

Self-assessment of the Oral Health of Adults in Slovenia in 2019

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Abstract

Introduction: Self-assessment of oral health is a subjective but important indicator of an individual's oral health. The aim of the study was to determine the level of self-assessed oral health in Slovenia. **Methods:** The »National Oral Health Survey of Adults in Slovenia in 2019« was conducted on a sample of 3,200 adult residents of Slovenia aged between 18 and 74 years. Participants received an invitation to participate in the online survey by post, and a written questionnaire was enclosed with the notification letter for people over 44 years of age. The self-assessment of oral health was evaluated using the question: »How do you rate your oral health?«, possible answers were: »Very good«, »Good«, »Fair«, »Poor«, »Very poor«. The extreme categories were combined for the statistical analysis. The data were analysed according to demographic data. We tested the distributions of proportions between different groups (by gender, age, education and living environment) using the chi-square test and the Column Comparison Proportion (CCP) test to compare proportions between different groups. **Results:** 60% of respondents rated their oral health positively, 12% of whom rated it as »very good«. 8% of respondents rated their oral health as »poor« or »very poor«. 62% of women rated their oral health positively, compared to 57% of men. Conversely, the proportion of those who rated their oral health negatively was higher among men than women (10% compared to 6%); the difference is statistically significant (CCP test, $p=0.021$). The proportion of people who rated their oral health negatively was lowest among adults with the highest level of education (8% of adults with at least primary education, 10% of adults with secondary education and 4% of adults with at least tertiary education). **Discussion and conclusions:** Self-assessed oral health is related to socioeconomic factors such as gender, education and living environment. The level of oral health of Slovenian adults, based on self-assessment, is not high. A significant

proportion of adults in Slovenia rate their oral health negatively, which is a major problem. Given the observed prevalence of negative self-assessment of oral health, it can be estimated that in addition to the more than 117,000 people who rate their oral health negatively, there are also more than 480,000 who rate their oral health as »fair«. It can be assumed that they occasionally have problems with their oral health. The proportion of people who rate their oral health negatively is higher among men, people over the age of 44, people with a lower level of education (mainly primary education) and people living in rural areas. These groups can be considered particularly vulnerable in terms of oral health. Adequate oral health care plays a key role in maintaining and strengthening oral health. Inadequate frequency of tooth brushing and irregular visits to the dentist lead to the development of oral diseases, pain, discomfort and ultimately tooth loss with all its consequences. These are also the groups on which preventive measures should be focused in the future.

Keywords: oral health, oral health self-assessment, dental health surveys, oral hygiene, oral health care

Introduction

Oral health is an integral part of general health and has a significant impact on an individual's quality of life. The World Health Organization (WHO) defines oral health as the state of the mouth, teeth and orofacial structures that enables individuals to perform essential functions such as eating, breathing and speaking, and encompasses psychosocial dimensions such as self-confidence, well-being and the ability to socialise and work without pain, discomfort and embarrassment (WHO, 2024). This definition indirectly reflects the broader definition of health, which includes physical, mental and social well-being. The understanding and approach to oral health has evolved over time. In the past, oral health was seen as a separate and independent aspect from general health, with diseases of the oral cavity primarily associated with impaired chewing function. Today, however, oral health is seen as an inseparable part of general health, with the psychological and social dimension increasingly recognised.

Individuals assess their health on the basis of their culture, their perception of health, but also on the basis of their experiences, expectations and the environment in which they live and work (Jylhä, 2009). Although self-rated health is essentially a subjective judgement, research shows that it also reflects objective health status, making it a very suitable indicator for measuring health at a global level (Wu et al., 2003). In addition, this indicator serves as a good predictor of future health outcomes and hospitalisations in patients with heart failure (Benyamini et al., 2004; Farkas et al., 2009). Self-assessment of oral health is a similar indicator that focuses on and summarises a person's subjective level of oral health. It has an independent effect from the self-assessment of general health, and both self-assessments independently influence

a person's life satisfaction and self-esteem (Benyamini et al., 2004). The data show that the self-assessment of oral health reflects the clinical condition of the oral cavity. Known clinical factors related to oral cavity diseases (such as the DMFT index or orthodontic irregularities) influence the self-assessment of oral health. In addition, self-assessment is also associated with more subjective phenomena such as temporomandibular joint problems (Kojima et al., 2013).

