

THE INFLUENCE OF THE CONSUMPTION OF SWEET AND PASTRY PRODUCTS, PLANT-BASED PRODUCTS AND LIFESTYLE ON ORAL HEALTH

INFLUENȚA CONSUMULUI DE PRODUSE DULCI ȘI DE PATISERIE, A PRODUSELOR DE ORIGINE VEGETALĂ ȘI A STILULUI DE VIAȚĂ ASUPRA SĂNĂTĂȚII ORALE

VASILIU Mihaela Păpușa¹, TOMIȚA Daniela Ivona^{1*}, STADOLENU Carmen¹, FUIOAGĂ Codrin Paul¹, GHEBAN Mihaela Diana¹

*Corresponding author e-mail: daniela.tomita@yahoo.com

Abstract

The present study analyzes the relationship between dietary habits and oral health, with a focus on the consumption of sweet and pastry products compared to plant-based foods, as well as the influence of lifestyle factors. The research was conducted on a group of 32 patients aged between 55 and 75 years, using the G.O.H.A.I. questionnaire, applied pre- and post-prosthetic treatment. The results highlight an increased frequency of sweet food consumption, associated with risk factors such as smoking, alcohol consumption and poor oral hygiene. In contrast, the consumption of plant-based products was more frequent in people with a higher educational level. The study reevaluate the importance of adopting a balanced diet and a healthy lifestyle in preventing dental diseases and maintaining oral health.

Key words: oral health; sweets; vegetables; oral hygiene

Rezumat

Prezentul studiu analizează relația dintre obiceiurile alimentare și sănătatea orală, concentrându-se pe consumul de produse dulci și de patiserie în comparație cu alimentele de origine vegetală, precum și pe influența factorilor stilului de viață. Cercetarea a fost realizată pe un grup de 32 de pacienți cu vârste cuprinse între 55 și 75 de ani, utilizând chestionarul G.O.H.A.I., aplicat pre- și post-tratament protetic. Rezultatele evidențiază o frecvență crescută a consumului de alimente dulci, asociată cu factori de risc precum fumatul, consumul de alcool și igiena orală precară. În schimb, consumul de produse de origine vegetală a fost mai frecvent la persoanele cu un nivel de educație mai ridicat. Studiul subliniază importanța adoptării unei diete echilibrate și a unui stil de viață sănătos în prevenirea afecțiunilor dentare și menținerea sănătății orale.

Cuvinte cheie: sănătate orală, dulciuri, legume, igiena orală.

¹ Apollonia University from Iași, Romania

INTRODUCTION

Oral health is an essential component of overall health, influenced by biological, behavioral, and nutritional factors. In recent years, the role of diet in the onset and progression of dental disease has become increasingly evident, especially in the context of the increased consumption of products rich in fermentable sugars [Moynihan and Kelly, 2021; Sheiham and James, 2020].

Frequent consumption of sweet and pastry products favors the development of dental caries, being considered one of the main etiological factors [Moynihan and Kelly, 2021]. In contrast, plant-based products, fruits and vegetables, contribute to maintaining oral health by providing vitamins, minerals and bioactive compounds with a protective role. Thus, flavanols, anthocyanins and proanthocyanidins inhibit biofilm formation on dental surfaces, while presenting strong antioxidant and anti-inflammatory activity [Skoczek-Rubińska et al., 2018].

In addition to diet, lifestyle factors, such as poor oral hygiene, smoking, and alcohol consumption, significantly influence an individual's oral status [Peres et al., 2020]. Educational level and preventive behaviors are also important determinants of oral health.

People with little saliva and a habit of frequently consuming acidic beverages are at increased risk for enamel erosion. The basic recommendations are to drink water as the first choice and eat fresh fruits as an integral part of a healthy and balanced diet [Inghingolo et al., 2023]. Inadequate nutrition can affect the oral health including dental caries, periodontal diseases, diseases of oral mucosa and infectious diseases [Shailesh et al., 2019].

In this context, the analysis of the relationship between nutrition and oral health becomes relevant from both a medical and nutritional perspective.

The aim of the study is to evaluate the influence of the consumption of sweet and pastry products, compared to plant-based products, as well as lifestyle factors on oral health.

