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Review

Dental Erosion Linked to Shared Beverage Habits Within Households

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Abstract

Dental erosion, characterized by the loss of tooth structure due to non-bacterial acid exposure, has become increasingly prevalent, particularly among children and adolescents. One of the most influential yet underrecognized contributors is the shared beverage culture within households. Frequent consumption of acidic and sugary drinks, such as soft drinks, citrus juices, and sports beverages, creates repeated exposure to erosive substances that weaken enamel over time. Within family settings, beverage habits are often shaped by behavioral imitation, with children closely modeling the preferences and routines of parents and older siblings. These patterns become ingrained early, especially when reinforced through daily rituals and unrestricted access to commonly consumed drinks. Environmental factors, including beverage availability, placement in the home, and broader access to affordable alternatives, further influence household choices. In lower-income settings, the reliance on inexpensive, sugar-laden drinks is often driven by economic constraints and limited access to dental education. Cultural norms also play a substantial role in shaping beverage preferences. Traditions involving sweetened or acidic drinks during meals, celebrations, or hospitality practices contribute to habitual consumption, often without awareness of the long-term oral health impact. Misconceptions about the healthiness of certain beverages, particularly those marketed as natural or energizing, add to the problem. The interplay between behavior, environment, and culture creates a complex landscape where erosive beverage consumption becomes normalized within family life. Addressing dental erosion requires a broader focus that extends beyond individual education to include family-centered interventions and culturally sensitive public health messaging. Recognizing the shared nature of beverage habits offers an opportunity for more effective strategies aimed at reducing dental erosion risk across entire households.

Keywords: *dental erosion, household beverage habits, behavioral imitation, acidic drinks, oral health*

Introduction

Dental erosion is a progressive loss of dental hard tissue due to chemical processes that do not involve bacterial action. Unlike caries, which are caused by acid produced by bacteria, erosion stems from direct acid contact with enamel and dentin, typically from dietary sources. Among these, acidic beverages such as soft drinks, fruit juices, energy drinks, and certain teas have been consistently identified as primary contributors to dental erosion due to their low pH and high titratable acidity (1). In recent years, attention has shifted from individual dietary behavior to understanding broader patterns of consumption, including those shaped within household environments.

Beverage consumption habits are not formed in isolation. The home serves as a primary setting where dietary behaviors are learned, modeled, and reinforced. Children and adolescents are especially susceptible to adopting consumption patterns observed in parents and siblings. This phenomenon, referred to as behavioral modeling, has been well-documented in studies on dietary intake, showing that parents' preferences and purchasing habits significantly influence the types and frequency of beverages consumed by younger household members (2). For example, if sugar-sweetened or acidic drinks are regularly stocked and consumed by parents, children are more likely to view these choices as normative, leading to early establishment of habits that increase the risk of dental erosion over time.

The frequency and method of beverage consumption also play a role in erosion risk. Sipping acidic drinks slowly over long periods, using straws improperly, or consuming such beverages just before bedtime without subsequent oral hygiene can amplify erosive potential. These practices are often culturally shared and reinforced within households. Moreover, families that prioritize convenience over nutritional value may rely heavily on commercially available beverages, many of which have erosive properties. Even beverages that are perceived as healthy, such as citrus juices or sports drinks, can contribute significantly to dental erosion when consumed frequently (3).

The socio-economic context of a household further influences beverage choices. Lower-income households may face barriers to accessing dental care and are more likely to purchase affordable, highly acidic beverages in bulk. In contrast, higher-income families might consume premium fruit juices or organic products with similar erosive effects but under the misconception that they are safer for dental health. Additionally, cultural norms and regional dietary practices also determine the kinds of beverages introduced and accepted in the home environment, affecting dental erosion prevalence across populations (4). Therefore, we aim to discuss and review dental erosion and its link to shared beverage habits within the households.

Review

Household beverage habits play a critical role in the development of dental erosion, particularly through shared patterns of consumption and behavioral modeling. When acidic beverages are routinely consumed within the family environment, they become normalized, increasing the likelihood that all members, especially children and adolescents, adopt similar consumption behaviors. This shared exposure contributes to prolonged and repeated acid contact with dental surfaces, gradually eroding enamel over time. Furthermore, studies show that the frequency of intake is often higher when such beverages are readily available at home, which reinforces erosive dietary patterns across generations (5).

