

# Oral Health Care for Vulnerable and Underserved Populations: Conceptual Model

Shivani Karre<sup>1</sup>, Radhika Thakkar<sup>2\*</sup>, Jitesh V Pimpale<sup>3</sup>, Amelia David<sup>1</sup>, Megha Sheth<sup>4</sup> and Amritpreet Kaur<sup>5</sup>

<sup>1</sup>BDS, MS, Loma Linda University School of Dentistry, Loma Linda, CA, USA

<sup>2</sup>BDS, MPH Graduate Medical Education (GME) Residency Program. Eastman Institute for Oral Health, University of Rochester, NY, USA

<sup>3</sup>DDS, MDS (Pediatric and Preventive Dentistry), B.D.S Dental Director Community Health Systems, Beloit, WI, USA

<sup>4</sup>BDS, MS, Advanced Education in General Dentistry Residency Program, Eastman Institute for Oral Health, University of Rochester, NY, USA

<sup>5</sup>BDS, Eastman Institute for Oral Health, University of Rochester, NY, USA

### ABSTRACT

Oral health is a fundamental aspect of overall well-being, yet millions of people around the world face significant barriers in accessing adequate oral health care. Vulnerable and underserved populations, including low-income individuals, minorities, the elderly, and those with disabilities, are disproportionately affected by oral health disparities. In this article, we will explore the evidence surrounding oral health care for these populations and discuss the importance of addressing these disparities. To address oral health disparities, evidence-based policy recommendations are essential to ensure equitable access to oral health care for all populations.

### \*Corresponding author

Radhika Thakkar, BDS, MPH Graduate Medical Education (GME) Residency Program. Eastman Institute for Oral Health, University of Rochester, NY, USA.

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### Introduction

Oral health is an integral component of overall well-being, impacting individuals' ability to speak, eat, and socialize without discomfort. However, a significant portion of the global population, particularly vulnerable and underserved communities, continues to face significant challenges in accessing adequate oral health care. Disparities in oral health outcomes among low-income individuals, minorities, the elderly, and those with disabilities persist, highlighting the urgent need for evidence-based interventions to bridge the gaps in oral health care access and outcomes.

Addressing oral health care disparities in vulnerable and underserved populations is a multifaceted challenge that requires a comprehensive and evidence-based approach [1]. By understanding the factors contributing to these disparities and implementing innovative interventions and policies, we can work towards ensuring that everyone has equal access to quality oral health care.

Vulnerable and underserved populations are individuals and populations that are systematically excluded from obtaining oral health care. However, there are no universally accepted definitions for these two groups. Vulnerability, for example, may be temporal in nature. That is, an individual or a community may experience pervasive and lasting vulnerability (e.g., persistent poverty or chronic illness) or may become vulnerable for a discreet period (e.g., during pregnancy or following a catastrophic event). Likewise, whether an individual or a community is considered underserved may change over time [2]. For example, individuals residing in an Improving Access to Oral Health Care for Vulnerable and Underserved Populations.

In a time of health system transformation, greater attention is now being paid to access, utilization, and quality of health care and its effects on population health [3]. Similarly, research and case studies highlighting the importance of poverty, the physical environment, and educational attainment among others on health outcomes provide a better understanding of the complex social and structural determinants of health [4]. The landmark 2008 report of the World Health Organization's (WHO) Commission on Social Determinants of Health and the "The Marmot report" for the UK in 2010 clearly showed evidence for a social gradient in health, which is closely related to the social and economic factors that determine the conditions of daily life [5, 6]. The place

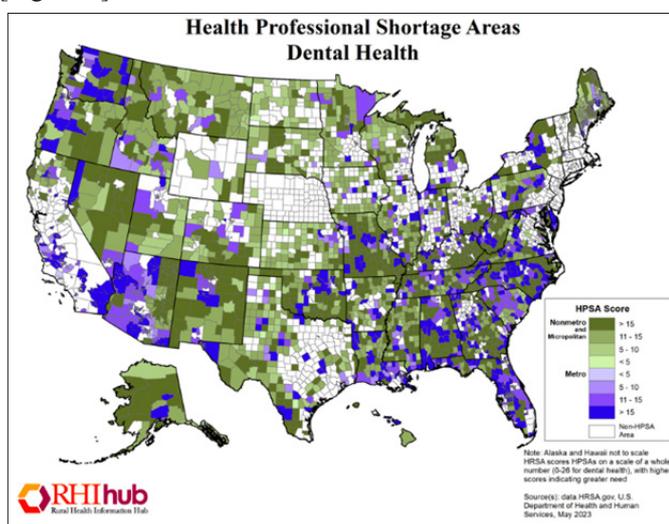
in the social hierarchy that individuals and groups occupy, in addition to the environment, then determines exposure to health enhancing or health-damaging conditions in daily life (e.g., where people are born, grow, live, work, and age) [7]. Impacts of social determinants of health can be accumulated during a lifetime, alter health trajectories across the life course, and be transferred across generations [8]. Despite acknowledgement that there are multiple sectors that contribute to the social determinants of health, many actions to address these factors have traditionally been generated from the health systems only, excluding the education, economic, and environmental sectors among others.

