Factors Contributing to Elevated Rates of Dental Caries in Low Socioeconomic Populations in the United States:

A Literature Review

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FACTORS CONTRIBUTING TO DENTAL CARIES IN LOW-SES POPULATIONS

Research Question

What factors contribute to elevated rates of dental caries in low-socioeconomic populations in the United States?

INTRODUCTION

Dental caries, or more commonly known as tooth decay or cavities, is one of the most common chronic diseases in the United States, affecting an estimated 91% of adults aged 20 to 64 who have experienced caries in their permanent teeth (Monica Diba et al., 2023). The cause of dental caries is bacteria producing acid from sugars and starches, which will demineralize the tooth structure over time (CDC, 2024). The process of dental caries occurs over time. First, plaque forms on the tooth surface, and it is a transparent sticky film that coats teeth (*Cavities and tooth decay*, 2023). Without regular brushing and cleaning, bacteria will feed on plaque on tooth surfaces. If plaque is not removed from the tooth surfaces, it will eventually harden and turn into tartar (*Cavities and tooth decay*, 2023). Tartar is harder to clean off the tooth surfaces once it has established, and the only way for tartar removal is by seeing a dental professional (*Cavities and tooth decay*, 2023). Once tartar is formed, the acidity of the bacteria deteriorates the enamel on the outside of the teeth, creating the opportunity for a dental carie, also known as a cavity, to form (*Cavities and tooth decay*, 2023). Once a cavity begins to form, it continues damaging the tooth, moving through each layer of the tooth and causing it to decay (*Cavities and tooth decay*, 2023). Cavities may ultimately lead to infection and tooth loss if left untreated. Symptoms of a cavity depend on how long it has been present and where they are located. Symptoms may include toothache, tooth sensitivity, mild to sharp pain when eating or drinking something hot or cold, pain, and black or brown staining on the surface of the tooth (*Cavities and tooth decay*, 2023).

Several risk factors increase a person's risk of developing dental caries. A person's diet plays a significant role in developing dental caries because foods and drinks high in acid and sugar are risk factors. These substances break down the tooth's outer layer, the enamel. Poor oral hygiene, such as infrequent brushing or flossing, will allow plaque to build up and bacteria to produce acids that damage the tooth's enamel. Fluoride plays a significant role in helping teeth stay healthy. Limited exposure to fluoride will reduce the tooth's ability to repair early damage, and the enamel will weaken (*Cavities and tooth decay*, 2023).

A major protective factor against poor oral health outcomes is regularly engaging with a dentist (Sapra, 2023). The sooner a person seeks care, the better their chances of avoiding a cavity from worsening to the point of pain, sensitivity, and tooth loss (Sapra, 2023). There are many treatments for dental caries, the first being fluoride. Fluoride is an excellent preventative treatment before dental caries forms because it helps restore the tooth's enamel, keeping the teeth strong (Sapra, 2023). After dental caries are formed, there are many ways to treat them, including the use of fillings made of different materials, and crowns, which are caps that replace deteriorated tooth surface if the cavity has progressed significantly (Sapra, 2023). Another treatment for advanced dental caries is a root canal, which entails the complete removal of the nerve of the tooth and the application of antibiotics to treat the damage caused by the cavity (Sapra, 2023). The final treatment option is a tooth extraction. This is the last treatment option, performed when the tooth is unsalvageable (Sapra, 2023). This means that the tooth has severe decay that could lead to gum disease; therefore, the tooth must be extracted (Sapra, 2023).

Dental caries affects a large portion of the population in the United States. Among 193 million adults in the U.S, the prevalence of untreated dental caries was found to be 21.3%, while coronal and root caries affected 17.9% and 10.1% of adults, respectively (Bashir, 2020).

Research indicates that 46.2% of adults with a family income-to-poverty ratio between 0.5 and 1.0, meaning that their income was less than or equal to the federal poverty line, had untreated decay (Bashir, 2020). These statistics indicate that, while dental caries are widespread across all demographic groups, they disproportionately affect socially and economically disadvantaged populations (Bashir, 2020).