Parental influence, both through direct encouragement and passive modeling, has been shown to shape children's beverage choices and consumption frequencies. These behaviors often persist into adulthood, indicating a long-term effect of early household norms on oral health (6). Unlike isolated dietary decisions, the family context creates a feedback loop where preferences and habits are reinforced through daily routines and accessibility. Addressing dental erosion therefore requires a broader approach that targets the household as a behavioral unit, emphasizing collective awareness

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and changes in purchasing habits. Preventive efforts must highlight not only the erosive potential of common drinks but also the long-term impact of shared household behaviors on oral health.

Influence of Household Beverage Habits on Dental Health

The dental health of individuals is often shaped by the patterns and choices prevalent within their immediate living environment, particularly in households where beverages are routinely shared and consumed as part of daily life. When beverages high in acidity and sugar become staples within the home, the oral health of all members is affected not through isolated choices but through repetitive exposure and consistent reinforcement of specific consumption behaviors. This influence is especially pronounced among children, who tend to internalize early-life dietary cues, mirroring not only their parents' preferences but also their consumption timings and habits (7). Such patterns of imitation begin at a young age and are often maintained unconsciously, creating a behavioral loop that continues well into adolescence and adulthood.

Research has indicated that children are more likely to consume sugar-sweetened and acidic drinks when these are readily accessible in the home and when parents consume them frequently. This reflects an environment where beverage selection is less about individual nutrition and more about convenience, preference, and habits shared across the household. Family mealtimes, grocery choices, and even the placement of drinks in the fridge contribute to shaping what becomes “normal” or expected for daily consumption. In homes where carbonated or flavored beverages are prioritized over water or milk, the likelihood of higher acid exposure increases correspondingly for all family members, leading to a collective risk for dental erosion (8).

Even more subtle are the habits related to the method and frequency of consumption. Sipping on acidic drinks slowly over a prolonged period, having beverages with meals, or consuming them just before brushing teeth can significantly increase the erosive effect on enamel. These routines are rarely discussed in clinical settings but are pivotal in shaping cumulative risk over time. Dental professionals often find that erosion patterns can be similar among siblings, indicating shared exposure not only to the same types of drinks but to the same drinking behaviors and timing.

Socioeconomic context further influences these household beverage habits. Families facing economic constraints may opt for bulk purchases of affordable sugary drinks rather than investing in more expensive, healthier options. These decisions are often practical, yet they carry hidden oral health consequences. In low-income households, access to dental education and care may also be limited, amplifying the risks associated with erosive beverages through delayed diagnosis and limited prevention strategies. Beverage marketing compounds the issue, targeting households with visually appealing, flavored products that are often perceived as healthful alternatives despite their low pH and erosive potential (9).

Cultural norms embedded within household routines also play a role. In some regions, offering sweet or acidic beverages to guests or children is customary and considered a sign of hospitality or affection. These practices, while rooted in tradition, can contribute to repeated acid exposure when they become daily rituals. Within multicultural societies, the layering of traditions across generations can create a complex web of dietary habits that is deeply ingrained and resistant to change, even when oral health risks are known (10).

Behavioral Imitation and Shared Consumption Patterns

Imitation within the household environment is a powerful force that shapes daily behaviors, particularly those related to food and beverage intake. Children learn through observation, often adopting the choices and routines of parents, caregivers, and older siblings. This is especially relevant for beverage consumption, where daily exposure to specific drinks creates a normalized pattern. Whether it involves sipping soft drinks during meals or keeping sugary beverages within reach throughout the day, these shared habits become internalized and repeated without much

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conscious thought or instruction. Parents who frequently consume acidic or sweetened beverages rarely need to verbally encourage their behavior; their actions communicate acceptance and routine far more effectively (11).

In many households, beverages are consumed communally or in family settings. During meals, snacks, or leisure activities like watching television, children often mirror the choices of those around them. If soda, fruit-flavored drinks, or sports beverages are present, the likelihood that children will request or accept these drinks increases. This modeling effect becomes even more ingrained when the same pattern is observed consistently over time. Studies show that parental intake is one of the most consistent predictors of child consumption patterns, particularly in the case of sugar-sweetened beverages (12). When adults reach for a drink multiple times a day, their children are likely to follow, associating those beverages with hydration, satisfaction, or comfort.

