



Invited lecture/Scientific contribution

# Assessment of Oral Health Status among Medical Students in Georgia

Samkharadze Sophio<sup>1\*</sup>, Zurmukhtashvili Marika<sup>1</sup>, Kokhraidze Eka<sup>1,2</sup>, Kharashvili Elene<sup>1</sup>, Beriashvili Sesili<sup>1</sup>

<sup>1</sup> European University, Tbilisi, Georgia

<sup>2</sup> National Centre for Tuberculosis and Lung diseases (NCTLD), Tbilisi, Georgia

\* Correspondence: Sophio Samkharadze; [sopho.samkharadze@eu.edu.ge](mailto:sopho.samkharadze@eu.edu.ge)

**Citation:** Samkharadze S, Zurmukhtashvili M, Kokhraidze E, Kharashvili E, Beriashvili S. Assessment of Oral Health Status among Medical Students in Georgia. Proceedings of Socratic Lectures. 2023, 8; 23-27. <https://doi.org/10.55295/PSL.2023.II4>

**Publisher's Note:** UL ZF stays neutral with regard to jurisdictional claims in published maps and institutional affiliations.



**Copyright:** © 2023 by the authors. Submitted for possible open access publication under the terms and conditions of the Creative Commons Attribution (CC BY) license (<https://creativecommons.org/licenses/by/4.0/>).

## Abstract:

Oral health is considered as important part of general health. Dental caries and periodontal diseases are among most prevalent diseases worldwide. According to WHO oral diseases affect nearly 3.5 billion people and untreated dental caries is the most common health condition. Young adults may neglect oral health. The aim of our study was to evaluate oral health status (dental caries and periodontal diseases) among medical students at European University affiliated dental clinics in Georgia. Simple random sampling method was used. Assessment was conducted using modified WHO Oral Health Assessment Form (2013). Study sample were medical undergraduate students aged between 17 and 25 years at the European University - affiliated dental clinics, Tbilisi, Georgia. Level of dental caries was evaluated by assessment of decayed, missing, and filled teeth scores (DMFT index), while periodontal status was assessed using Community Periodontal Index (CPI) modified index. Statistical analysis of data was performed.

**Results:** Totally 225 students (150 males and 75 females) originally from Georgia, Jordan, Iran, Egypt, Great Britain and Sweden were included in the study. Mean age of participants was 20.7 years. Mean DMFT score in males was 3.11 and in females it was 3.25; overall mean DMFT was 3.18. Percentage of all individuals in two groups with dental caries (DFT ≥ 1) was 84%. Mean CPI index was 0.82 in males and 0.75 in females. Mean DMFT were compared to National estimates for DMFT index for same age group in developed countries.

**Conclusion:** Study showed medium prevalence of caries and low prevalence of periodontal diseases in participant students.

**Keywords:** Oral health, DMFT index, CPI index



## 1. Introduction

Oral health is considered an important part of general health. Dental caries and periodontal diseases are among the most prevalent diseases worldwide. According to WHO, oral diseases affect nearly 3.5 billion people and untreated dental caries is the most common health condition (WHO, 2022). As a result of studies conducted between 1990 and 2010, untreated dental caries is the most common disease among 291 diseases (Marcenes et al., 2013). The global burden of oral diseases is similar to that of non-communicable diseases such as cardiovascular disease, schizophrenia and/or hemolytic anemia. According to epidemiological data, the prevalence of caries has decreased over the past four decades, but mainly in high-income countries, with the most significant decrease observed in children aged 12 years (Frencken et al., 2017). Another 2019 study revealed that the prevalence of dental diseases is much higher than expected, and the prevalence of caries in children is 79.1% (Ballouk and Dashash, 2019).

It is also estimated that 5-20% of the world's population has gum disease (Petersen and Ogawa, 2012). According to the Global Burden of Disease study, acute periodontitis was the 11th most common disease worldwide (GBD, 2017). Periodontal diseases affect 20 to 50% of the world's population (Sanzet al., 2010). This is one of the main causes of tooth loss which negatively affects chewing function, aesthetics, self-confidence and quality of life (Tonetti et al., 2017). In the period from 1990 to 2010 morbidity increased by 57.3%. The highest incidence rate of chronic periodontitis was observed in the elderly population (82%), followed by adults (73%) and finally adolescents (59%) (Tadjoedin et al., 2017).