This review aims to explore the multifaceted factors contributing to oral health disparities in vulnerable populations and identify evidence-based strategies to address these challenges [9]. By analyzing existing research studies, this comprehensive analysis will delve into the impact of socioeconomic status, limited access to dental care, cultural barriers, and oral health literacy on oral health outcomes within vulnerable communities. Understanding these contributing factors will inform the formulation of targeted policies and programs to improve oral health care access and promote preventive oral care practices among underserved populations [10].

Through evidence-based interventions and innovative approaches, it is possible to achieve greater equity in oral health care provision, fostering improved oral health outcomes and overall well-being for vulnerable and underserved communities [11]. By promoting an evidence-based approach to improving oral health care, this research endeavors to contribute to a healthier and more inclusive society, where access to quality oral health services is attainable for all, irrespective of their socioeconomic circumstances or background [12].

## The Current State of Oral Health for Vulnerable and Underserved Populations

1. According to the Health Resources and Services Administration (HRSA), as of March 31, 2022, 4,633 of the nation's 6,927 Dental Health Professional Shortage Areas (HPSAs) were located in rural or partially rural areas. For the most current figures, see HRSA's Designated Health Professional Shortage Areas Statistics. [Figure-1]



2. Disparities in Dental Visits: According to the Centers for Disease Control and Prevention (CDC), individuals from low-income families are less likely to visit the dentist regularly compared to

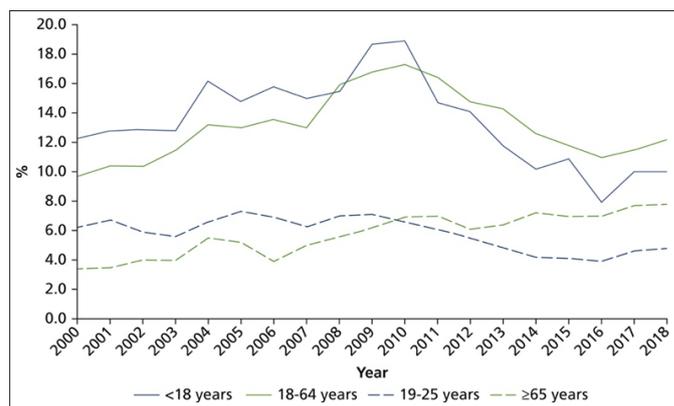
those with higher incomes [13]. In 2017, only about 55% of adults with incomes below the federal poverty level had visited a dentist in the past year, compared to around 74% of those with incomes at or above 200% of the federal poverty level.

3. Dental Care Access in Rural Areas: Rural communities often face challenges in accessing dental care due to a shortage of dental providers [14]. According to the Health Resources and Services Administration (HRSA), around 49 million people lived in designated dental health professional shortage areas in the United States as of 2019.

4. Impact of Medicaid Expansion: Studies have shown that states that expanded Medicaid under the Affordable Care Act have seen significant improvements in access to dental care for low-income adults [15]. A study published in Health Affairs found that expansion states saw a 4.9 percentage point increase in dental visits among low-income adults aged 19-64, compared to non-expansion states.

5. Delay or nonreceipt of needed oral health care during the past 12 months due to cost, by selected age group: United States, 2000-2018. [Figure-2] [Source: National Center for Health Statistics]

