

## Modern Lifestyle and Pediatric Dental Issues: A Review of Contributing Factors

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### Abstract

The rapid transformations in lifestyle associated with urbanization, digitalization, and changing dietary patterns have significantly influenced the health and well-being of children in India. Among the most affected areas is oral health, which has experienced a noticeable rise in preventable dental problems such as dental caries, gingivitis, enamel erosion, malocclusion, halitosis, and traumatic injuries. Modern lifestyle behaviours—including increased consumption of processed foods, high sugar intake, reduced outdoor play, prolonged screen exposure, erratic sleep patterns, and diminished parental supervision—have created an environment conducive to poor oral hygiene practices. This review explores how contemporary lifestyle trends among Indian children contribute to the increasing burden of dental diseases. It examines various determinants such as dietary changes, digital device addictions, reduced physical activity, changing parenting styles, socio-economic disparities, and environmental influences. The article emphasizes that while genetic predispositions cannot be ignored, most pediatric dental issues stem from modifiable behavioural and environmental factors that have emerged or intensified in the modern era. Schools, families, healthcare providers, and communities must collectively address these determinants through awareness, early guidance, preventive screenings, and supportive policies. The review concludes by highlighting the urgent need for integrated, multi-sectoral approaches that combine health education, behavioural interventions, and structural changes in living environments. Strengthening preventive measures at home, school, and community levels can significantly reduce oral health problems, improve quality of life, and ensure healthier futures for Indian children growing up in a rapidly changing world.

**Keywords:** Pediatric oral health, Modern lifestyle, Dental caries, Indian children, Preventive dentistry

### Introduction

Modern lifestyle transformations have reshaped the daily routines of children in India over the last few decades. Increased urbanization, technological advancements, and shifts in socio-cultural norms have influenced how children eat, play, study, sleep, and interact with their surroundings. While these changes have brought convenience and improved access to information and resources, they have also introduced new health concerns. Among these, pediatric dental problems have emerged as a significant public health issue. Children today experience dental caries, gingivitis, erosion, and orthodontic problems at increasingly younger ages. Much of this rise can be attributed to lifestyle behaviours rather than hereditary causes. This review examines how contemporary practices and environmental factors contribute to pediatric dental issues in Indian populations.

### Changing Dietary Patterns and Their Impact on Oral Health

One of the most prominent lifestyle changes affecting dental health is the shift in dietary preferences among children. Traditional diets rich in whole grains, vegetables, and fiber have been replaced by processed foods, sugary snacks, carbonated beverages, and fast foods easily accessible in urban and even rural areas. Advertisements, peer influence, and convenience have increased children's preference for packaged items high in refined carbohydrates, artificial sweeteners, and acids. Frequent snacking, especially sticky foods like chocolates, biscuits, and chips, provides constant fuel for cariogenic bacteria, leading to plaque accumulation and eventual tooth decay.

Children also consume aerated drinks and fruit juices marketed as healthy options but often

contain high sugar levels and acids that erode tooth enamel. Even toddlers are not spared; many are introduced early to flavored milk, packaged juices, and sweetened cereals, accelerating the development of early childhood caries. The pattern of nighttime feeding using sweetened milk or bottles also contributes to rampant decay among infants. Unlike in the past, where meals were more structured, children's eating habits have become irregular, with multiple snacking episodes throughout the day, giving little time for natural salivary cleansing. These dietary changes, deeply rooted in modern lifestyle, directly heighten the risk of dental problems.

### **Influence of Digital Device Use on Oral Hygiene Behavior**

The increasing use of mobile phones, tablets, computers, and television has dramatically altered how children spend their free time. Digital engagement has replaced traditional outdoor play, reducing physical activity while increasing sedentary behaviours. This shift has indirectly affected oral health in several ways. Children engrossed in screens tend to snack mindlessly, often on sugary or salty processed foods that stick to teeth and promote bacterial growth. They may also delay or skip routine oral hygiene practices because screen time extends into late evening hours, leading to irregular brushing frequency and poor bedtime hygiene.

Digital dependency also affects sleep patterns. Many children stay awake late at night watching videos, gaming, or using social media, which disrupts circadian rhythms and contributes to fatigue and poor morning routines. As a result, oral hygiene practices such as thorough brushing, tongue cleaning, and flossing are compromised. Studies indicate that reduced sleep can lower immune functioning, making gums more prone to inflammation and infection. Additionally, the exposure to constant advertisements for sugary beverages and fast food online influences children's food preferences, further contributing to poor dietary choices that impact oral health.

