



STUDENTS' AWARENESS OF THE POTENTIAL IMPACT OF DISPOSABLE TABLEWARE AND COFFEE ON ORAL HEALTH

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Abstract

This article examines students' awareness of the potential effects of disposable tableware and coffee consumption on oral health. Particular attention is paid to the effects of coffee on tooth enamel, tooth discoloration, the role of added sugar in the development of dental caries, and the possible migration of substances from disposable plastic and paper cups into hot beverages. The importance of improving students' health literacy and promoting healthy coffee consumption habits is emphasized. A questionnaire-based approach is proposed to assess students' knowledge of these issues. The findings of a future study may be used to develop preventive measures aimed at maintaining and improving oral health among young people.

Keywords: Students, awareness, oral health, disposable tableware, coffee, tooth enamel, dental caries, oral hygiene, prevention.

Introduction

Oral health is an important component of overall health and quality of life. The condition of the teeth and periodontal tissues depends on various factors, including dietary habits, beverage consumption patterns, oral hygiene practices, salivary composition, and individual physiological characteristics.

Among university students, coffee is widely consumed to increase alertness, maintain productivity, and reduce sleepiness during lectures and examination preparation. At the same time, drinking takeaway coffee from disposable cups made of plastic, polystyrene, or paper with an internal polymer lining has become increasingly common.



Despite the widespread use of these products, students may have limited knowledge of how regular coffee consumption, added sugar, and contact between hot beverages and disposable cup materials may be associated with oral health. Scientific studies indicate that the effects of coffee on teeth are complex. Potential adverse effects include extrinsic tooth staining and changes in enamel surface properties under certain conditions. Evidence regarding the relationship between coffee consumption and periodontal health remains inconsistent. Research on disposable cups has also demonstrated the potential migration of certain chemical substances and particles into beverages, depending on the material, temperature, and duration of contact. [1–4]

Therefore, investigating students' awareness of these issues is relevant to preventive dentistry and health education.

Aim of the Study

To assess students' awareness of the potential effects of disposable tableware and coffee on oral health, identify major knowledge gaps, and substantiate the need for preventive educational interventions.

Materials and Methods

A questionnaire-based survey is proposed to investigate students' knowledge and attitudes regarding this issue. Participants may include university students from different academic years and fields of study.

The questionnaire may include questions about the frequency of coffee consumption, the number of cups consumed daily, the addition of sugar, the use of disposable cups, knowledge of coffee's effects on tooth enamel, and awareness of the possible migration of substances from materials that come into contact with hot beverages.

Additional questions may assess students' oral hygiene practices, including the frequency of toothbrushing, the use of fluoride toothpaste, regular dental visits, and adherence to professional oral care recommendations.



The collected data should be analyzed using descriptive statistical methods. If the sample size is sufficient, associations between awareness levels, coffee consumption frequency, and disposable tableware use may also be examined.

As no actual survey results are currently available, this article does not present fabricated numerical findings or statistical conclusions.

Results and Discussion

In a survey examining students' awareness of the effects of coffee and disposable tableware on oral health, respondents' habits and levels of awareness were analyzed. The results showed that the main reasons for coffee consumption among students were increased alertness and concentration (50%), mood improvement (25%), and taste and established habit (25%).

At the same time, 43% of participants believed that coffee negatively affects oral health, whereas 28% denied such an effect, and 28% were uncertain. Regarding dental aesthetics, the majority of respondents (56%) acknowledged that coffee affects tooth color, while another 29% reported that this effect occurred only occasionally, and only 15% believed that the beverage had no impact on enamel color.

Opinions regarding the risk of dental caries were divided. Nearly half of the respondents (49%) believed that caries develops only when coffee is consumed with added sugar, 31% associated the habit of drinking coffee itself with an increased risk of caries, and 20% did not perceive a direct relationship. Furthermore, 50% of respondents reported experiencing dry mouth after coffee consumption, while another 29% experienced this symptom occasionally. However, the beneficial habit of drinking plain water after coffee consumption was not widely practiced: 42% of participants admitted that they were unaware of its benefits for dental health.

The findings indicate the need to improve students' awareness of the effects of caffeinated beverages and associated factors, including the use of disposable tableware, on oral hygiene and health.

Clarify the disposable-tableware findingsState the study's main conclusion



1. Potential Effects of Coffee on Oral Health

Coffee contains caffeine, polyphenolic compounds, organic acids, and other biologically active substances. Its effects on the oral cavity depend on the composition of the beverage, consumption frequency, temperature, added sugar, and individual characteristics.

One of the most noticeable effects of regular coffee consumption is tooth discoloration. Pigmented compounds in coffee can interact with the acquired organic pellicle on the tooth surface and contribute to the formation of extrinsic stains. This may negatively affect dental aesthetics, particularly among individuals who consume coffee frequently and maintain inadequate oral hygiene.