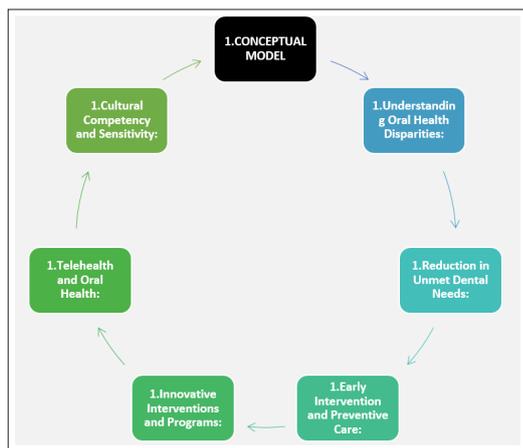
From 2011 through 2014, 56% of people with private dental insurance had a dental visit in the past 12 months compared with 33% of those with public insurance and 26% of those with no insurance. Among children with Medicaid and CHIP coverage, use of dental services nearly doubled from 2009 (28%) through 2020 (50%). Many of the improvements since 2010 largely reversed negative trends seen from 2000 through 2010. For example, data show improvements in rates of delayed or nonreceipt of needed oral health care from 2000 through 2018 for children and young adults, but rates have not improved for adults overall and have doubled for older adults.



5. Oral Health Disparities in Minority Communities: Oral health disparities are particularly prevalent in minority communities [16]. For example, according to the National Institute of Dental and Craniofacial Research (NIDCR), non-Hispanic Black adults have higher rates of untreated tooth decay compared to non-Hispanic White adults.

6. Impact of School-Based Oral Health Programs: School-based oral health programs have been effective in reaching children from low-income families and improving access to preventive dental care. The American Dental Association (ADA) reports that children who received school-based dental sealant programs were three times less likely to have untreated tooth decay compared to those who did not receive the services [17].

### Conceptual Model to Improve Oral Health Outcome of Vulnerable and Underserved Populations: [Figure:3]



#### Understanding Oral Health Disparities

Understanding oral health disparities is crucial in addressing the significant gaps in access to oral health care among vulnerable and underserved populations. Numerous research studies have revealed that certain groups, including low-income individuals, minorities, the elderly, and those with disabilities, experience disproportionately poor oral health outcomes [18]. These disparities arise from a complex interplay of social, economic, cultural, and systemic factors. Socioeconomic status, lack of dental insurance, limited access to dental facilities, and low oral health literacy are among the key contributors to these disparities [19]. By delving into the evidence surrounding oral health disparities, we can develop targeted interventions and policies to ensure equitable access to oral health care for all, improving overall health outcomes and enhancing the quality of life for vulnerable and underserved individuals.

#### Factors Contributing to Disparities

Factors contributing to oral health disparities are multifaceted and interrelated, reflecting the complex nature of healthcare access among vulnerable and underserved populations. One of the primary factors is socioeconomic status, as individuals with lower incomes often face financial barriers to seeking dental care. Research has consistently shown that low-income individuals are more likely to experience oral health issues due to limited access to preventive and restorative services [20].

Another critical aspect is the lack of access to dental care facilities, especially in rural and remote areas. Geographical barriers can hinder individuals from reaching dental clinics, exacerbating oral health disparities. Studies have demonstrated that individuals residing in underserved regions are at a higher risk of untreated oral health problems, leading to worse health outcomes in the long term [21].

Cultural barriers also play a significant role, as different cultural beliefs and practices can affect oral health behaviors and attitudes towards dental care [22]. Culturally sensitive approaches to oral health promotion and education are essential to address these disparities effectively. Tailoring interventions to accommodate diverse cultural backgrounds can help improve oral health literacy and foster positive oral health practices within vulnerable communities.

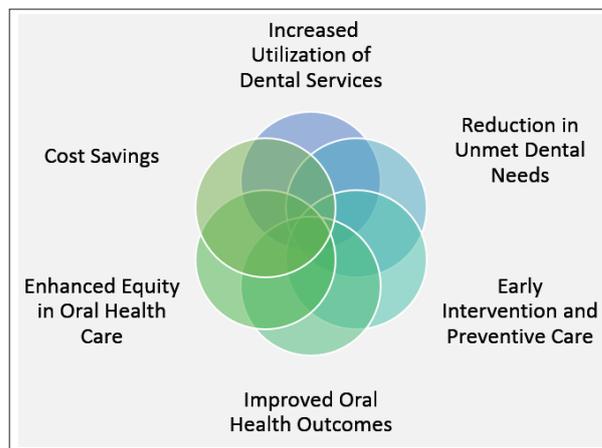
Limited oral health literacy is yet another contributing factor to disparities. Many individuals may not fully comprehend the

importance of oral hygiene or may lack awareness of available dental services. This lack of knowledge can lead to delayed or inadequate oral health care utilization, further exacerbating existing disparities [23].

