

ORAL HYGIENE HABITS AMONG THE STUDENTS OF THE UNIVERSITY OF NIŠ IN SOUTHERN SERBIA – A PILOT STUDY

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Oral hygiene is one of the most important factors which affects the status of general health in all patients. These factors may affect the individual's oral hygiene habits: age, gender, education, level of awareness and socioeconomic status. Oral hygiene habits among the students who live in southern Serbia have been rarely investigated. The aim of this study was to investigate oral hygiene habits among the students of the University of Niš, southern Serbia.

The study involved 249 students (53.83% male and 46.17% female), and each participant completed the study questionnaire.

Average age of the participants was 21.67 ± 2.00 years. The prevalence expressed in percentages was as follows: 100% used toothbrush and toothpaste for oral hygiene, 77.51% used dental flossing, 40.96% used mouthrinse solutions, 63.45% brushed their teeth twice per day, 69.88% used combined toothbrush movements, 20.88% used vertical toothbrush movements, 9.24% used horizontal toothbrush movements and 54.62% changed their toothbrushes every 3 months. A significantly high percent (92.37%) of students used chewing gum and 59.84% consumed sweets every day, but a significantly low percent of students were active smokers (17.67%), former smokers (11.24%) and drugs users (13.65%). The percentage of nail biters among the students was 41.31%.

The study may highlight the interactions between oral hygiene and related habits. Further research is needed to develop good oral hygiene skills for achieving and maintaining good oral and dental health.

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Key words: oral hygiene habits, oral health, students

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Introduction

Oral hygiene is one of the most important factors which affect the general health. Consequently, it is important to estimate the factors of influence on oral hygiene habits and to improve preventive strategies. Hygiene behavior models have usually been considered as a part of general health behavior models (1). Health behavior, as defined by Steptoe et al. (1994) (2), involves „the activities undertaken by people in order to protect,

promote or maintain health, and to prevent disease“.

The factors that may have influence on individual and community health behavior are knowledge, beliefs, values, attitudes, skills, finance, materials, time and influence of family members, friends, co-workers, opinion leaders and even health workers themselves (3). Therefore, studies have used health behavior models to explain the indicators and development of hygiene behavior models (4–6). Unsurprisingly, since hygiene behavior models are very different from other health behavior models such as dietary behavior models, current health behavior models fail to explain and predict hygiene behavior models (7, 8). Personal oral hygiene is often considered as an essential factor in the control of chronic periodontal disease (9).

Maintaining good oral hygiene can prevent periodontal disease and tooth decay, which may contribute to different serious conditions, including heart disease, diabetes, respiratory diseases, and premature and low weight babies. Poor oral hygiene can also affect the ability to chew and digest food properly, that can result in digestive disorders and bad breath (halitosis).

It is considered that a proper toothbrush technique is the main prerequisite for maintaining good oral hygiene, and additional tools in that regard are toothpaste, dental floss, interdental stimulator, toothpicks, mouthrinse solutions etc.

Personal factors may affect an individual's oral hygiene practices, such as age, gender, education, level of awareness and socioeconomic status. It has been accepted that there is an association between higher socioeconomic status and lower risk of unhealthy oral health related behavior models (10).

Certain groups of people are more receptive to information and instruction of oral hygiene habits than others. Students with a developing awareness of themselves and interests in their general appearance and wellbeing are expected to be very receptive and that they possess excellent oral hygiene practices. Healthy lifestyle habits are fundamental to public health (11).

Oral hygiene habits among the students living in southern Serbia have not been sufficiently investigated. The knowledge about oral hygiene behavior models could improve preventive procedures.

Aim

The aim of the current study was to estimate oral hygiene habits among the students of University of Niš, southern Serbia.

Material and methodology

The study involved 249 students, and each participant completed the study questionnaire. The examination was performed by the same investigator (Appendix). The questionnaire had been structured to obtain the information about age, gender, oral hygiene habits (using additional instruments for oral hygiene, toothbrush movements, toothbrush replacement frequency, consumption of sweets, using of chewing gum, bad habits like nail biting, cigarette smoking or drug abuse among the students). The study was approved by the institutional Ethics Committee Faculty of Medicine, University of Niš (No. 01-3565-3). The procedures had been designed to protect the students' privacy and to allow anonymous participation.

Continuous (measurable) data were expressed as mean value \pm standard deviation (mean \pm sd). Discontinuous (attribute) data were presented as frequencies and percentages.