METHODS

Two relevant databases were used to conduct research for this literature review. The two databases used to obtain information are PubMed and CINAHL via the UGA library. These databases provide a wide range of reliable, peer-reviewed literature related to public health issues. The purpose of this methods section is to describe the steps of how articles in PubMed and CINAHL were selected. PubMed provides extensive information on biomedical literature, which is overseen by the National Center for Biotechnology Information at the U.S. National Library of Medicine. The database provides access to a wide range of biomedical literature focusing primarily on health, medicine, and sciences. Over 30 million citations for biomedical literature are available in PubMed, including: biochemistry, clinical medicine, dental studies, nursing, pharmacy, and veterinary medicine. The CINAHL (Cumulative Index to Nursing and Allied Health Literature) database was selected for its more than 3,300 peer-reviewed journals, which provide high-quality research and information. Topics from this database include nursing, biomedicine, physical therapy, occupational therapy, and health education.

Inclusion and Exclusion Criteria

Specific inclusion and exclusion criteria were established to ensure the relevance and reliability of the literature reviewed. Articles published within the last 10 years (2015-2025) were considered to ensure that only the most current and pertinent studies were included. Only peer-

reviewed and original articles were eligible for inclusion. Literature reviews, systematic reviews, editorials, commentaries, and other non-original research articles were excluded. Furthermore, studies were limited to those that specifically addressed dental caries among low-socioeconomic-status populations in the United States. The keywords “dental caries” or “dental care” were used in each search to target studies specifically on dental caries. Additionally, the keywords “low SES” or “low income” were employed to focus on research about the specific population under study. The keyword “United States” was also included in each search to ensure that the research was geographically relevant to the population of interest.

Rationale for Chosen Articles

Three searches were conducted utilizing the Boolean phrases and keywords in Table 1 to obtain relevant results. This search strategy minimized redundancy and enabled effective identification of articles related to dental caries among low-socioeconomic status (low-SES) populations in the United States.

The first two searches were conducted using the PubMed database, and the third search was conducted using the CINAHL database, both available via the UGA library. Boolean operators such as “AND” and “OR” were used to broaden the scope, when necessary, while narrowing the results to articles addressing the socioeconomic determinants of oral health. The first search focused on dental caries in low-SES populations, helping establish the major themes used in this literature review. The second PubMed search expanded the focus to general dental care challenges among low-SES populations to provide additional context and strengthen themes. The third search used the CINAHL database, broadening the scope to include general dental care challenges faced by low-SES populations to provide additional context and enhance thematic development.

To select articles, the process began with evaluating each title for relevance to the topic. This initial screening excluded items that did not pertain to the research focus, resulting in a more targeted selection. Subsequently, the remaining articles' abstracts were reviewed to determine whether each study sufficiently addressed the research question. Next, the abstracts were read to evaluate whether each study addressed the research question. The methods section of each article was examined to ensure that the target population was represented. Articles were only selected where socioeconomic status was represented, and if the study reflected socioeconomic disadvantages. This step allowed this literature review to select articles that provide insight specifically for low-SES populations in the United States.

The results of each study were identified to retrieve key findings for this literature review, which included statistically significant outcomes and relevant comparisons between dental caries and oral health disparities in low-SES populations in the United States. Articles were only selected if the findings were relevant to the research question of this literature review. This systematic and structured approach enabled the selection of 20 articles for this literature review, thereby identifying key themes related to the research question.

Table 1.

Search Rounds	**Search Terms**	**Yielded Results**	**Articles Selected**
Round 1	“dental caries” AND “low SES” or “low income” AND United States”	100	9
Round 2	"dental care" AND “low SES” or “low income” AND "United States" OR USA OR "United States of America"	143	6
Round 3	"dental care" AND “low SES” or “low income” AND "United States" OR USA OR "United States of America"	53	5

RESULTS

Limited Oral Health Literacy and Education

Limited oral health literacy and education are major contributors to the high prevalence of dental caries among low-socioeconomic-status populations in the United States. In a study conducted by *Baskaradoss & Kumar*, 150 adult dental patients from a university-affiliated clinic were tested to measure their oral health knowledge using the Comprehensive Measure of Oral Health Knowledge. Participants were divided into two groups based on their median literacy score, limited oral health literacy and adequate oral health literacy. Individuals who score <18 were considered to have limited oral health literacy, and individuals who score >18 were considered to have adequate oral health literacy (Baskaradoss & Kumar, 2018). It was found that individuals with lower education and lower income were significantly more likely to fall into the limited oral health literacy group, and those with limited oral health literacy had significantly more missing teeth, fewer filled teeth, and higher rates of severe periodontitis compared to those with adequate oral health literacy (Baskaradoss & Kumar, 2018).