Another important aspect is the acidity of coffee. Under unfavorable conditions, repeated exposure to acids may contribute to changes in the enamel surface and increase susceptibility to erosive tooth wear. However, the extent of this effect depends on the beverage's characteristics and the presence of other risk factors. Coffee should not automatically be considered equivalent to highly acidic soft drinks in terms of its erosive potential.

The addition of sugar is particularly important. Sugar serves as a substrate for microorganisms in dental plaque, which produce acids that contribute to enamel demineralization. Consequently, frequent consumption of sweetened coffee between meals may increase the risk of dental caries. Both the total amount of sugar consumed and the frequency of exposure are relevant to caries prevention. Nevertheless, coffee should not be considered exclusively harmful. Scientific literature has discussed the potential biological effects of certain coffee components, including antioxidant and antimicrobial properties. However, current evidence does not support the use of coffee as a preventive treatment for dental diseases. A systematic review of studies examining the relationship between coffee consumption and periodontal disease also found heterogeneous results. [1, 2]



2. Disposable Tableware and Potential Health Risks

Disposable cups are widely used for hot beverages in educational institutions, cafés, and public places. They may be manufactured from plastic, polystyrene, or paper with an internal polymer coating.

When hot liquids come into contact with certain materials, some chemical compounds and particles may migrate into the beverage. Laboratory studies of disposable cups have demonstrated the potential release of microplastic particles and other components under specific temperature and contact-duration conditions. [3, 4]

However, it is important to distinguish between the potential hazard posed by a substance and the actual risk to human health. The detection of particles or chemical compounds does not, by itself, prove that ordinary use of disposable cups causes tooth damage, gum inflammation, or other oral diseases.

At present, direct clinical evidence linking the normal use of disposable tableware to specific dental diseases remains limited. Therefore, this issue should be considered within the broader context of food-contact material safety and the prevention of unnecessary exposure to potential contaminants.

When choosing disposable cups, consumers should consider their intended use, labeling, and compliance with safety requirements for contact with hot beverages. Disposable cups should not be reused unless the manufacturer specifically indicates that they are suitable for repeated use.

3. Students' Awareness as a Factor in Prevention

University life is an important period during which long-term dietary and personal hygiene habits are established. Regular coffee consumption, particularly during periods of intense academic workload, may be accompanied by insufficient attention to preventive oral care.

Students' awareness can be assessed in several key areas:

- Understanding the causes of extrinsic tooth staining associated with coffee consumption.
- Knowledge of the role of sugar and the frequency of sweetened beverage consumption in dental caries development.



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- Awareness of the potential effects of acids on tooth enamel.
 - Understanding the difference between laboratory evidence of substance migration from disposable cups and confirmed clinical health risks.
 - Knowledge of how to select disposable cups suitable for hot beverages.
 - Adherence to recommended oral hygiene practices.

Questionnaire-based assessment can help identify common misconceptions and determine which topics require particular attention in health education programs. To evaluate the effectiveness of preventive interventions, it would be appropriate to conduct surveys before and after an educational program involving lectures, informational materials, and practical recommendations for maintaining oral health.

4. Key Preventive Recommendations

To maintain good oral health, students are advised to:

1. Limit the addition of sugar to coffee and avoid frequent consumption of small portions of sweetened beverages throughout the day.
2. Rinse the mouth with plain water after drinking coffee to reduce residual exposure and help remove some pigmented compounds.
3. Avoid brushing the teeth immediately after exposure to acidic beverages. Waiting approximately 30–60 minutes may be advisable, particularly for individuals at risk of erosive tooth wear.
4. Brush the teeth twice daily with fluoride toothpaste and clean the interdental spaces regularly.
5. Use tableware specifically intended for contact with hot beverages, follow the manufacturer's instructions, and avoid using damaged cups.
6. Whenever possible, use reusable cups made from food-contact-safe materials that can be cleaned properly and regularly.
7. Visit a dentist regularly for preventive examinations and the early detection of dental and periodontal diseases.

Implementing these recommendations may promote safer beverage consumption habits and improve oral hygiene practices among students.



Conclusion

Disposable tableware and coffee are common features of students' daily lives. However, awareness of their potential implications for oral health requires systematic investigation.

Coffee may contribute to extrinsic tooth staining and, under certain conditions, changes in enamel surface properties. The addition of sugar and frequent consumption of sweetened beverages are more directly relevant to dental caries prevention. Studies of disposable cups indicate the potential migration of certain substances and particles into hot beverages, but these findings alone do not establish a specific dental health risk associated with normal use.

The practical significance of this research lies in identifying gaps in students' knowledge and developing targeted preventive interventions. Systematic health education, responsible coffee consumption habits, and adherence to oral hygiene recommendations may represent important approaches to preventing dental diseases among young people.

Future Research

Should focus on surveying students, comparing awareness levels across academic years, and evaluating the effectiveness of preventive educational programs.

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