Results

The study involved 249 students (53.83% male and 46.17% female). The average age of the participants was 21.67 ± 2.00 years and all of them used toothbrush and toothpaste for oral hygiene. The percentage of students who used additional instruments for oral hygiene (dental floss) was 77.51%, and that was a significantly higher per-

centage of participants ($p < 0.001$). A significantly lower number of participants, 102 (40.96%), used mouthrinse solutions ($p < 0.01$) (Table 1).

Table 1. Usage of additional instruments for oral hygiene

| | | |
|--|-----|----------|
| Use additional instruments for Oral hygiene (dental floss) | 193 | (77.51%) |
| Used mouthrinse solution | 102 | (40.96%) |

Most of the participants brushed their teeth twice per day (63.45%); that was a significantly higher percentage than that of participants who brushed their teeth once or three times per day ($p < 0.001$) (Table 2).

Table 2. Movements for brushing teeth

| Brushed their teeth per day | | |
|-----------------------------|-----|-----------|
| 1 | 17 | (6.83%) |
| 2 | 158 | (63.45%) |
| 3 | 74 | (29.72%) |
| Total | 249 | (100.00%) |

There was a significantly higher number of participants (174, i.e. 69.88%) who used combined toothbrush movements, than those who used only vertical (52, i.e. 20.88%) and only horizontal (23, i.e. 9.24%) toothbrush movements ($p < 0.001$) (Table 3).

Table 3. Distribution of toothbrush movements in participants

| Toothbrush movements | | |
|----------------------|-----|---------|
| Vertical | 52 | 20.88% |
| Horizontal | 23 | 9.24% |
| Combined | 174 | 69.88% |
| Total | 249 | 100.00% |

Most of the participants (136, i.e. 54.62%) replaced their toothbrushes every 3 months and that number was significantly higher than the number of those who replaced toothbrushes every 6 months, 1 year or longer ($p < 0.001$) (Table 4).

Table 4. The percentage of replacement toothbrush period in participants

| Replacement toothbrush period | | |
|-------------------------------|-----|---------|
| Every 3 months | 136 | 54.62% |
| 6 meseci | 99 | 39.76% |
| 1 godina | 12 | 4.82% |
| Duže | 2 | 0.80% |
| Total | 249 | 100.00% |

The percentage of participants who consumed sweets every day was 59.84% and that was a significantly higher percentage than that for occasional consumption and avoidance of sweets altogether ($p < 0.001$) (Table 5).

Table 5. The percentage of sweets consumption in participants

| Sweets consumption | | |
|------------------------|-----|-----------|
| Everyday consumption | 149 | (59.84%) |
| Occasional consumption | 93 | (37.35%) |
| Avoiding of sweets | 7 | (2.81%) |
| Total | 249 | (100.00%) |

There was a low number of active and former smokers and those who used drugs ($p < 0.001$), and the percentage of nail biters among the students was 41.31% ($p < 0.01$). A significantly high number of participants used chewing gum (230, i.e. 92.37%) ($p < 0.001$) (Table 6).

Table 6. The percentage of habits in the participants

| | | |
|-------------------|-----|----------|
| Active smoker | 44 | (17.67%) |
| Former smoker | 28 | (11.24%) |
| Drugs users | 34 | (13.65%) |
| Nail biters | 103 | (41.37%) |
| Chewing gum users | 230 | (92.37%) |

Discussion

Previous studies (12–17) showed that health behavior models of students are associated with factors such as gender, age, oral health knowledge and attitudes, parental income and educational background, ethnic group and environment. In developed and even more in developing countries, physical activity, tobacco and alcohol use, general hygiene habits and diets are the major risk factors for chronic disease (18) and may also be linked to oral health (19–21). The American Dental Association advised that teeth should be brushed at least twice a day (22) and dental floss should be used at least once a day (23).

In the present study, the percentage of participants who brushed their teeth twice per day was 63.45%, while in a study (24) among Italian students, 92% of them brushed their teeth at least twice per day. In Sweden, around 85% of 20-25-years-old Swedes brushed their teeth once or twice per day (25). In Kuwait, 34% of health sciences college students brushed their teeth twice or more per day (26). The percentage of Turkish students who brushed their teeth twice or more per day was 67.6% (27). According to a study by Khami, 93% of Iranian dental students brushed their teeth at least once per day and 57% at least twice per day (28). In a study (29) among Iranian students, 69.9% of them brushed their teeth once or twice per day, 28.6% brushed their teeth three or more times per day and 1.5% never brushed their teeth. In India, among dental students in Namakkal (30), 66% of examinees brushed their teeth twice per day.

