

# Influence of Socioeconomic Factors on Oral Health and Potential of Precautionary Interventions: A Literature Review

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## ABSTRACT

Oral diseases are the most prevalent non-communicable diseases, which affect more than half of the population globally. Additionally, oral health has a proven relationship with overall health conditions, meaning maintaining a poor oral health condition poses a risk to our body's health. Although oral diseases cause extensive health burdens for most individuals, the different social and economic backgrounds restrain such people from receiving sufficient checkups and treatments. Hence, various initiatives should be taken to reduce oral health disparity and achieve individual healthcare equity. The three initiatives dealt with in this research paper include school-based dental education and prevention programs, teledentistry, and Medicaid. It is recommended that the government should implement more school-based preventive dental screenings and cavity checkups to close the gap in dental care discrepancies among children, and teledentistry should be actively employed in rural areas with less concentrated dental facilities. Lastly, the government should expand Medicaid to have full dental coverage for adults and children and provide an environment for enrollees not to hesitate when using the insurance.

**Keywords:** Oral Diseases, Health, Prevention, Teledentistry, Education, Medicaid

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## INTRODUCTION

Oral health is a critical indicator that reflects the state of overall health. A robust mouth, teeth, and orofacial structure determine whether an individual has vigorous oral well-being. Specifically, improper oral hygiene may contribute to general health conditions like cardiovascular diseases, endocarditis, cancer, pregnancy and birth complications, and other chronic diseases. Additionally, the significance of oral health extends beyond physical well-being, as poor oral health affects an individual's psychological, social, and emotional health. Thus, oral disease requires adequate and timely treatment; preventive interventions are vital if possible. According to the World Health Organization (2022), oral diseases affect about 3.5 billion people globally, and untreated tooth decay is the most common health condition.

Although the significance of oral health is gradually being acknowledged, the socioeconomic gap among individuals leads to insufficient oral health care treatments for specific social communities. The variables that serve as a determinant for oral healthcare discrepancy encompass age, wealth, race, location, and gender, and these underrepresented populations are targets of experiencing extensive oral diseases. In particular, 3 out of 4 people affected by oral diseases were from middle-income countries. A vital aspect of this global issue is the unaffordability of oral health care and lack of access, a crucial indication of the low attention paid to global disease. Hence, both preventive measures and intervention in current oral health care are pivotal for a paradigm shift in the accessibility of oral health care, regardless of their backgrounds.

## METHODOLOGY

This research paper is based on a review of the existing literature, which includes an overview and an analysis of various existing studies. The paper identifies current oral health care discrepancies among different social groups and assesses the efficacy of multiple preventive interventions to mitigate the increasing gap in oral health care.

## RESULTS

### *Current Oral Health Status of Underrepresented Population*

Poor oral health conditions impact society's most vulnerable social group. According to research from the World Health Organization (2022), there is a positive correlation between edentulism (severe tooth loss) rate and level of education. Specifically, in the United States, 13% of people with the lowest attainment of education partook in the Edentulous population. In comparison, only 1.5% of people with the highest education attainment had severe tooth loss. Additionally, most oral healthcare services are excessively concentrated in urban areas, restraining groups in underserved areas from accessing such services effectively. Moreover, based on the data from the Centers for Disease Control and Prevention (2019), more than 9 in 10 elderlies (65 or older) have had cavities, with older non-Hispanic African Americans or Mexican Americans having 2-3 times the rate of untreated cavities than non-Hispanic white elderlies.