One study examined caregivers of kindergarten through fourth-grade children from urban Ohio and Washington State, all of whom were low-income and had children identified as needing restorative dental care (Nelson et al., 2015). Caregivers were given a literacy and health belief test at the sixth-grade reading level. A substantial proportion of caregivers demonstrated limited oral health literacy, and this low literacy directly affected their ability to understand the importance of dental care. Caregivers with lower literacy scores were 2.5 times more likely than higher literacy caregivers to delay or miss their children's dental appointments, which increased the risk of dental caries and more serious dental diseases (Nelson et al., 2015). These findings show that limited oral health literacy within low-SES populations directly affects dental care.

Another study conducted a qualitative study involving twenty dental hygienists and seventeen practicing dentists in Maryland to better understand why early childhood caries remains disproportionately high among low-income families (Alice M. Horowitz et al., 2017). Although the study did not measure numerical proportions of parents with low oral health literacy, providers consistently reported that a large proportion of low-income caregivers lacked foundational knowledge about how to prevent tooth decay. Dentists consistently reported that many parents living in poverty believed that cavities were unavoidable, not serious, or would resolve on their own, and this is due to the misunderstanding that is directly linked to low oral health literacy. Due to these misconceptions, individuals frequently had delayed treatment until treatment was absolutely necessary due to pain.

In a large, cross-sectional study conducted by *Rethemiotaki et al.* 659,129 children, researchers' findings further illustrated the relationship between SES and unmet dental needs. This study found that children in single-parent households, who had lower educational attainment in this study, were twice as likely to experience unmet dental needs than their peers in two-parent households (Rethemiotaki, 2021).

These findings collectively demonstrate that limited oral health literacy among low-income individuals directly contributes to poorer health outcomes by reducing their ability to recognize early signs of disease, understand the importance of preventative care, and navigate dental care systems. Across multiple studies, low socioeconomic individuals were more likely to delay dental visits, miss scheduled appointments, misunderstand the preventability of caries, and struggle to follow through with recommended treatment. These patterns were reflected in high rates of dental caries and untreated decay among children whose caregivers had low education levels or reduced comprehension of oral health information. Overall, insufficient oral health

literacy reinforces existing socioeconomic disparities by limiting families' ability to access timely and effective dental care.

Financial Barriers and Lack of Insurance

Financial barriers are consistently identified as a significant factor preventing low-SES individuals from receiving timely dental care (Vujicic et al., 2016) showed that financial barriers disproportionately restrict dental care access for low-SES adults in the United States. A national representative dataset from the 2014 National Health Interview Survey was used, and it was found that low-SES adults experienced the highest levels of cost-related delays in dental care, mainly because they lacked adequate dental insurance coverage (Vujicic et al., 2016). This study found that over 12% of elderly adults reported unmet dental needs in the past twelve months due to cost, with nearly one-quarter of low-income adults reporting the same, primarily because they lacked adequate dental insurance coverage (Vujicic et al., 2016). It was found that more than eight million Medicaid enrollees in twenty-two states have no dental benefits beyond emergency treatment, leaving low-SES individuals responsible for out-of-pocket dental costs (Vujicic et al., 2016).

This issue is even more significant within low-SES populations, who are less likely to have private dental insurance and must rely on Medicaid, which has its own restrictions. Medicaid often offers limited dental coverage or only emergency treatments, and many providers may not accept Medicaid. As a result, individuals within low-SES communities may delay dental care and prolong necessary treatments until pain or infection occurs. At this point, treatment becomes more expensive and invasive. This pattern of delayed care directly increases the risk of untreated dental issues and disease progression.

One study conducted a cross-sectional study using data from 4,746 United States adults aged thirty years and older who participated in the NHANES 2015-2016 survey to examine how low-SES and limited dental health care access influenced oral health outcomes (Kranz et al., 2025). This study found that adults with limited access to dental care due to financial barriers had significantly higher rates of gingivitis by 24% and severe periodontitis by 16% (Kranz et al., 2025). This highlights the critical role that financial barriers play in worsening dental diseases. These results show that low-SES adults face an increased risk of oral diseases due to financial barriers that limit their access to dental care and their ability to receive dental services.