### **Sedentary Lifestyle and Reduced Outdoor Activity**

Another hallmark of modern living is the significant reduction in outdoor play among children. Urban environments often lack safe play spaces, while academic pressures and structured extracurricular activities leave limited time for physical activity. Sedentary lifestyles are associated with obesity, metabolic disorders, and decreased immunity—all of which indirectly influence oral health. Obesity, for instance, is linked to increased inflammation in the body, which can exacerbate periodontal problems.

Moreover, children who do not engage in sufficient physical activity may have poorer mental health, leading to stress-related behaviours such as nail-biting, pen chewing, thumb sucking, or teeth grinding (bruxism). These habits can cause enamel wear, misalignment, and even temporomandibular joint discomfort. Reduced outdoor activity also affects vitamin D synthesis from sunlight, and low vitamin D levels have been associated with delayed tooth eruption and weakened enamel, making teeth more vulnerable to decay.

### **Changing Parenting Patterns and Supervision Practices**

Modern parenting styles have undergone significant changes, influenced by urbanization, dual-income households, and increased digital exposure. Many parents struggle to balance work responsibilities with childcare, which often reduces the level of supervision they can provide. As a consequence, children may adopt unhealthy eating and hygiene behaviours without adequate parental regulation. For instance, busy parents may rely on packaged foods and ready-to-eat snacks, inadvertently contributing to high sugar consumption. The tradition of elders monitoring children's hygiene practices has also diminished, especially in nuclear families.

Additionally, permissive parenting styles have become common, where children are given more freedom in choosing what they eat or how much screen time they spend. This autonomy, when not guided properly, can lead to poor oral hygiene habits. Some parents also underestimate the importance of primary teeth, assuming that milk teeth do not require extensive care because they will eventually be replaced. This misconception delays preventive measures and dental consultations even when early signs of decay appear.

Lack of parental awareness regarding the importance of regular dental check-ups, correct brushing techniques, appropriate toothpaste quantity, or the need for flossing contributes significantly to pediatric dental issues. In many Indian households, oral hygiene is perceived as a routine activity rather than a health necessity, resulting in inadequate emphasis on consistent, supervised brushing.

#### **Increased Consumption of Packaged and Convenience Foods**

The convenience-driven modern lifestyle has led to a rise in consumption of packaged foods that are easy to store, carry, and eat on the go. Biscuits, cakes, wafers, instant noodles, and sugar-laden cereals have become regular components of children's diets. Even foods marketed as "healthy," such as granola bars or flavored yogurts, contain large amounts of hidden sugars. Instant foods, which are heavily advertised and widely available, are preferred by time-constrained parents despite their low nutritional value.

These foods not only contribute to dental caries but also alter the oral microbiome by promoting the growth of harmful bacteria. They may also reduce chewing activity, which is essential for stimulating saliva production. A dry mouth environment reduces the natural cleansing ability of saliva, increasing the risk of plaque formation. Unlike fibrous foods that mechanically clean teeth, soft and sticky processed foods cling to surfaces, encouraging decay.

#### **Urbanization and Environmental Influences on Dental Health**

Urbanization has introduced several environmental factors that influence oral health. Pollution, overcrowding, limited green spaces, and excessive heat contribute to dehydration, which reduces salivary flow. Saliva plays a crucial role in buffering acids, remineralizing enamel, and washing away food debris. When saliva production decreases, microbial activity increases, heightening the risk of plaque accumulation and gingivitis.

Urban children are also exposed to frequent availability of fast-food outlets, vending machines, and street foods with high sugar and starch content. Food delivery applications have increased accessibility to unhealthy options, encouraging frequent consumption. In contrast, rural children may face different challenges such as high fluoride in groundwater, which contributes to dental fluorosis. Thus, modern lifestyle influences oral health in diverse ways across geographical regions.

#### **Mental Health, Stress, and Their Oral Health Implications**

Increased academic pressure, lack of recreational time, and social media exposure have amplified stress levels among children. Emotional stress can manifest in various oral health problems. Bruxism, or teeth grinding, is commonly observed in children dealing with anxiety or emotional distress. It leads to enamel wear, tooth sensitivity, jaw pain, and headaches. Stress may also weaken the immune system, making children more susceptible to gum infections and oral ulcers.

Moreover, emotional eating—often triggered by stress—leads children to consume comfort foods high in sugar and fat. This further increases the risk of dental problems. Sleep disturbances associated with stress also negatively impact overall and oral health, as adequate rest is essential for tissue repair and immune function.