MATERIAL AND METHOD

The study included a group of 32 patients aged between 55 and 75 years, from urban areas.

To assess oral health, the G.O.H.A.I. questionnaire was used, applied in two stages: initially and one month after prosthetic treatment.

Dietary habits (consumption of sweet and pastry products, consumption of fruits and vegetables) were analyzed, as well as lifestyle (smoking, alcohol consumption, oral hygiene, frequency of visits to the dentist).

The data were analyzed according to age, gender and educational level.

RESULTS AND DISCUSSIONS

The analysis of eating habits highlights an increased frequency of consumption of sweet and pastry products in all age groups, with maximum values

in the 55–60 years range (82%), followed by the 61–70 years group (58%) and 71–75 years group (33%) (Table 1, Figure 1). These results highlight the fact that with age, patients have become aware that a rational consumption of sweets represents a definite benefit for general and oral health.

Table 1

Distribution of oral health risk factors by age group

Factor analyzed	55–60 years old (%)	61–70 years old (%)	71–75 years old (%)
Sweets consumption	82	58	33
Alcohol consumption	27	67	78
Consumption of plant products (fruits and vegetables)	36	50	89
Smoking	82	75	56
Brushing teeth 2 times/day	36	42	22
Adjunctive methods to tooth brushing	27	25	11
Doctor visits (emergency)	64	67	78

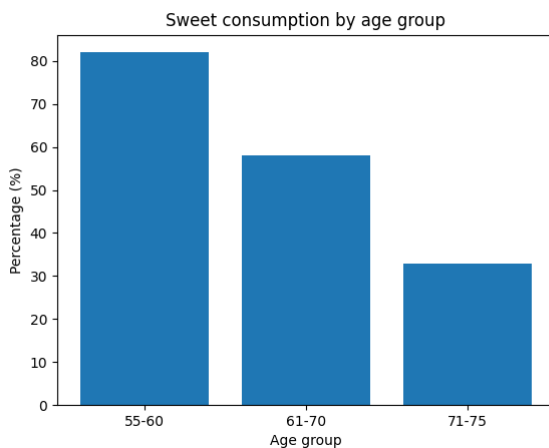


Fig. 1. Sweet consumption by age group

Alcohol consumption shows an increasing trend with age, reaching 78% in the 71–75 year old group (Table 1, Figure 2). This behavior is associated with poor oral hygiene and an increased risk of oral diseases, being described as an aggravating factor in oro-dental pathology [Peres et al., 2020].

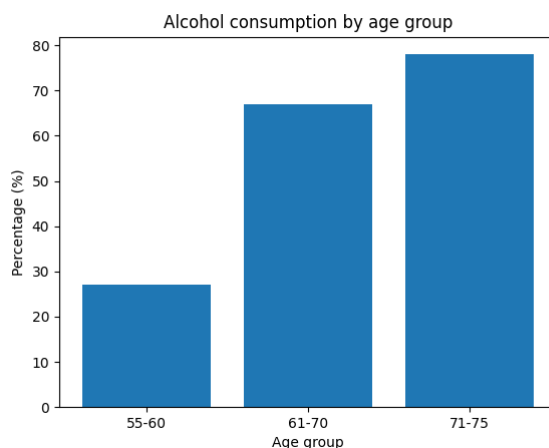


Fig. 2. Alcohol consumption by age group

Regarding the consumption of plant products, it is more common in elderly patients (89% in the 71–75 year old group), compared to younger groups (Table 1, Figure 3). This aspect suggests a healthier dietary orientation with advancing age, consistent with studies highlighting the protective role of a diet rich in plant products [Petersen and Ogawa, 2021]. Fruit and vegetable intake (at least 5 servings per day) is a significant factor that can prevent the progression of periodontal disease and even tooth loss in people of all ages [Skoczek-Rubińska et al., 2018].