Another study found that children whose families made less than $35,000 per year were four times more likely to have unmet dental needs, meaning dental problems that required treatment but were not addressed due to barriers such as cost, lack of insurance, or limited access to dental care, compared to those in high-income families (Rethemiotaki, 2021).

Another study conducted a cross-sectional study using national data from the 1999-2004 and 2011-2016 cycles of the NHANES to examine health disparities among low and high-income United States adults who are 65 years of age or older (Griffin et al., 2019). The results show that oral health disparities between income groups persisted and worsened over time. In the 2011-2016 survey, it was found that the prevalence of untreated dental decay among low-SES older adults was 26.1% compared to 10.9% among higher-SES groups (Griffin et al., 2019). It was found that 50.6% of the low-SES older adults had tooth loss or had 19 or fewer teeth, 42% had eight or fewer teeth, and 28.6% were missing all of their teeth (Griffin et al., 2019). It was also found that low-SES older adults consistently had almost twice the tooth loss as higher-SES older adults (Griffin et al., 2019). These findings demonstrate how oral health outcomes are significantly impacted depending on socioeconomic status in the United States.

A different study conducted a national analysis of oral health disparities among aging adults in the United States (Lowenstein et al., 2025). The study reported that nearly 40% of adults aged 65 and older had lost a significant amount of teeth, and a large proportion of older adults experienced high rates of untreated dental caries and periodontal disease (Lowenstein et al., 2025). Although the oral health outcomes were not evenly distributed, it was found that older adults with low incomes, inadequate dental insurance, and limited oral health literacy experienced worse oral health outcomes than the higher-income population (Lowenstein et al., 2025). This study highlighted that low-SES older adults face barriers like the inability to afford dental care, limited access to health insurance, and limited access to healthcare providers, which contribute to the delayed treatment of dental care (Lowenstein et al., 2025). This study shows how socioeconomic disadvantage plays a role in oral health status.

Another study examined 6,057 U.S. children aged two through nineteen years old to examine how socioeconomic factors influenced oral health outcomes (Duffy et al., 2018). The study focused on family income, type of health insurance, and parental education as indicators of socioeconomic status. The findings show that families living with incomes below 200% had significantly higher outcomes of dental caries and untreated dental caries compared to those families living in higher income households (Duffy et al., 2018). 49.3% of the children in this study had experienced dental caries, and 12.9% had untreated decay. It was found that 77.1% of uninsured children were low-income, indicating that insurance type alone misses many children who need dental work (Duffy et al., 2018).

One study analyzed 391,628 Medicaid pediatric dental surgical procedures of dental caries across 29 US states from 2016 to 2022, and examined differences and cost access and outcomes of dental care (Kranz et al., 2025). The study highlights low-income families who rely on

Medicaid for dental care, as they are already facing long wait times, limited provider availability, and financial barriers to receiving timely dental treatment (Kranz et al., 2025). The study also explained that many dental providers limit the number of Medicaid patients. This is due to Medicaid reimbursement rates being lower than those of private insurance, which results in fewer available appointments and longer wait times for people who have Medicaid (Kranz et al., 2025).

Another study conducted a cross-sectional study using data from the 2016 Medical Expenditure Panel Survey to examine the prevalence of risk factors associated among US adults (Taylor et al., 2021). The study included 21,040 participants who were aged 18 and older. The study found that 6% of adults reported experiencing a dental need within the past year (Taylor et al., 2021). Results showed that adults with poor or near-poor income were 4.2% more likely to report needing meds compared to those with higher income (Taylor et al., 2021). The study also found that the cost of insurance coverage was the most common reason for not receiving care, reporting 56.1% of those with low income (Taylor et al., 2021).

Another study conducted a cross-sectional study from 2016-2019 to examine socioeconomic factors associated with dental caries among United States children (Vasireddy et al., 2021). This study found that children from households below the poverty level were over 50% more likely to have tooth decay, and were nearly twice as likely to have untreated caries compared to children from higher-income households (Vasireddy et al., 2021). In addition, uninsured children were almost two times more likely not to receive dental treatment than those with private or public insurance. These results demonstrate that financial barriers and lack of insurance coverage contribute to disparities in dental care access (Vasireddy et al., 2021).