### *School-based Dental Education & Prevention Programs*

School-based oral health education is a public health approach to reduce oral health disparities for children from low-income families. Oral health education involves preventive dental measures such as screening, sealants for children, and much more. According to a 2021 New York University College of Dentistry study, a school-based cavity prevention program reduced tooth decay by more than 50% among 7,000 elementary students. The success of the school-based education program evinces its prospect of being applied nationwide and reducing health care disparities among children. According to research by Dudovitz (2017), 66% of 2,776 low-income students who participated in the study initially had active dental diseases. However, the 623 students involved in the oral health program for two consecutive years demonstrated a 56 percent decrease in the visible oral cavity, and only 17 percent showed additional oral diseases in their follow-up examinations. Thus, a positive relationship is evidenced between implementing school-based dental education and reducing oral diseases for children. This initiative can be vital in reaching oral healthcare equity among children in the minority group of their socioeconomic status. Furthermore, school-based programs introduce dental school or dental hygiene students to the demand for oral health care in rural areas, increasing the dental workforce in such places and populations. Therefore, the government should execute such procedures in public schools to further diminish the rate of dental caries among children and allow them a healthier future.

### *Teledentistry*

A field that combines telecommunications and dentistry, teledentistry entails the remote transmission of clinical information (data & photographs) over vast distances for dental care, dental consultation, treatment planning, education, and much more. Teledentistry is especially valuable in overcoming geographical barriers, specifically in rural areas where people cannot access medical or dental healthcare. The initiative is advantageous in mitigating oral health inequalities for countries with high rates of underserved populations, as teledentistry allows dental practices without having practitioners on the spot. Furthermore, determining whether a person requires urgent dental treatment from a particular dental specialist can be done without an in-person visit. The merit of this dental field is that it reduces financial constraints for people in underserved populations by decreasing the travel cost and the number of appointments required for the usual diagnosis and treatment process. To provide inclusive and accessible dental care, Pepsodent, a toothpaste brand, initiated a teledentistry program across Indonesia and Vietnam, in which over 100 million people participated. Although teledentistry is still in its early stages, it has a boundless potential to break down barriers between dentists and patients from the underprivileged community.

### *Medicaid (Insurance Program)*

Medicaid is the United States public health insurance program funded mutually between the federal government and the states to eligible low-income individuals, elderly adults, pregnant women, and individuals with disabilities. According to the Centers for Disease Control and Prevention (2019), 29% of the US population in 2015 did not have dental insurance, and 62 % were older adults. As Medicaid programs are not obliged to provide adult dental coverage, various low-income seniors do not hold any public dental insurance. The absence of dental coverage in the Medicaid program may contribute to 9 out of 10 adults aged 65 or older having had cavities. Moreover, each state in the US has its flexibility in determining whether dental coverage is included in the Medicaid program. Although most states provide emergency dental care for adults, less than half of the 50 states offer total dental care. Conversely, children enrollees of Medicaid are supplied with fully covered dental services. Nevertheless, according to a study from Mahyar Mofidi (DMD, MPH), negative experiences with the dental care system stopped children with Medicaid insurance from receiving the necessary treatments. For instance, finding appropriate transportation, judgmental attitudes from certain staff members due to their ethnicity, long waiting times, limited appointment availability, and much more. To improve such circumstances, the government should expand Medicaid programs to encompass dental coverage for adults and implement initiatives for Medicaid enrollees to exploit the insurance to its entire availability. Above all, the expansion of Medicaid would be worth its function if how society views children and adults with Medicaid changes.

## DISCUSSION

This literature review centers on oral care discrepancy among different social groups and explores the potential of three initiatives: school-based dental education/preventive programs, teledentistry, and Medicaid. The research paper investigates the application of such programs in actual society by integrating suitable data and relevant existing studies on a similar topic. The implications of the review suggest that more than the application of solutions, the environment in which the underserved population and dental specialists can effectively receive and provide treatments is necessary. Based on the interpretation of each study and data, all three oral health programs were deemed significant enough for further investigation, expansion, and application in society.

## CONCLUSION

Oral health disparity is an ongoing social health issue affecting many worldwide. However, being aware that receiving proper oral treatment/care and healthy oral status are positively correlated, the government and other organizations should implement initiatives to stop the issue from exacerbating. Such initiatives include school-based dental education and preventive programs in public schools, the expansion of teledentistry in isolated areas, and accessible and comprehensive insurance programs for the underrepresented population.

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