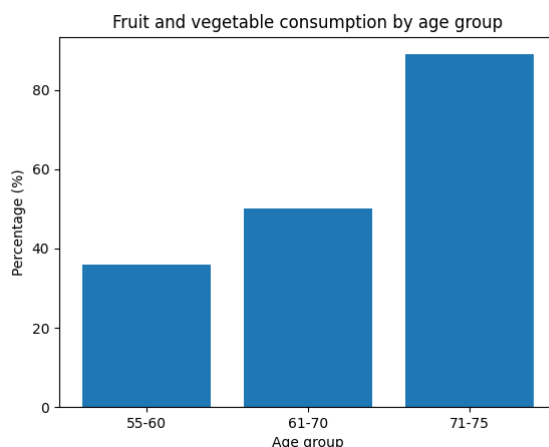


Fig. 3. Fruit & vegetable consumption

Smoking has a high prevalence in all groups analyzed, exceeding 75% in the 55–70 year old groups (Table 1, Figure 4). This risk factor is correlated with the occurrence of periodontal diseases and the worsening of oral status [Peres et al., 2020].

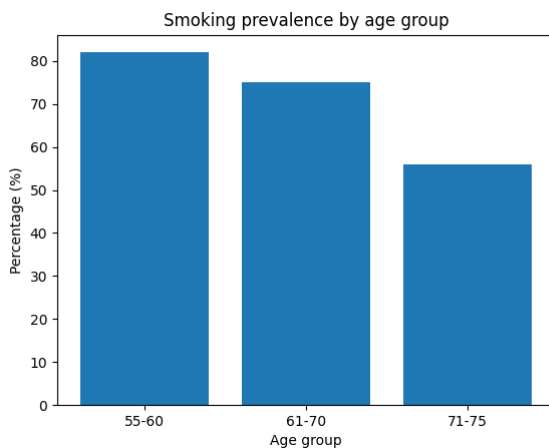


Fig. 4. Smoking prevalence

Regarding oral hygiene, the percentage of patients who brush their teeth twice a day is low, ranging between 22% and 42% depending on age (Table 1, Figure 5). The use of adjuvant oral hygiene methods is even lower, reaching minimum values of 11% in the 71–75 year old age group (Table 1, Figure 6). These results reflect a low level of oral health education.

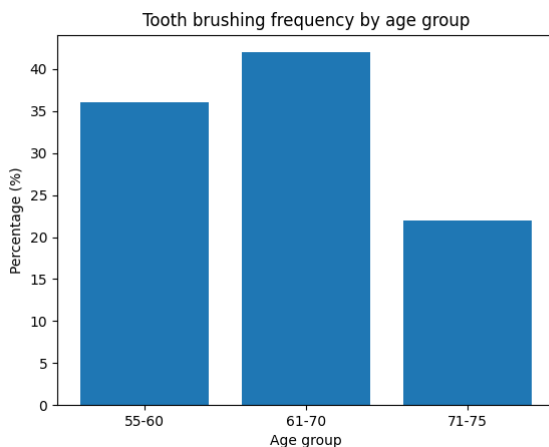


Fig. 5. Tooth brushing frequency

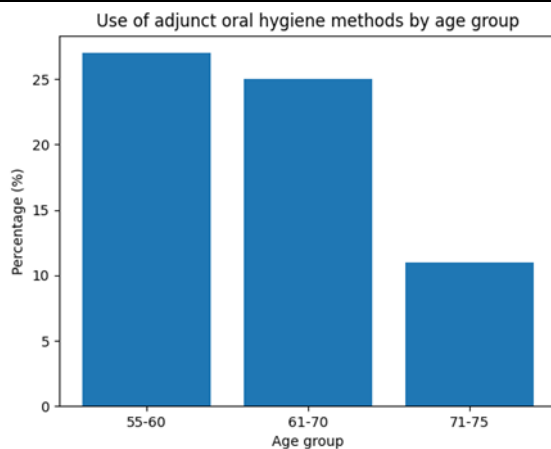


Fig. 6. Use of adjunct oral hygiene methods by age group

Dental visits are predominantly emergency-oriented, with percentages ranging from 64% to 78% across all age groups (Table 1, Fig. 7). This behavior indicates a lack of concern for prevention, contributing to the worsening of dental conditions.