A different study surveyed 19,485 children, examining differences in primary care access and health status between uninsured eligible children and those enrolled in public health insurance programs (Stevens et al., 2016). The results showed that uninsured but eligible children were significantly less likely than publicly insured children to have had a dental visit in the past year, to have a regular source of care, or to have had a physician visit. Public-insured children were 25% to 26% more likely to have a regular source of care than their uninsured but eligible peers, and 11% to 12% more likely to report excellent or very good health (Stevens et al., 2016). These findings highlight that the lack of insurance coverage, even among eligible low-income children, creates a barrier to accessing dental care. These findings show that financial barriers, including lack of insurance coverage, high costs, and restricted Medicaid benefits, play a significant role in the high prevalence of untreated dental caries in low-SES populations in the United States.

Limited Access to Dental Care and Provider Availability

Limited access to dental care and provider availability were other significant factors contributing to higher rates of dental caries in low-SES populations in the United States. Many low-income families face barriers such as a lack of transportation, long wait times, and limited availability of nearby dental providers, especially in rural or underserved urban areas.

One study conducted a cross-sectional study of three hundred and eighty-eight children who were enrolled in the Head Start programs across Northeast Ohio, whose population is composed entirely of low-income families (Heima et al., 2017). The researchers examined the number of primary teeth with untreated dental caries, and then linked the child's home address to socioeconomic variables that also included the density of dentists who accept Medicaid. The average age of the children was 3.51 years, and all of the children had access to private dental care because HeadStart eligibility requires low income (Heima et al., 2017). The study found that

Medicaid dentist density was the only significant socioeconomic predictor of untreated dental caries. These findings show that children living in areas with more Medicaid-participating dentists had fewer untreated decayed teeth (Heima et al., 2017). In contrast, children in areas with low Medicaid dentist availability had significantly higher levels of dental caries, even though they were all insured through Medicaid (Heima et al., 2017). These findings show that Medicaid coverage alone is not sufficient and that low-income children still experience higher rates of untreated dental decay when the provider access availability is limited. These show how geographic barriers affect socioeconomic disadvantages.

National data further emphasize how income-based disparities directly impact access to dental care among low-SES populations in the United States. Another study used 20 years of nationally representative data from the Medical Expenditure Panel Survey from 1997 to 2016 to compare yearly dental visit rates across income groups (Lewis et al., 2020). In 2016, high-income adults were nearly 4 times more likely to have a yearly dental visit than poor adults, demonstrating income-based disparities (Lewis et al., 2020). The study also noted that Medicaid-insured adults do not receive federally mandated dental benefits, resulting in limited coverage and reduced access to preventive care. These findings help show that income does affect oral health outcomes (Lewis et al., 2020).

A qualitative study explored the experiences and perceptions of 20 low-income parents in southeastern Michigan regarding oral health barriers to dental care and their acceptance of mid-level dental providers as an alternative source of care (Nicoll et al., 2016). In-depth interviews were conducted, and researchers found that almost all participants considered dental health important, although they faced persistent barriers to accessing dental care due to the high cost, lack of insurance coverage, and limited provider availability (Nicoll et al., 2016). Many

parents said that postponing or forgoing dental treatments was due to unaffordable expenses (Nicoll et al., 2016). Parents also stated that, even when insured through Medicaid, they still rely on free clinics or emergency rooms for dental care (Nicoll et al., 2016). These findings emphasize that financial barriers and workforce shortages remain significant barriers to oral healthcare and that expanding dental providers can help improve access for the low-income population.

Pourat et al conducted a study in 39 states and found that almost 50 million people reside in dental health professional shortage areas. Fewer than half of active dentists see Medicaid patients in 25 of the 39 states, making it extremely difficult for low-SES individuals living in communities with a low population-to-dentist ratio, and even harder for patients to be seen by a dentist in their area (Pourat et al., 2019).

Another study conducted a cluster randomized clinical trial at eighteen pediatric primary care practices in northeast Ohio to evaluate the effect of oral health and education interventions on dental attendance among Medicaid-enrolled, preschool children, aged 3 to 6 years old (Northridge et al., 2021). The study included 1,023 parent-child pairs and compared an intervention group that received expanded oral health training and documentation tools with a control group that received standard care (Northridge et al., 2021). Results showed that 52% of children in the intervention group attended a dental visit compared to 43.1% in the control group, representing a 34% increased likelihood of dental attendance (Northridge et al., 2021). Despite these improvements, nearly half the Medicaid-enrolled children still do not receive preventative dental services, highlighting persistent disparities and access among low-income populations. This statistic shows that dental care neglect is widespread throughout the United States and is a serious issue that must be addressed.