In young adults oral health can be neglected. Adolescence and young adulthood is considered as a period of life when individual oral health behaviors are internalized and formed as habits (Stokes et al., 2006). Therefore, individuals from this age group may be subjected to greater risk for development of dental diseases during a period when they are just establishing oral care habits (Coolidge et al., 2009). Study by Skaret E et al. (1999) demonstrated that individuals who avoid regular dental visits have significantly more caries compared to their peers. In particular 16.4% of those who failed to visit the dentist had decayed, missing, and filled teeth (DMFT) scores more than one standard deviation above the mean for the same age group (Skaret et al., 1999). The aim of our study was to evaluate oral health status (dental caries and periodontal diseases) among medical students at European University affiliated dental clinics in Georgia.

## 2. Materials and methods

Study sample were medical undergraduate students of the Medical Faculty, European University, Tbilisi, Georgia. Male and female individuals aged between 17 and 25 years with different nationalities were included in the study. For population surveys WHO recommends to evaluate 12, 15 and 35-44 years age groups. But since the aim of our study was to evaluate the oral health condition of undergraduate students, a relevant age group between 17-25 years was selected. Simple random sampling method was used. Evaluation process was conducted at two dental clinics in Tbilisi, Georgia, which are affiliated to European University. Data collection was performed during 3 weeks in October and November 2022. Assessment was conducted using modified WHO Oral Health Assessment Form (2013) and following protocols recommended by WHO for oral health surveys (WHO, 2013). Level of dental caries was evaluated using decayed, missing, and filled teeth scores (DMFT index), while periodontal status was assessed using CPI modified index. The examination for dental caries was performed with a plane mouth mirror. Permanent dentition status was recorded in Oral Health Assessment Form using numbered scores. Decayed, Missing and Filled Teeth Index (DMFT) was calculated using the recorded data. The level of caries experience in the permanent dentition was evaluated according to the WHO severity criteria (Petersen, 2003) (Table 1).



**Table 1.** Level of caries experience in the permanent dentition according to the WHO severity criteria

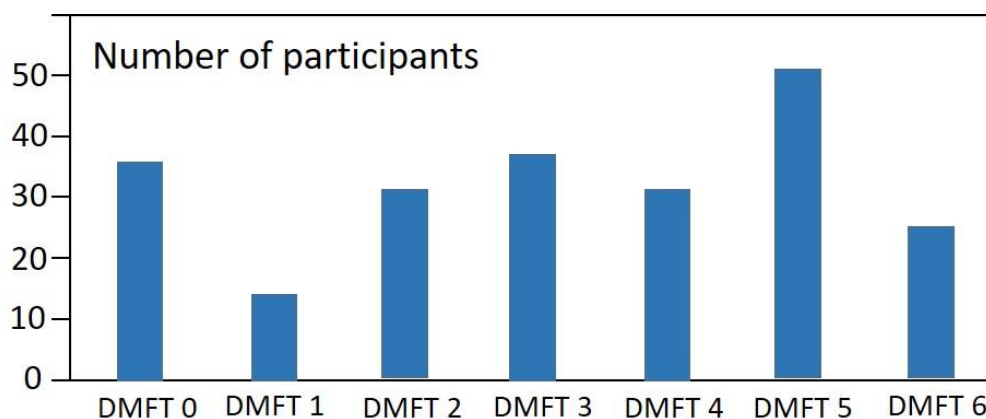
| Severity  | Children 12 years of age | Adults 35–44 years of age |
|-----------|--------------------------|---------------------------|
| Very low  | < 1.2                    | < 5.0                     |
| Low       | 1.2 – 2.6                | 5.0 – 8.9                 |
| Moderate  | 2.7 – 4.4                | 9.0 – 13.9                |
| High      | 4.5 – 6.5                | > 13.9                    |
| Very high | > 6.5                    |                           |

The periodontal status was evaluated using a modified Community Periodontal Index (CPI). For evaluation a special periodontal probe with 0.5 mm ball tip is used which has black band markers at 3.5, 5.5, 8.5 and 11.5 mm. Totally 10 teeth in each individual were assessed i.e. 17, 16, 11, 26, 27, 37, 36, 31, 46 and 47 and following clinical parameters has been checked: gingival bleeding, supra- and subgingival calculus, periodontal pockets with probing depths between 3.5–6.0 mm, as well as clinical attachment loss. Data were recorded in the same Oral Health Assessment Form.