Research has consistently shown that addressing these contributing factors is essential in reducing oral health disparities among vulnerable and underserved populations [24]. By implementing evidence-based interventions that consider socioeconomic status, access to care, cultural sensitivity, and oral health literacy, healthcare providers and policymakers can work towards promoting equitable access to oral health care services for all individuals, regardless of their backgrounds or socioeconomic circumstances [25].

#### The Role of Dental Insurance and Access to Care [Figure:4]

Medicaid expansion and other initiatives have demonstrated a positive impact on improving access to dental care for vulnerable populations. Numerous studies have examined the effects of expanding Medicaid coverage to include dental services, and the evidence consistently highlights the benefits of such initiatives [26].



- **Increased Utilization of Dental Services:** Research has shown that Medicaid expansion leads to a significant increase in the utilization of dental services among low-income individuals. With expanded coverage, more vulnerable populations gain access to preventive, diagnostic, and restorative dental care, leading to better oral health outcomes.
- **Reduction in Unmet Dental Needs:** Prior to Medicaid expansion, many vulnerable individuals faced unmet dental needs due to financial barriers. With improved access to dental care through Medicaid expansion, the number of unmet dental needs has declined, promoting better oral health and preventing more severe dental issues.
- **Early Intervention and Preventive Care:** Medicaid expansion enables early intervention and preventive dental care, leading to better management of oral health conditions. Regular dental check-ups and preventive treatments help identify issues early and prevent the progression of oral health problems, ultimately reducing the need for costly and invasive procedures.
- **Improved Oral Health Outcomes:** The evidence suggests that Medicaid expansion is associated with improved oral health outcomes among vulnerable populations. With increased access to dental care, individuals can receive timely treatments, leading to reduced tooth loss, pain, and other oral health complications.

- **Enhanced Equity in Oral Health Care:** Expanding Medicaid to include dental services contributes to reducing oral health disparities, promoting greater equity in accessing oral health care services. Vulnerable populations, who previously faced significant barriers to dental care, can now access essential services that are vital for their overall health and well-being.
- **Cost Savings:** Medicaid expansion in dental care can lead to cost savings for both individuals and the healthcare system. By addressing dental issues early, the need for costly emergency dental treatments is reduced, ultimately easing the financial burden on vulnerable individuals and the healthcare system.

### **Innovative Interventions and Programs**

In recent years, innovative interventions and programs have emerged to address oral health disparities in vulnerable and underserved communities [27]. These initiatives have shown promising results in improving access to oral health care and promoting better oral health outcomes among underserved populations. One successful intervention is the establishment of community-based dental clinics that bring oral health services directly to underserved areas. These clinics provide preventive and restorative dental care, oral health education, and screenings, making dental services more accessible to those who previously faced geographical barriers. Additionally, school-based oral health programs have been effective in reaching children from low-income families, offering dental check-ups, fluoride treatments, and oral health education within the school setting. Such programs have demonstrated a positive impact on early intervention and preventive care, fostering healthier oral habits in children and reducing future oral health issues [28]. Furthermore, the implementation of tele-dentistry has expanded access to dental care for individuals in remote and rural regions, enabling remote consultations and treatment planning. These and other innovative interventions have the potential to bridge the gap in oral health care for vulnerable populations and contribute to a more equitable and healthier society. Continued research and investment in these successful programs are essential to sustain their impact and drive further advancements in addressing oral health disparities [29].

### **Telehealth and Oral Health**

Telehealth, particularly tele-dentistry, holds great potential in revolutionizing oral health care for underserved populations, particularly those residing in remote and rural areas. By leveraging telecommunication technologies, telehealth enables dental professionals to remotely diagnose, treat, and provide oral health services, overcoming geographical barriers and limited access to dental clinics. Several studies have shown the effectiveness of tele-dentistry in improving access to oral health care for underserved individuals [30]. Virtual consultations and tele-dental screenings have been successful in reaching patients who would otherwise face challenges in visiting a physical dental clinic due to distance or lack of transportation. Moreover, tele-dentistry has facilitated timely interventions and preventive care, reducing the need for more extensive treatments and emergency services [31]. Despite its benefits, telehealth also faces challenges, including the need for proper infrastructure, internet connectivity, and patient familiarity with the technology. Ensuring patient privacy and data security are also crucial aspects that require attention. However, evidence suggests that with the appropriate implementation and ongoing improvements, tele-dentistry can significantly enhance access to oral health care for underserved populations, addressing oral health disparities and improving overall oral health outcomes in remote and underserved communities [32].