Behavioral and Environmental Factors

Dietary habits and home environmental conditions significantly contribute to the high rates of dental caries among low-income populations in the United States. One of the main factors increasing the risk of dental caries is the consumption of sugar-sweetened beverages. These drinks contain high levels of sugar and are a primary source of added sugar for many low-income children (Singh et al., 2019). Many older adults, especially those from low-income backgrounds, rely on sugary beverages rather than water due to limited access to fluoridated water or distrust of tap water (Singh et al., 2019). National data indicate that approximately 40% of adults aged 65 and older experience significant tooth loss, contributing to their dependence on bottled juices and processed drinks (Singh et al., 2019).

Mirza A conducted a cross-sectional study using data from the 2013 to 2014 NHANES to explore how including oral health conditions affects multi-morbidity estimates among US adults aged 30 (Mirza A et al., 2024). The study analyzes 3,693 participants, examining five chronic medical conditions and four oral health conditions (caries, periodontal disease, tooth loss, and edentulousness) (Mirza A et al., 2024). Edentulousness is the complete absence of all teeth. When oral conditions were included, the overall prevalence of morbidity increased sharply from 20.8% 53.4% highlighting the significant role of oral health and overall well-being (Mirza A et al., 2024). It was found that individuals with low income had a 44% higher probability of multi-morbidity compared to high-income adults, and those with low education had a 27% higher probability (Mirza A et al., 2024). These findings demonstrate how socioeconomic disadvantage strongly influences both oral and general health, emphasizing that oral health is extremely important.

Sachdev et al. conducted a study that shows low-income women in Central Texas often have diets high in added sugars and fats and low in whole grains, vegetables, and fruits, which increases the risk of dental caries (Sachdev et al, 2020). The same study also found that many foods have added sugars in them, and the information is provided on the food labels. However, low-income consumers may fail to recognize and interpret the amount of hidden sugars that are present in foods due to limited nutrition literacy, which contributes to higher prevalence rates of dental caries (Sachdev et al., 2020).

DISCUSSION

This literature review highlights that there is not one single cause in the United States for populations of low socioeconomic status that drives a higher prevalence rate of dental caries. It is the result of multiple aligned factors that influence knowledge, ability to pay, availability of providers, and daily behaviors. Across studies, limited oral health literacy, financial barriers, insurance gaps, restricted access to willing providers, diet, and home environments all work together to keep prevention and treatment out of reach for many families in the United States across all age groups.

Implications for Practice

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The findings from this review suggest that improving oral health outcomes in low socioeconomic populations will require strategies that address literacy, cost, access, and environment. Healthcare systems should prioritize oral health education in primary care settings and especially in pediatric settings, like classrooms and schools, to start teaching children from a young age about the importance of dental care. Additionally, expanding Medicaid to include comprehensive adult dental benefits and increasing the number of willing providers who accept Medicaid would be very beneficial to populations who have Medicaid, as it would increase

preventative measures before treatment needs become worse and more expensive. Public health settings must focus on nutrition education not only for the importance of the body but also for the importance of establishing and maintaining excellent oral health.

There are many interventions that have already been put into practice. A review published by *Lunteren et al*, which found that the most successful programs for improving dental outcomes among low-SES populations in the United States included the same characteristics, such as: began early in childhood, occurred frequently, and operated at the organizational or policy level (van Meijeren-van Lunterern, 2023). These interventions included school-based daily supervised toothbrushing programs, which were implemented through Childsmile in the United Kingdom. It was found that this intervention reduced dental caries by 27% among children from the most disadvantaged groups by providing them free fluoride toothpaste, toothbrushes, and a daily structured brushing routine within the school day (van Meijeren-van Lunterern, 2023).