The research project was approved by the Ethics and Research Committee of the Faculty of Medicine of European University. All participants were previously informed about the study, informed consent from each participant has been obtained and the confidentiality of the information provided was guaranteed.

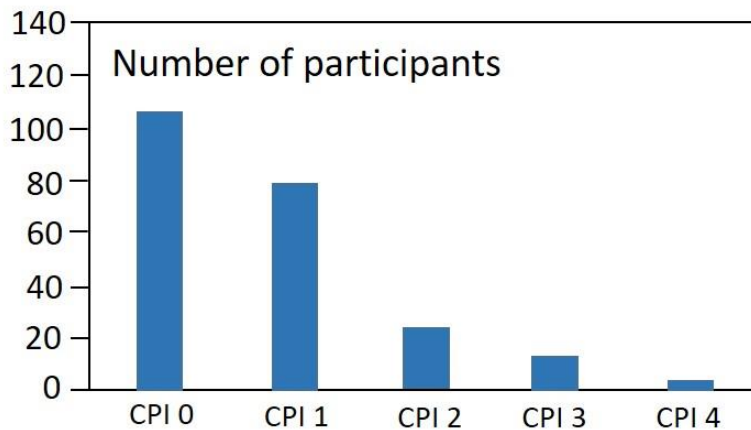
### 3. Results

A total of 225 students aged 17 to 25 years participated in present study. Mean age of participants was 20.7 years. Majority of examined individuals were males - 66.67%; From total number of participants 26% were originally from Georgia, 35.77% - from Jordan, 17.78%- from Iran, 11.56% - from Egypt, 6.67 % - from Great Britain and 2.22% - from Sweden. As a reference, the mean values between 12 years group and 35-44 years' group as given in **Table 1** were considered for our study age group. Accordingly, DMFT: very low < 3.1, low 3.1 – 5.75, moderate 5.75 - 9.15, high – more than 9.15. Distribution of participants (males and females) over the DMFT values is presented in **Figure 1**.



**Figure 1.** Distribution of participants according to DMFT values

Majority (80%) of participants had very low or low severity of caries. Mean DMFT scores in males was 3.11 and in females- 3.25; Overall mean DMFT in two gender groups was 3.18. Percentage of all individuals in two groups with dental caries (DFT  $\geq$  1) was 84%. Mean CPI index was 0.82 in males and 0.75 in females respectively. The mean CPI index for both groups was 0.79. Distribution of participants (males and females) according to CPI values is presented in **Figure 2**



**Figure 2.** Distribution of participants according to CPI values

#### 4. Discussion

Despite the measures taken in recent years, oral and dental health in some special groups of population can be alarming. From this point of view the oral health condition in undergraduate students' social group can be of great interest for scientists and dental professionals. In recent years there are some surveys done for different groups of Georgian population but our study was the first in recent years to evaluate the undergraduate student groups including foreign students. In this study we have assessed the oral health status of undergraduate medical students in Tbilisi. Our study demonstrated that DMFT index values for male as well as for female participants can be described as "low", while another study in children in Georgia by Vashakidze and Jikia (2021) demonstrated high and very high intensity of caries in children in Georgia. In terms of prevalence, our results were consistent with the results of research by Vashakidze and Jikia (2021). Both studies demonstrated high prevalence of caries in children (98.8%) as well as in students (84%). We have compared the mean DMFT value to National estimates for the DMFT index for the same age group in developed countries. In Germany, the mean DMFT index for the age group 15 years was 1.4, in the UK – 2.05 and in Sweden – 2.19. The DMFT index demonstrated in our study is still higher than in developed countries. Oral and dental health can be improved by influencing and enhancing behavioral habits specially for individual oral hygiene, by improving socioeconomic status and by increasing individual access to health insurance. During our research we have not assessed oral hygiene and also have not evaluated participants' oral hygiene knowledge and habits. The lack of this information can be considered as a limitation of our study. Further research is needed to perform statistical analysis of data and comparison between different groups.