Older siblings can also act as influential figures in shaping drinking habits. When younger children see their siblings routinely selecting certain beverages, they are more inclined to adopt similar preferences. This form of peer modeling within the family can be more impactful than parental influence in some contexts, particularly when siblings are closer in age. The shared use of space, such as kitchen areas or refrigerators, also facilitates this process. The presence of certain drinks in the household sends a clear message about what is acceptable or desirable. When specific types of beverages are consistently available, they become part of the family's collective behavior.

Availability and accessibility are critical factors in the development of these patterns. Beverages placed at eye level in refrigerators or left out on counters become the default option. Children often choose what is easiest to reach, and when this is a soft drink or flavored water, it reinforces habitual selection. The convenience of these options frequently overrides any verbal guidance about healthier choices. In some homes, sugary or acidic beverages are even used as tools for behavior management, such as rewards or pacifiers, further embedding them into emotional and social contexts. Marketing strategies reinforce these patterns by presenting beverages as family-friendly products. Commercials often depict entire families enjoying a drink together, framing the product as a unifying part of home life. These images reinforce the association between shared consumption and familial bonding. In homes where nutritional education is limited, children are especially vulnerable to accepting these portrayals at face value. Over time, repetition and exposure lock these consumption patterns into place, making them more difficult to change even when health consequences become apparent (13, 14).

Environmental and Cultural Factors in Beverage Choices

Beverage consumption patterns do not emerge in a vacuum. They are deeply embedded in the environments where individuals live and shaped by cultural traditions that often predate modern dietary guidelines. The physical availability of beverages in the household, the norms surrounding hospitality, and the broader marketing environment all influence what people drink and how often they drink it. When acidic or sugary drinks are woven into daily routines, they become part of a social rhythm rather than individual preferences alone. This social rhythm is often inherited, preserved, and reinforced across generations.

Built environments also matter. Neighborhoods with greater access to convenience stores and fast-food outlets tend to offer a narrower range of beverage options, many of which are high in sugar and acidity. When healthier alternatives are either unavailable or unaffordable, families may rely on readily accessible products that are marketed as refreshing and enjoyable. These decisions are often practical responses to time constraints, economic limits, or a lack of transportation. In some cases, municipal water quality issues lead households to avoid tap water entirely, increasing dependence on bottled flavored drinks or sodas as primary sources of hydration (15).

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Cultural traditions further influence beverage preferences in ways that are often overlooked in public health discussions. In many regions, serving guests sweet drinks is a gesture of respect or welcome. Children growing up in such environments become accustomed to associating flavored or fizzy beverages with warmth, celebration, or generosity. These early emotional associations are difficult to unlearn, even when individuals are later informed about dental health risks. In certain cultural contexts, beverages like tea with sugar or fruit-based drinks are consumed multiple times a day, often during communal gatherings. These practices create repeated exposure to acid and sugar, not because of deliberate overconsumption, but because they are part of family routines and social cohesion (16).

Language and literacy also shape how beverage choices are made. Families with limited access to health information in their native language may not be aware of the erosive potential of certain drinks. Misunderstandings about product labeling or marketing claims can lead to the belief that a juice labeled as natural is inherently healthy. These misconceptions persist in communities where oral health education is either inconsistent or culturally irrelevant. The gap between perceived and actual healthiness of a beverage often results from exposure to advertising rather than formal instruction, creating long-term habits that are difficult to change (17).

Religious practices may also play a role. In some households, dietary restrictions or fasting traditions influence which beverages are consumed during specific periods. During religious celebrations, traditional drinks are often prepared and consumed in large quantities, many of which are highly acidic or sweetened. These patterns add another layer of complexity to how beverage habits are shaped and maintained. Efforts to modify behavior must recognize these cultural layers and avoid framing them purely as health risks. Without cultural sensitivity, educational campaigns may struggle to resonate with the communities they aim to support (18).

Conclusion

Shared beverage habits within households significantly influence the risk of dental erosion through both behavioral imitation and environmental exposure. Cultural practices, economic conditions, and familial routines shape long-term consumption patterns that often begin early in life. Addressing dental erosion requires a deeper understanding of these interconnected factors. Effective prevention must move beyond individual choices to target household and community-level behaviors.

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Data availability

All data is available within the manuscript.

Author contribution

All authors contributed to conceptualizing, data drafting, collection and final writing of the manuscript.

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