Limitations

This literature review has several limitations. Firstly, it includes only twenty articles, which may not capture all the barriers contributing to the higher prevalence of dental caries in low-socioeconomic-status populations. A larger selection of studies may have yielded additional themes and strengthened existing ones. Secondly, most of the selected articles are cross-sectional studies, meaning they cannot establish causal relationships between variables. This limits the ability to determine whether certain factors directly cause dental caries or are merely associated with them. Furthermore, cross-sectional studies rely on self-reported data, which can introduce bias and compromise data accuracy. Third, several studies relied on self-reported data, which may lead to biased estimates of variables such as dental behaviors, barriers, and past dental visits. Self-reported information is very likely to be subject to recall bias and desirable bias,

which may lead to inaccuracies in reported oral health behaviors and barriers. Fourth, this literature review relied solely on two databases, PubMed and CINAHL, and may have excluded relevant studies from other sources. Finally, the search was limited to specific keywords and Boolean phrases, which may have excluded relevant articles that used different wording or terminology. Due to these limitations, this review may not capture the full scope of the literature on socioeconomic factors and dental caries.

Conclusion

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In conclusion, this review demonstrates that the high rates of dental caries among low socioeconomic populations in the United States are driven by multiple overlapping barriers. The findings indicate that clinical education alone is insufficient to bring about meaningful change. Improving oral health outcomes in underserved groups requires structural changes in insurance coverage, workforce availability, and community-level prevention efforts. Addressing these barriers is critical, as untreated dental caries can negatively impact quality of life and lead to long-term health complications. It is essential to prioritize dental care for low socioeconomic populations to reduce oral health disparities in the United States.

REFERENCES

Alice M. Horowitz, Dushanka V. Kleinman, Wendy Child, Radice, S. D., & Maybury, C. (2017). Perceptions of dental hygienists and dentists about preventing early childhood caries: a qualitative study. *Journal of Dental Hygiene*, *91*.

Bashir, N. Z. (2020). *Update on the prevalence of untreated caries in the US adult population*. https://jada.ada.org/article/S0002-8177(21)00581-X/abstract

Baskaradoss, & Kumar, J. (2018). Relationship between oral health literacy and oral health status. *BMC Oral Health*, *18*(1). https://doi.org/10.1186/s12903-018-0640-1

Cavities and tooth decay. (2023). Mayo Foundation for Medical Education and Research. https://www.mayoclinic.org/diseases-conditions/cavities/symptoms-causes/syc-20352892

CDC. (2024). *About Cavities (Tooth Decay)*. CDC. https://www.cdc.gov/oral-health/about/cavities-tooth-decay.html

Duffy, Erin L Kranz, Ashley M Dick, Andrew W. Sorbero, Mark Stein, & D, B. (2018). Association between type of health insurance and children's oral health, NHANES 2011–2014. *Journal of Public Health Dentistry*, *78*(4), 337-345. https://doi.org/10.1111/jphd.12278

Griffin, Susan O, Paul M. Li, Chien-Hsun Bailey, William D. Brunson, Diane Jones, & A., J. (2019). Changes in Older Adults' Oral Health and Disparities: 1999 to 2004 and 2011 to 2016. *Journal of the American Geriatrics Society*, *67*(6), 1152-1157. https://doi.org/10.1111/jgs.15777

Heima, M Ferretti, M Qureshi, M Ferretti, & G. (2017). The effect of social geographic factors on the untreated tooth decay among head start children. *Journal of Clinical and Experimental Dentistry*, e1224-e1229. https://doi.org/10.4317/jced.54228

Kranz, Ashley M. Zhao, Xiaoxi Munnich, Elizabeth Lee, Jessica Y. Whaley, & Christopher. (2025). Medicaid Payments and Outcomes for Pediatric Dental Surgical Procedures by Site of Care. *JAMA Network Open*, *8*(10), e2537081. https://doi.org/10.1001/jamanetworkopen.2025.37081

Lewis, C. W. J., B. D. Lee, H. H. McKinney, & C. M. Reusch, C. (2020). Income-Based Disparities in a Yearly Dental Visit in United States Adults and Children: Trend Analysis 1997 to 2016. *Acad Pediatr*, *20*(7), 942-949. https://doi.org/10.1016/j.acap.2020.06.003

Lowenstein, Adam Singh, Mabi L. Papas, & S., A. (2025). Addressing disparities in oral health access and outcomes for aging adults in the United States. *Frontiers in Dental Medicine*, *6*. https://doi.org/10.3389/fdmed.2025.1522892

Mirza A, Watt RG, Heilmann A, Stennett M, & A., S. (2024). Social Disadvantage and Multimorbidity Including Oral Conditions in the United States. *Journal of Dental Research*.

