system for preventative dental care. These findings follow the important factors of the Health Belief Model. In addition, this study provides insight about the oral health knowledge, behavior and beliefs of the more acculturated parents. Researchers found that the more acculturated parents not only had better oral health, but also better overall health, which may be related to having higher income and education levels, higher rates of dental insurance, and more reliable transportation to dental appointments in comparison to the less acculturated parents (Tiwari et al., 2021).

In another study focusing on the American Indian/Alaskan Native population, researchers found that proper oral hygiene for children is most likely to be achieved when the caregivers regularly brush their teeth as well. This study focused on toothbrushing in particular, and it found that the majority of American Indian and Alaskan Native parents did not meet the recommendation of brushing their teeth twice a day (Hiratsuka et al., 2019). Children are most likely to model what they see, therefore if their parents do not brush their teeth twice daily, they are less likely to do so as well.

Furthermore, another study was performed which focused on the parental attitudes and beliefs about their children's oral health in lower socioeconomic groups, focusing on black parents of preschool children. This is crucial because low-income children in the U.S. are twice as likely to experience dental caries in comparison to more affluent children. This study focused on how parents play a crucial role in encouraging and ensuring their childrens' success with preventative oral health. In the U.S., Hispanic and black children overwhelmingly face oral health disparities compared to children from other ethinic and racial groups. Researchers found that there is a correlation between the parents' self-efficacy to perform the crucial preventative oral health behaviors and the behaviors encouraged and performed. A large portion of parents did not have the self-efficacy necessary to practice healthy and effective preventative oral health behaviors for their children. Other resources, such as health educators and dentists, should be

utilized to play a crucial role in designing effective educational programs to help increase parents' self-efficacy in performing the necessary oral health behaviors for their children. Programs should also be available in schools, dental offices, and other community centers where children and their parents are present (Clarke & Shaw-Ridley, 2019).

Moreover, in a study performed in Indonesia, focusing on 426 students aged between 12 and 13 years old, researchers found that there was a positive relationship between student's brushing frequency and the daily brushing habits of their friends and peers. The frequency of flossing was also positively correlated with their friends' flossing habits. Overall, this study found that students in friendship groups showed very similar patterns of flossing and brushing. This study proved that social networks and peer influences highly influence health behaviors (Roudsari et al., 2021).

As mentioned, social support is an important factor when trying to understand what encourages or discourages a certain health behavior. This study focused on the correlation between social support and oral health outcomes among immigrant and ethnic minority populations. Researchers found that immigrants and ethnic minorities who experienced social support from friends, family, or professional and community resources, including dentists, utilized dental care resources more often and, generally, had better oral health status (Dahlan et al., 2019). Additionally, in the United States, the number of racial and ethnic minorities continues to grow, and oral health disparities usually affect these populations, in particular. This study found that the level of cultural competence oral health care providers including dentists, dental hygienists, and other office personnel possessed played a crucial role in building trust and comfort with minority and immigrant groups. It must also be noted that there is a clear need in the dental field for dental personnel to work on establishing communication, cultural competence, and interpersonal skills in order to appropriately address the needs of diverse populations (Garcia et al., 2009). All the aforementioned studies focused on the effect of interpersonal factors, in particular, how family relationships, peer influences, and social support systems can encourage or discourage individuals from engaging in proper oral hygiene habits.

Organizational, Community, Environment, and Policy Factors

Organizations, communities, policies, and the environment all have a large impact on how people view and maintain their oral health. Oral health, although extremely important, is viewed in a different lens compared to the rest of the body's health. Many national organizations, including the American Dental Association, help advocate and educate the public about the importance of oral health and how individuals, communities, and institutions can play a crucial role in carrying out intervention strategies.

The American Dental Association raises awareness on how individuals' diet can affect their oral health and provides guidelines that provide further details to help individuals make an informed decision about factors they can control such as regularly brushing, flossing, and maintaining a healthy diet (ADA, 2020). However, the biggest factor affecting oral health is access to dental insurance and care. The U.S federal agencies and national organizations spend roughly 142.4 billion dollars annually on dental expenditures, which comparatively has slightly decreased in 2020 due to the pandemic (ADA, 2021). Given that many individuals rely on government sponsored healthcare and dental care, this has had a negative effect on people's ability to afford quality dental care, which can lead to negative health outcomes.