### **Cultural Competency and Sensitivity**

Cultural competency and sensitivity are paramount in providing effective oral health care to diverse populations. Recognizing and understanding the cultural backgrounds, beliefs, and practices of patients is essential to establish trust, foster effective communication, and deliver personalized care [33]. Studies have consistently demonstrated that culturally sensitive approaches in oral health care can significantly reduce disparities and improve health outcomes [34]. When dental providers take the time to learn about their patients' cultural norms and values, they can tailor oral health education and treatment plans to align with patients' preferences and needs. This approach promotes greater patient engagement and adherence to treatment recommendations [35]. Moreover, culturally competent care helps overcome cultural barriers that may have hindered individuals from seeking oral health services in the past. By embracing diversity and incorporating cultural competency into dental practice, healthcare providers can build stronger relationships with their patients and contribute to more equitable and accessible oral health care for all populations, leading to improved oral health and overall well-being.

### **Addressing Oral Health Literacy**

Addressing oral health literacy is crucial in promoting preventive oral care practices among vulnerable populations. Oral health literacy refers to an individual's ability to understand and apply oral health information effectively to make informed decisions about their oral health. Studies have consistently shown that individuals with higher oral health literacy are more likely to engage in preventive behaviors such as regular toothbrushing, flossing, and routine dental check-ups. Improving oral health education and communication among vulnerable populations is essential to enhance oral health literacy [36].

Evidence-based strategies for improving oral health education include culturally tailored and simplified oral health materials. By using culturally sensitive language and visuals, dental providers can effectively convey important oral health information to diverse populations. Additionally, incorporating interactive and practical demonstrations during educational sessions can help individuals better understand proper oral care techniques and the importance of preventive practices.

Collaborating with community organizations and local leaders can also enhance the reach and impact of oral health education initiatives [37]. Engaging with trusted community figures can build rapport and credibility, encouraging vulnerable populations to participate in educational programs and adopt healthier oral hygiene habits.

Moreover, utilizing technology and digital resources can expand the accessibility of oral health information [38]. Web-based platforms, mobile applications, and text messaging can serve as valuable tools to disseminate oral health education, providing individuals with easy access to relevant information and reminders for routine oral care.

By implementing evidence-based strategies to improve oral health education and communication, dental providers and policymakers can empower vulnerable populations with the knowledge and skills to take charge of their oral health [39]. Increasing oral health literacy will foster preventive oral care practices and contribute to overall better oral health outcomes in underserved communities.

## Policy Recommendations

Firstly, increasing funding for community-based programs that focus on oral health promotion, preventive services, and education is crucial. These programs have demonstrated effectiveness in reaching vulnerable and underserved communities, providing much-needed oral health services and improving oral health outcomes [40]. By investing in community-based initiatives, policymakers can work towards reducing disparities and preventing oral health issues before they escalate.

Secondly, expanding dental care coverage through public insurance programs can significantly improve access to oral health services for low-income and underserved individuals. Medicaid expansion to include comprehensive dental benefits can lead to better oral health outcomes and early intervention, reducing the burden of costly emergency treatments [41]. Moreover, affordable, and accessible dental care can prevent individuals from delaying or forgoing dental visits due to financial constraints.

Lastly, advocating for the integration of oral health into primary care and public health initiatives is vital for a holistic approach to healthcare. By recognizing the interconnectedness of oral health with overall health, policymakers can promote preventive measures and early detection of oral health problems. Including oral health screenings and education as part of routine primary care can identify issues early and facilitate timely referrals to dental providers, ultimately improving oral health care for vulnerable populations [42].

## Conclusion

Investing in the oral health of vulnerable populations not only improves their overall well-being but also contributes to a healthier and more equitable society. Together, let us strive to make oral health care accessible and inclusive for all [43]. Overall, the evidence suggests that Medicaid expansion and similar initiatives have a positive and transformative impact on improving access to dental care for vulnerable populations. By providing comprehensive oral health coverage, these initiatives help address disparities and enhance the overall health and quality of life for those who were previously underserved. As policymakers and healthcare providers continue to invest in expanding dental care access, they contribute to building a healthier and more equitable society for all. If the current approaches to oral health education, financing, and regulation continue unchanged, equitable access to oral health care cannot be achieved. However, this report should not be perceived as simply a call for more spending [44]. Investing additional money in a delivery system that is poorly designed to meet the oral health care needs of the nation's underserved and vulnerable populations would produce limited results and would be fiscally irresponsible. Rather, the report calls for transformation through targeted investments in programs and policies that are most likely to yield the greatest impact.

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