Monica Diba, D., Maya Fulcher, R., MS , & Alisha Rooker, B. (2023). *Dental Caries: A Global Health Burden and the Cost of Neglect*. https://ostrowonline.usc.edu/dental-caries-a-global-health-burden-and-the-cost-of-neglect-2/

Nelson, Suchitra Riedy, Christine Albert, Jeffrey M.Lee, Wonik Slusar, Mary Beth Curtan, Shelley Ferretti, Gerald Cunha-Cruz, & Joana Milgrom. (2015). Family Access to a Dentist Study (FADS): A multi-center randomized controlled trial. *Contemporary Clinical Trials*, *45*, 177-183. https://doi.org/10.1016/j.cct.2015.10.006

Nicoll, Kerri Leyda;Phillips, Elizabeth;Shaefer, & Luke, H. (2016). Low-Income Parents' Perceptions of Oral Health and Acceptance of Mid-level Dental Providers. *The Journal of Dental Hygiene*.

Northridge, M. E., Wu, Y., Troxel, A. B., Min, D., Liu, R., Liang, L. J., Metcalf, S. S., Seyedzadeh Sabounchi, S., & Yi, S. (2021). Acceptability of a community health worker intervention to improve the oral health of older Chinese Americans: A pilot study. *Gerodontology*, *38*(1), 117-122. https://doi.org/10.1111/ger.12522

Pourat, Nadereh Chen, Xiao Lee, Christopher Zhou, Weihao Daniel, Marlon Hoang, Hank Sharma, Ravi Sim, Hwa Sripipatana, & Alek Nair, S. (2019). HRSA-funded Health Centers Are an Important Source of Care and Reduce Unmet Needs in Primary Care Services. *Medical Care*, *57*(12), 996-1001. https://doi.org/10.1097/mlr.0000000000001206

Rethemiotaki, I. (2021). Unmet dental needs in children – a cross-sectional study of 0.6 million children in the United States. *Family Medicine & Primary Care Review*, *23*(2), 215-219. https://doi.org/10.5114/fmpcr.2021.105929

Sachdev, Prageet K. Freeland-Graves, Jeanne Babaei, & Mahsa. (2020). Development and validation of the Dental Nutrition Knowledge Competency Scale for low-income women. *Public Health Nutrition*, *23*(4), 691-700. https://doi.org/10.1017/s1368980019002714

Sapra, M. R. A. (2023). *Dental Caries*. https://www.ncbi.nlm.nih.gov/books/NBK551699/

Singh, A. Peres, M. A. Watt, & G., R. (2019). The Relationship between Income and Oral Health: A Critical Review. *J Dent Res*, *98*(8), 853-860. https://doi.org/10.1177/0022034519849557

Stevens, Gregory D. Seid, Michael Halfon, & Neal. (2016). Enrolling Vulnerable, Uninsured but Eligible Children in Public Health Insurance: Association With Health Status and Primary Care Access. *Pediatrics*, *117*(4), e751-e759. https://doi.org/10.1542/peds.2005-1558

Taylor, Heather Holmes, Ann M Blackburn, & Justin. (2021). Prevalence of and factors associated with unmet dental need among the US adult population in 2016. *Community Dentistry and Oral Epidemiology*, *49*(4), 346-353. https://doi.org/10.1111/cdoe.12607

van Meijeren-van Lunterern, A. W. Y., Y. Raat, H. Wolvius, E. B. ,Kragt, L. (2023). Caries Preventive Interventions and Oral Health Inequalities: A Scoping Review. *JDR Clin Trans Res*, *8*(4), 311-325. https://doi.org/10.1177/23800844221109116

Vasireddy, Deepa Sathiyakumar, Thevasha Mondal, Sumona Sur, & Shantanu. (2021). Socioeconomic Factors Associated With the Risk and Prevalence of Dental Caries and Dental Treatment Trends in Children: A Cross-Sectional Analysis of National Survey of Children's Health (NSCH) Data, 2016-2019. *Cureus*. https://doi.org/10.7759/cureus.19184

Vujicic, Marko Buchmueller, Thomas Klein, & Rachel. (2016). Dental Care Presents The Highest Level Of Financial Barriers, Compared To Other Types Of Health Care Services. *Health Affairs*, *35*(12), 2176-2182. https://doi.org/10.1377/hlthaff.2016.0800