Visiting the dentist semi-annually is an example of a proper oral hygiene habit; however, many people are unable to visit the dentist regularly due to many factors, one intrapersonal factor being dental anxiety or fear. Dental anxiety affects approximately 36% of the population, and it can have serious effects on an individual's oral health (Beaton et al., 2014). On a community level, the general ambiance within a dental office can play a significant role in initiating dental anxiety. To prevent this unnecessary anxiety, dental administrative assistants and hygienists are crucial personnel in creating a safe and comfortable environment in the office. Playing instrumental background music and avoiding the use of jarring lights can make the office environment less stressful and intimidating for patients (Appukuttan, 2016). A larger scale community influence is the use of social media platforms that can play a crucial role in easing individuals' worries about visiting the dentist. For example, Whoopi Goldberg, an American actor, shared her personal experience with periodontal disease and advocated for the importance of oral health to an individual's overall health. This resulted in an increase of dental patients visiting clinics across the country and showing concern for their oral health and their susceptibility to periodontal disease (Oakley & Spallek, 2012).

One of the largest influences on individuals' ability to practice proper oral hygiene is limited access to dental care. If organizations, workplaces, and communities can enforce policies that give individuals greater access to care, this can lead to better health outcomes for those who normally are unable to access care. In 2014, the Affordable Care Act (ACA) expanded, which increased Medicaid eligibility and affected dental coverage among millions of low-income adults. The ACA increased dental coverage by 18.9% in states that provided dental benefits through Medicaid, and this increase in coverage increased the number of individuals who utilized dental services by 7.2 percentage points. Although the ACA increased the amount of people with dental coverage, it did not expand among all states in the United States. Even after the ACA, the rate of low-income adults with dental coverage is still low. Additionally, the quality of care differed across the spectrum and many individuals had already reached the point of

having many nonreversible oral health issues. With the expansion, it was also noted that the most significant increase in dental office visits was among white adults (Eleani et al., 2020). The findings in this study suggest that expanding the Affordable Care Act is not effective enough on its own. There are a plethora of barriers that need to be addressed to improve the general populations' oral health in addition to barriers that need to be addressed that largely affect minority populations.

Furthermore, in the United States, people are less likely to have a healthy oral status if they are members of an ethnic minority (Northridge, 2020). For a preventative dental sealant, black and hispanic children are 33% less likely to receive a sealant, while children from low income families are 50% less likely to have gotten a sealant treatment (Fisher-Owens et al., 2008). In order to access dental services, an individual needs to have insurance. A report conducted by the United States Census highlighted that 8.6 percent of individuals did not have any kind of health insurance at any point in 2020 (Starkey & Bunch, 2021). To combat such disparities within the dental field, many community run clinics have been introduced. More than 4 million people in the United States receive dental health services through community run health clinics. For example, in Kansas City, a free dental clinic was set up to provide patients with oral HIV screening and 47% of the people utilizing this service were black (Dietz et al., 2008). Many dental clinics offer free services, however these services are not extensive. Additionally, a recent study found an alarming concern in health care settings, focusing on dental clinics (Kallal et al., 2021). Many low-income individuals' feared discrimination in healthcare settings and low cultural compatability was found in these clinics. In other areas, dental clinics were not available to individuals, so those without dental insurance, turned to medical emergency rooms for their dental emergencies and concerns (MacDougall, 2016). According to a study conducted by the University of Minnesota School of Public Health, this costs $5 million dollars, and only 50 percent of this amount was reimbursed through public programs. This is a direct result of refusal to allocate money for preventative dental visits, so the emergency room becomes the only option for individuals without insurance (MacDougall, 2016).

Lastly, water fluoridation is considered one of the most effective oral health disease prevention methods by many health professionals and researchers. A recent study found that more widely available fluoridated drinking water was correlated with significantly lower levels of dental cavities in children and adolescents (Slade et al., 2018). However, water fluoridation is a multi-dimensional topic. Over the past 60 years, there have been multiple studies conducted around the world regarding the effect of water fluoridation on various populations. The studies have consistently shown substantial reductions in dental cavities. However, certain organizations and communities are against water fluoridation because of the belief of fluoride toxicity. Another main reason for fluoride opposition is the belief that fluoride intake through

water fluoridation is unmanageable, since recipients are receiving various amounts of fluoride regardless of age and other individualizing factors (Aoun et al., 2018). Although this is a valid concern, the modes of fluoridation have evolved over the years and studies continue to prove the importance of fluoride in reducing dental caries. As mentioned above, dental treatment costs continue to rise and thousands of people continue to be uninsured. This initiative of fluoridating water in communities is an extension of preventative measures in dentistry, and is more affordable and accessible than other fluoride options.