#### **Orthodontic Issues Influenced by Lifestyle Changes**

Modern lifestyle factors have also contributed to an increasing prevalence of malocclusion among children. Prolonged bottle-feeding, pacifier use, and thumb sucking, especially beyond infancy, influence jaw development and tooth alignment. Mouth breathing, often due to allergies or obesity-related airway restrictions, can alter facial growth, leading to narrow dental arches and misaligned teeth. Poor nutrition during early childhood, particularly inadequate intake of calcium and vitamin D, can affect tooth and bone development, increasing the risk of orthodontic problems.

Soft diets lacking in natural chewing resistance, such as mashed foods, processed snacks, and fast foods, reduce jaw muscle activity, which is essential for proper craniofacial development.

As a result, children are more likely to require orthodontic interventions today than in previous generations.

### **Sleep Patterns and Oral Health**

Modern lifestyle patterns have disrupted sleep cycles for many children. Late-night screen use, excessive homework, and irregular routines contribute to reduced sleep duration and poor sleep quality. Inadequate sleep affects oral health in several ways. First, fatigue can lead to negligence in brushing routines, especially at bedtime. Second, sleep deprivation weakens the immune system, increasing vulnerability to gum diseases. Third, children with poor sleep habits are more prone to obesity, which is associated with higher risk of caries and periodontal problems.

Obstructive sleep apnea, increasingly observed in overweight children, can cause mouth breathing, which leads to dry mouth and heightened risk of cavities and infections. Thus, healthy sleep hygiene is essential not only for overall development but also for maintaining sound oral health.

### **Socio-Economic Status and Lifestyle Disparities**

Socio-economic factors strongly influence modern lifestyle patterns, and consequently, oral health outcomes. Children from affluent families are more exposed to fast foods, packaged snacks, and digital devices, while those from economically weaker sections may lack access to dental care, fluoride-containing toothpaste, or nutritious food. Economic disparity affects dietary patterns, parental awareness, and frequency of dental consultations.

Interestingly, both extremes of socio-economic status contribute to oral health issues, albeit through different pathways. For affluent children, overindulgence and access to sugary foods cause dental problems, whereas for underprivileged children, lack of awareness, poor hygiene resources, and untreated conditions lead to chronic dental issues. Modern lifestyle has widened these gaps, emphasizing the need for targeted interventions.

### **Role of Schools and Community in Addressing Lifestyle-Driven Dental Issues**

Schools, as primary institutions where children spend a significant portion of their day, play a crucial role in mitigating the impact of modern lifestyle on oral health. Schools can provide structured routines that reinforce healthy behaviours. Integrating oral health education into the curriculum, conducting supervised brushing programs, regulating unhealthy foods on campus, and organizing periodic dental camps help counteract harmful lifestyle influences.

Community awareness programs, especially in rural and semi-urban areas, can guide parents regarding nutritious food choices, screen-time limitations, and proper hygiene practices. Partnerships between schools, dental colleges, local healthcare services, and NGOs can strengthen preventive measures.

### **Preventive Strategies and Future Directions**

Addressing modern lifestyle-related dental issues requires multi-level, sustained efforts. Families should focus on establishing regular routines for brushing, limiting sugary snacks, and supervising children's screen use. Schools must adopt health-promoting policies, including restrictions on unhealthy foods and integration of oral hygiene education. Healthcare providers should emphasize preventive dental check-ups, fluoride applications, and sealant therapy.

National programs such as the National Oral Health Programme (NOHP), School Health and Wellness Program, and Ayushman Bharat can play vital roles by integrating oral health into broader child health initiatives. Future efforts should also explore digital mobile applications that promote oral hygiene awareness, tele-dentistry consultations for remote communities, and community-based health ambassadors who can influence behaviour change.

### **Conclusion**

Modern lifestyles have contributed significantly to the rise of pediatric dental issues in India. From dietary transformations and digital addictions to reduced physical activity and changing parenting styles, contemporary behaviours pose various challenges to children's oral health.

While some determinants stem from socio-economic and environmental contexts, many are modifiable through awareness, guidance, and preventive strategies at both household and institutional levels. Schools, parents, healthcare providers, and communities must work collaboratively to counteract unhealthy lifestyle influences. Empowering children with knowledge, fostering healthy routines, and ensuring access to timely dental care will help mitigate the growing burden of pediatric dental diseases. With comprehensive preventive efforts and behavioural interventions, India can safeguard the oral health of its next generation despite the challenges brought by modern living.

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