In our study, 77.51% of students used dental floss. In other studies the rate of dental flossing was 14.9% in Italy (24), 7% in Sweden (25), 28% in the United Kingdom (31) and 3% in Turkey (27), which was a significantly lower per-

centage than in our examination. Kawamura showed that the use of dental floss is not common among Japanese students (32). According to a study by Khami, 52% of Iranian dental students used dental floss at least once per day (28). It is established that toothbrushing was not enough for the removal of dental plaque and daily use of dental floss was thus suggested (33).

The percentage of students who used mouthrinse solutions was 40.96%, and that was a higher percentage than in an Iranian study (29), where 21.4% of students used mouthwashes and in an Italian study where only 12.8% of students used mouthwash solutions (24).

In this study, the majority of participants, 54.62%, replaced their toothbrushes every 3 months, and that was the recommendation by toothbrush manufacturers or by their dentist. In the study by Kirtiloglu (27), 49% of subjects and in the study by Rimondini (24) 81.6% of subjects replaced their toothbrushes every 3 months. About 33.9% of Iranian students (29) replaced their toothbrushes every 3 months.

Smoking affects the whole oral and systemic health (34). In the present study, the rate of smokers was 17.67%. In accordance with this, in our study, the rate was lower than both general university students rate (42.5% – 49.4%) and population smoking rate (33.4%) (35, 36).

Incorporating oral health promotion into general health promotion is becoming increasingly important, and as an integrated approach it is likely to be more cost-effective than the programs targeting single diseases (37). According to the study by Mizutani et al. (38) indicating that higher self-efficacy in university students correlates with better oral health behaviors and gingival health, enhancing self-efficacy may be a useful approach to prevent gingivitis in university students.

Conclusion

The study of oral hygiene habits serves the public oral health needs. Implementation of successful oral hygiene promotion programs depends on the prevalence of such oral hygiene behavior models, as well as on understanding of their determinants. The study may highlight the interactions between oral hygiene related habits. The information about the patterns of oral hygiene related habits can provide important data for the adjustment of oral health education in the context of oral health promotion programs. Further research is needed to improve good oral hygiene skills in achieving and maintaining good oral health.

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Conflict of interest

The authors declare that they have no conflict of interest.

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NAVIKE U ODRŽAVANJU ORALNE HIGIJENE KOD STUDENATA UNIVERZITETA U NIŠU U JUŽNOJ SRBIJI: PILOT STUDIJA

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Oralna higijena je jedan od najvažnijih faktora koji utiče na opšte zdravstveno stanje kod pacijenata. Sledeći faktori mogu uticati na navike u održavanju oralne higijene pojedinca: starost, pol, obrazovanje, nivo svesti i socioekonomski status. Oralno-higijenske navike među studentima koji žive na jugu Srbije retko su istraživani.

Cilj ove studije bio je istražiti oralno-higijenske navike među studentima Univerziteta u Nišu na jugu Srbije.

U studiju je uključeno 249 studenata (53,83% muškaraca i 46,17% žena), a svaki učesnik je popunio upitnik.

Prosečna starost učesnika bila je 21,67±2,00 godina. Prevalencija izražena u procentima bila je sledeća: 100% učesnika koristi četkicu za zube i zubnu pastu za oralnu higijenu; 77,51% koristi zubni konac; 40,96% koristi vodicu za ispiranje usta; 63,45% pere zube dva puta dnevno; 69,88% koristi kombinovane pokrete pranja zuba; 20,88% koristi vertikalne pokrete prilikom pranja zuba, dok 9,24% koristi horizontalne pokrete prilikom pranja zuba. Četkicu za zube menja 54,62% učesnika na svaka tri meseca. Značajno visok procenat (92,37%) učenika koristio je žvakaće gume i 59,84% konzumira sokove svakog dana, ali značajno nizak procenat učesnika su aktivni pušači (17,67%), nekadašnji pušači (11,24%) i korisnici droge (13,65%). Procenat studenata koji gricka nokte iznosio je 41,31%.

Ova studija može ukazati na interakcije između oralne higijene i navika u vezi sa tim. Potrebno je dalje istraživanje kako bi se razvile dobre oralne higijenske veštine za postizanje i održavanje oralne i zubne zdravstvene zaštite.

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Ključne reči: *oralno-higijenske navike, oralno zdravlje, studenti*