Suggestions for Intervention

There are many factors that influence the practice of proper oral hygiene habits in adults and children. Many of these factors are due to oral health disparities which are caused by unequal opportunities for different social groups. There is still unequal access to dental care, unequal utilization, and inequity of dental services (Northridge, 2020). The main factors that drive these inequalities is access to dental insurance and quality care. The expansion of the ACA provided medicaid for many low-income individuals, but there are still an alarming number of individuals without dental insurance (Northridge, 2020). A recommendation to help close the gaps in oral health care is to follow a model that effectively integrates oral health care and primary health care. Poor oral health hygiene habits can cause many diseases that not only affect the oral cavity, but also the rest of the body. Treating the oral cavity with the same importance as the rest of the body, before pain is sensed, is a crucial way to help prevent these diseases.

Primary care practitioners, rather than specialized providers, are most likely to care for underserved populations, therefore incorporating oral health care services at the primary level can help close the gap. This recommendation comes with the need to develop appropriate infrastructure to incorporate elements of oral health clinical needs. Appropriate infrastructure involves modifying the set-up of primary care offices to include machinery and appropriate technology that can be utilized by dentists. Expanding office personnel would also be crucial to make this change. This large-scale endeavor might seem costly, but it is both changeable and important. Additionally, modifying payment policies will be crucial to reflect the costs of implementing these competencies, though the benefits will outweigh the costs in the long run. One way these costs can be covered is by making grant programs available throughout the United States.

Furthermore, creating a public transportation service similar to the CATbus to provide transportation to and from dental appointments for individuals without transportation can help combat lack of access to care. There are also currently programs such as Uber Health that offer reliable transportation at a low cost (Weber, 2018). Individuals can also receive free transportation through Healthy connections with Blue

Cross and Blue Shield health insurance. Although both of these initiatives are working towards providing better access to healthcare, they are targeted towards certain populations. The public transportation service proposed would serve individuals regardless of their ability to pay or whether or not they are insured.

Another recommendation on a smaller scale is to integrate oral health educational programs in private, public, and charter schools as well as community centers. There are numerous programs that exist to address this issue. However, many of these programs are not widely available throughout the country. It is important for these programs to be inclusive to all people, including minority groups and low-income individuals. Brushing, flossing, and diet are all factors that can be influenced by an individual's level of knowledge. Individuals decide whether they want to take part in these preventative measures or not, therefore it is crucial to have educational programs that teach individuals how to brush and floss their teeth and how to maintain a healthy diet that can positively affect their oral health. These educational programs can also educate about the benefits of water fluoridation and address any concerns or myths surrounding this often controversial topic. Implementing more educational programs can play a crucial role in helping dentistry's focus shift from treatment to prevention.

Furthermore, making silver diamine fluoride widely available in all dental offices and free health care clinics can be an important implementation to combating access to dental care. Silver diamine fluoride is a topical medication used to treat and prevent dental caries, while also relieving sensitivity (Jewell, 2018). As previously discussed, cost and access are major factors that influence oral health behavior related disparities. Increasing the availability of silver diamine fluoride in dental settings can be an important cost factor, as silver diamine fluoride can be used to stop the cavity from growing. Using silver diamine fluoride is a more cost-effective alternative because it can potentially decrease the need for expensive and unnecessary tooth fillings or extractions.

Finally, it is important to encourage additional national funding for oral health research. There is currently a lack of recent data, especially from 2020, due to the impact of the COVID-19 pandemic on government resources. On a larger scale, there is a lack of research related to oral health that pertains to the United States, so it is important to conduct this research to help health professionals recognize what changes need to be modified for the populations within the United States. Some of these suggestions for intervention are easier to enact than others. However, they are all equally important and changeable and if these types of changes are implemented, the disparities identified in oral healthcare can one day become eradicated.

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