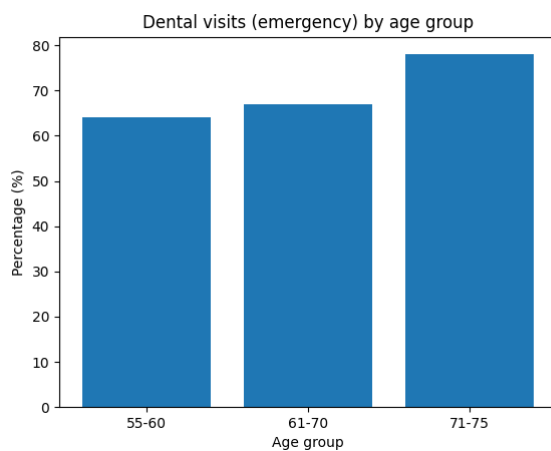


Fig. 7. Dental visits (emergency) by age group

Analysis by educational level highlights significant differences between groups. Patients with higher education have a higher consumption of plant-based foods (78%) and a higher frequency of adequate oral hygiene, compared to those with lower educational levels (Table 2). In contrast, the consumption of sweet products, alcohol and smoking are more common in people with secondary and high school education, confirming the role of education in adopting healthy behaviors.

The consumption of sweets and pastries is high in all age groups, with a maximum of 82% in the 55–60 age group (Table 3, Figure 8). A progressive decrease in this type of consumption is observed with advancing age, reaching 33% in the 71–75 age group. These results confirm the understanding of the need to reduce the intake of processed foods in the diet.

Table 2

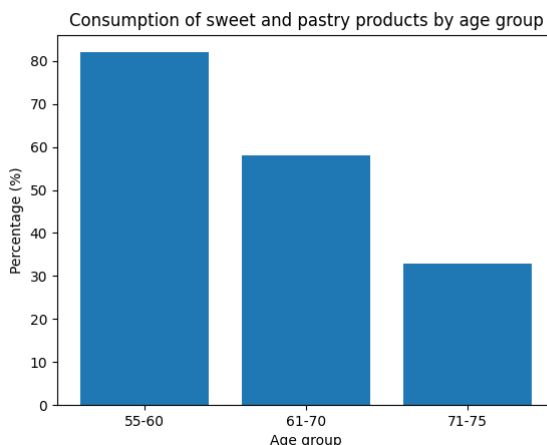
Distribution of eating behaviors and risk factors according to educational level

Factor	Secondary (%)	High school (%)	Middle school (%)	University (%)
Sweets consumption	67	73	70	33
Alcohol consumption	100	64	45	33
Consumption of plant foods/fruits and vegetables	33	45	55	78
Smoking	100	82	78	55
Tooth brushing 2x/day	33	27	45	55

Table 3

Consumption of sweets and pastries by age

Age group	Frequent consumption (%)	Low consumption (%)
55–60 years old	82	18
61–70 years old	58	42
71–75 years old	33	67

**Fig. 8.** Consumption of sweet and pastry products by age group

The comparative analysis highlights significant differences between the consumption of sweets and pastries and that of plant-based foods, depending on

age groups. Thus, in younger groups, the consumption of sweets predominates, while in the elderly an increase in plant-based consumption is observed (Figure 9).

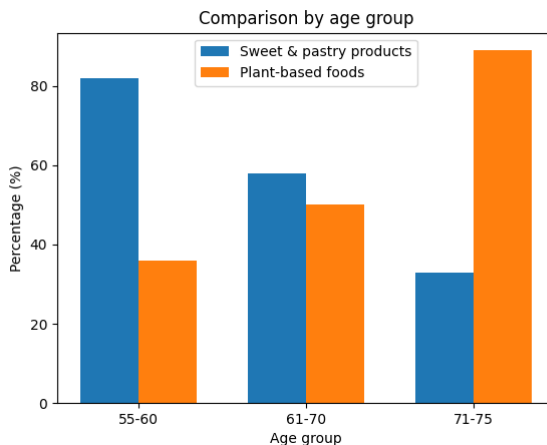


Fig. 9. Comparison by age group between consumption of sweets, pastries and plant products

Depending on the educational level, a clear trend is observed of reducing the consumption of sweets and increasing the consumption of plant-based products (fresh fruits, vegetables) with increasing educational level (Figure 10).

