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Do We Use Fluoride Toothpaste? A Survey in Two European Countries

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Aim: To assess the toothpaste type and fluoride concentration used by Latvian and Lithuanian families with children. Methods: A cross-sectional study was conducted between December 2018 and May 2020. The sample consisted of 385 families in each country, selected through stratified cluster sampling, with schools as the smallest sampling unit. A validated questionnaire collected demographic information and toothpaste details for all family members. Ethics approval was obtained from the respective ethics committees. Descriptive statistics were calculated, and data visualisation was performed using the R programming language and TidyverseTM package. Results: Questionnaires were completed by 1,309 families (557 families from Latvia and 752 families from Lithuania), which included 5,436 family members (2,294 from Latvia and 3,142 from Lithuania). Analysis revealed that 814 (15%) of individuals used fluoride-free toothpaste, and 674 (12%) used toothpaste with suboptimal fluoride concentration (<1000ppmF) (343 (15%) in Latvia, 331 (11%) in Lithuania, p<0.001). Preschool children showed a higher prevalence of use of toothpaste with no or suboptimal fluoride (96 (57%) in Latvia, 92 (47%) in Lithuania, p<0.001), often marketed as "Children's toothpaste", which was more prevalent in Latvia (n=451; 20%) than in Lithuania (n=232; 7.4%; p<0.001). The study identified 113 different toothpaste brands in Latvia and 116 in Lithuania; 55 (47%) of brands in Lithuania and 46 (41%) in Latvia included at least one fluoride-free toothpaste type, with 37 (32%) in Lithuania and 31 (28%) in Latvia having fluoride-free options. Conclusions: One-third of families in Latvia , a quarter in Lithuania, and half of the preschool children in both countries used no or low fluoride concentration toothpaste. This emphasises the need for targeted oral health education on promoting the use of toothpaste with optimal fluoride concentration among families. By raising awareness about the preventive and therapeutic benefits of appropriate toothpaste use, the incidence of dental caries can be effectively reduced, leading to improved oral health outcomes in these populations.

Keywords: Toothpaste, Fluoride concentration, Cross-sectional study, Dental caries, Latvia, Lithuania.

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Periodontal Status and Oral Health Related Behaviour in Latvian Adolescents, 2023

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Aims: To assess the periodontal status of 12- and 15-year-old children in Latvia.

Methods: This cross-sectional, nationally representative study of 12 – 15-year-old Latvian children took place between September 2022 and May 2023. It involved multi-stage cluster sampling of 1600 pupils each from sixth and ninth grades in general education schools, excluding special needs institutions. Ten calibrated dentists (kappa >0.7) performed a periodontal examination and assessed Basic Periodontal Examination (BPE) and visible plaque scores. Demographic information and oral health-related habits were recorded. Descriptive data analysis was performed. Ethics approval for the study was given by Riga Stradins University's Research Ethics Committee.

Results: The study involved 3,129 children (response rate 60%), with 1,557 aged 12 and 1,572 aged 15 years , 48% female and 52% male. The BPE periodontal assessment showed that 857 (27.4%) of the children had healthy a periodontium (28.0% in 12-year-olds and 26.0%in- 15-year-olds) and 2269 (72.5%) showed signs of gingivitis. Bleeding gingiva were found in 1171 (37.4%) and supragingival calculus in 1098 (35.1%). Only 3 (0.04%) of children showed signs of periodontitis with pockets 4-5 mm in 2 and pockets ≥ 6 mm in one. Less than half (37.9%) of the 12-year-olds 51.3% of the 15-year-olds) reported brushing their teeth twice daily; 46.5% of children had visible plaque (49.8% of 12-tear-olds and 41.5% of 15-year-olds); smoking was rare in 12-year olds (0.9%), but more prevalent in 15-year olds (12.4%; $p<0.001$).

Conclusions: The concerningly high prevalence of periodontal symptoms, together with disease-related oral health behaviour in 12 and 15-year-old children in Latvia, indicates that preventive measures and oral health education initiatives must begin at an early stage. New strategies are urgently needed ,through collaboration between oral health professionals, schools, parents, public authorities and policymakers.

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Keywords: Basic periodontal examination, Adolescents, Epidemiology, Latvia

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Caries Prevalence and Severity in 12 and 15-Year-Old Latvian Children in 2023

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Aims: To assess the prevalence and severity of dental caries among Latvia's 12- and 15-year-old children, using a national representative sample to provide epidemiological data to inform and enhance national oral health policies.

Methods: This cross-sectional, nationally representative study of 12 – 15-year-old Latvian children took place between September 2022 and May 2023. It involved multi-stage cluster sampling of 1600 pupils each from sixth and ninth grades in general education schools, excluding special needs institutions. Ten calibrated dentists (kappa 0.674-0.799 for enamel caries scores) conducted dental examinations, employing merged ICDAS criteria. In addition, demographic information such as gender, age, and residential location (city/region) was registered. The primary outcomes were the prevalence and severity of dental caries. Data analysed using R programming language. Descriptive statistics were employed to provide a basic understanding of the data. Generalised regression models were used to understand regional differences, adjusted for gender to ensure valid comparisons. Ethics approval for the study was given by Riga Stradins University's Research Ethics Committee.

Results: The study included 3,129 children, with 1,557 aged 12 and 1,572 aged 15, comprising 1,506 females (48%) and 1,623 males (52%). The response rate was 60%. The overall caries prevalence was 89.7% (D1MFT), 74.9% (D3MFT), and 66.0% (D5MFT). Prevalence was higher in 15-year-olds (93.3% D1MFT, 83.5% D3MFT, 76.3% D5MFT) than 12-year-olds (86.1% D1MFT, 66.3% D3MFT, 55.6% D5MFT). Latgale and Zemgale regions had the highest prevalence (94.6% and 94.8% D1MFT) and severity (9.8 and 9.2 D1MFT), differing significantly from Rīga ($p<0.001$). Children living outside Riga and the region around the capital had significantly higher caries severity ($p<0.001$).

Conclusions: In the population studied the high prevalence and severity of dental caries is concerning. These results highlight Latvia's pressing need for improved oral health policies and interventions, especially in regions outside the capital.

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Keywords: Caries prevalence; Epidemiology; Latvia; Oral health

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