**Conflicts of Interest:** The authors declare no conflict of interest.

**References:**

1. Ballouk MA, Dashash M. Caries prevalence and dental health of 8-12 year-old children in Damascus city in Syria during the Syrian Crisis; a cross-sectional epidemiological oral health survey. *BMC Oral Health*. 2019; 19: 16. DOI: 10.1186/s12903-019-0713-9
2. Coolidge T, Heima M, Johnson EK, Weinstein P. The Dental Neglect Scale in adolescents. *BMC Oral Health*. 2009; 9: 2. DOI:10.1186/1472-6831-9-2
3. GBD 2017 Disease and Injury Incidence and Prevalence Collaborators. Global, regional, and national incidence, prevalence, and years lived with disability for 354 diseases and injuries for 195 countries and territories, 1990-2017: a systematic analysis for the Global Burden of Disease Study 2017 [published correction appears in *Lancet*. 2019 Jun 22; 393: e44]. *Lancet*. 2018; 392: 1789-1858. DOI:10.1016/S0140-6736(18)32279-7
4. Frencken JE, Sharma P, Stenhouse L, Green D, Laverty D, Dietrich T. Global epidemiology of dental caries and severe periodontitis - a comprehensive review. *J Clin Periodontol*. 2017; 44 Suppl 18:S94-S105. DOI:10.1111/jcpe.12677
5. Marcenes W, Kassebaum NJ, Bernabé E, et al. Global burden of oral conditions in 1990-2010: a systematic analysis. *J Dent Res*. 2013; 92: 592-597. DOI:10.1177/0022034513490168
7. Petersen PE. The World Oral Health Report 2003: continuous improvement of oral health in the 21st century--the approach of the WHO Global Oral Health Programme. *Community Dent Oral Epidemiol*. 2003; 31 Suppl 1: 3-23. DOI: 10.1046/j.2003.com122.x
8. Petersen PE, Ogawa H. The global burden of periodontal disease: towards integration with chronic disease prevention and control. *Periodontol 2000*. 2012; 60: 15-39. DOI: 10.1111/j.1600-0757.2011.00425.x
9. Sanz M, D'Aiuto F, Deanfield J, Fernandez-Aviles F. European workshop in periodontal health and cardiovascular disease-scientific evidence on the association between periodontal and cardiovascular disease: a review of the literature. *Eur Heart J Supplements*. 2010; 12: 3-12. DOI: <https://doi.org/10.1093/eurheartj/suq003>
10. Skaret E, Raadal M, Berg E, Kvale G. Dental anxiety and dental avoidance among 12 to 18 year olds in Norway. *Eur J Oral Sci*. 1999; 107: 422-428. DOI: 10.1046/j.0909-8836.1999.eos107602.x
11. Stokes E, Ashcroft A, Platt MJ. Determining Liverpool adolescents' beliefs and attitudes in relation to oral health. *Health Educ Res*. 2006; 21: 192-205. DOI:10.1093/her/cyh055
12. Tadjoeidin FM, Fitri AH, Kuswandani SO, Sulijaya B, Soeroro Y. The correlation between age and periodontal diseases. *Journal of International Dental and Medical Research*. 2017; 10: 327-332.
13. Tonetti MS, Jepsen S, Jin L, Otomo-Corgel J. Impact of the global burden of periodontal diseases on health, nutrition and wellbeing of mankind: A call for global action. *J Clin Periodontol*. 2017; 44: 456-462. DOI: 10.1111/jcpe.12732
14. Vashakidze N, Jikia M. Assessment of oral health conditions in children with different social status in Georgia. *Ind J Appl Research* 2021; 11(12). DOI : 10.36106/ijar/5415289
15. World Health Organization . Oral health surveys: basic methods – 5th ed. Publication 12 November 2013. Accessed 08.10.2022. Available from: <https://www.who.int/publications/i/item/9789240061484>  
DOI : 10.36106/ijar/5415289