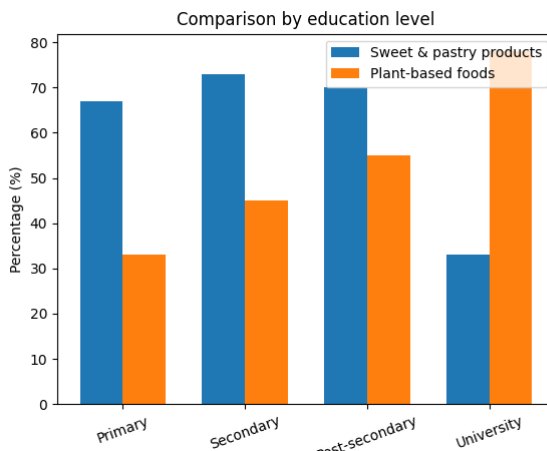


Fig. 10. Comparison by education level between consumption of sweets, pastries and plant products

Overall, the results reveal the interdependence between diet, lifestyle and oral health, underlining the need to implement oral prevention campaigns based on nutritional education and promotion of fruit and vegetable consumption.

The results of the study highlight an increased consumption of sweet products in all age groups, with maximum values in patients between 55–60 years. These data are consistent with the literature, which indicates that the intake of fermentable sugars is a major factor in the etiology of dental caries [Moynihan and Kelly, 2021].

Recent studies confirm the protective role of diets rich in fruits and vegetables on oral health [Petersen and Ogawa, 2021].

Fruit and vegetable consumption was more frequent in patients with higher educational level, suggesting an association between education and healthy eating behaviors.

Education level is a predictor of achieving recommended consumption levels for fruits and vegetables, people with secondary or higher education being more likely to achieve this than those without formal education [Aafke and Inge, 2020].

Smoking and alcohol consumption were common among patients with low educational level, being correlated with poor oral hygiene and late presentation to the dentist. These behaviors are recognized as major risk factors for oral diseases [Peres et al., 2020].

Also, most patients stated that they only present to the dentist in emergency situations, which reflects a low level of information on the importance of prevention, consistent with data from the specialized literature.

These results highlight the interdependence between diet, lifestyle and oral health, emphasizing the need to implement prevention programs based on nutritional and behavioral education for oral health.

CONCLUSIONS

Frequent consumption of sweets and pastries is a major risk factor for oral health.

Fruits and vegetables are associated with healthy eating behaviors and better oral status.

Lifestyle factors, such as smoking, alcohol consumption, and poor oral hygiene, contribute significantly to the deterioration of oral health.

Adopting a balanced diet and a healthy lifestyle is an essential component in preventing oral diseases

REFERENCES

1. **Aafke N., Inge D.B., 2020** - *Fruits and vegetables consumption in low- and middle-income countries. A comprehensive review of fruits and vegetables intake and determinants using a food systems approach*. Division of Human Nutrition and Health, Wageningen University & Research Wageningen, The Netherlands. RESEARCH PROGRAM ON Agriculture for Nutrition and Health. Led by IFPRI
2. **Moynihan P., Kelly S., 2021** - *Dietary sugars and dental caries: update evidence*. Journal of Dental Research, vol. 100(10), pp. 1099–1107.

3. **Peres M.A., Macpherson L.M.D., Weyant R.J., Daly B., Venturelli R., Mathur M.R.,..., Watt R.G., 2020** - *Oral diseases: a global public health challenge*. The Lancet, vol. 394, pp. 249–260.
4. **Petersen P.E., Ogawa H., 2021** - *Prevention of dental caries through dietary control*. Community Dentistry and Oral Epidemiology, vol. 49(3), pp. 193–200.
5. **Shailesh M.G., Amol R.G., Rima S.G., Sachin C.S., Gargi S.S., Shankargouda P., Kamran H.A., 2019** - *Nutrition and oral health*. Dis Mon, vol. 65(6), pp. 147-154.
6. **Sheiham A., James W.P.T., 2020** – *Diet and dental caries: revisiting the evidence*. Journal of Dental Research, vol. 99(10), pp. 1100–1107.
7. **Skoczek-Rubińska A., Bajerska J., Menclewicz K., 2018** - *Effects of fruit and vegetables intake in periodontal diseases: A systematic review*. Dent Med Probl. vol. 55(4), pp. 431–439.