By using the self-assessment of oral health indicator, epidemiological research can easily obtain data on the level of oral health in the population. This enables the adaptation of existing or the development of new public health measures targeting the most disadvantaged population groups. In addition, such an indicator can serve as a benchmark for population-level interventions and for monitoring treatment outcomes (Lawal, 2015).

Methods

In 2019, we conducted a nationwide study on the oral health of adults based on a representative sample stratified by gender and age. The sample, consisting of around 3,200 adults aged 19 to 74 years, was compiled by the Statistical Office of the Republic of Slovenia (SURS) using simple random sampling from the Central Population Register. The study was designed as a cross-sectional study and used the EGOHID questionnaire, which contained both demographic information and a self-assessment of oral health. The adults included in the study received an invitation to participate in the survey at a home address with a password to access the online questionnaire. For participants over the age of 44, a written questionnaire was enclosed with the notification letter. The survey took place in spring 2019 and participants received a further postal reminder during the survey period.

Participants were asked: »How do you rate your oral health?« and could choose between the following answers: »Very good«, »Good«, »Fair«, »Poor« or »Very poor«. Due to the relatively low proportion of people in the worst category, we summarised the categories based on the respondents' self-assessed values in order to achieve a clearer presentation.

The data were weighted according to gender, age and education. Statistical analysis using the computer software »IBM SPSS Statistics for Windows«, version 21.0 (IBM, 2020), allowed us to analyse the baseline data on the prevalence of the different oral health assessments across socioeconomic and demographic indicators. We tested the distributions of proportions between different groups (by gender, age, education and living environment) using the chi-square (χ^2) test and the Column Comparison Proportion (CCP) test to compare proportions between different groups. A confidence interval of 95% was used in both cases.

Results

The final sample of respondents who answered the question on self-rated oral health was N=1153, with women slightly outnumbering men (56% vs. 44%). The proportion of adults aged 18 to 74 who rated their oral health positively was 59.8%, while the proportion of people who rated their oral health as poor was 7.8% (Figure 1). This means that more than 117,000 Slovenians had problems with their oral health.

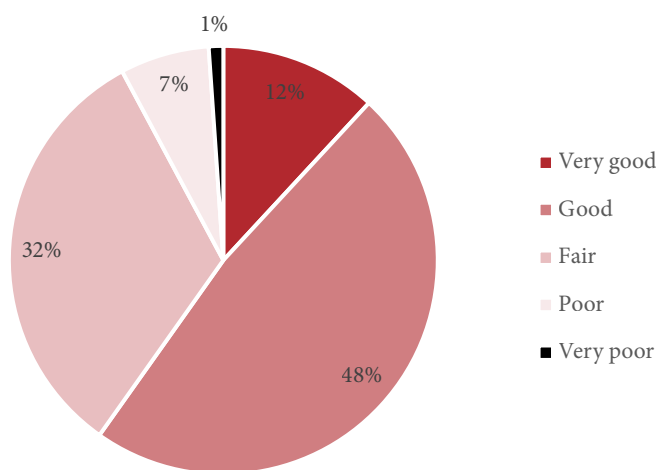


Figure 1: Proportion of adults aged 18–74 years by self-rated oral health.

The self-assessment of oral health was better among women: the proportion of women who rated their oral health positively (very good and good) was 62.4%, compared to 57.4% of men. Among women, 31.9% rated their oral health as moderate and 5.7% as poor or very poor. Among men, 32.8% rated their oral health as moderate, and 9.8% as poor or very poor. The difference in the proportion of poorly rated oral health by gender was statistically significant (CCP test, $p=0.021$).

As far as age is concerned, the positive self-assessment of oral health decreases with increasing age. The proportion of people who rated their oral health as good or very good was highest in the youngest group (18–24 years) at 69.1% and gradually decreased to 49.9% in the 65–74 age group. The difference between younger (18–34 years) and older (55–74 years) age groups was statistically significant (χ^2 test=25.64, $p=0.01$; CCP test, $p<0.001$). It is noteworthy that the proportion of those who rated their oral health as moderate increased with age (Figure 2).

The self-assessment of oral health also varied depending on the level of education. For people with a basic level of education, the proportion of people who self-rated their oral health as good was 49.8%, compared to 71.0% for people with at least a higher level of education. The differences between the groups were statistically significant (χ^2 test=21.41, $p=0.001$, test CCP, $p<0.001$).

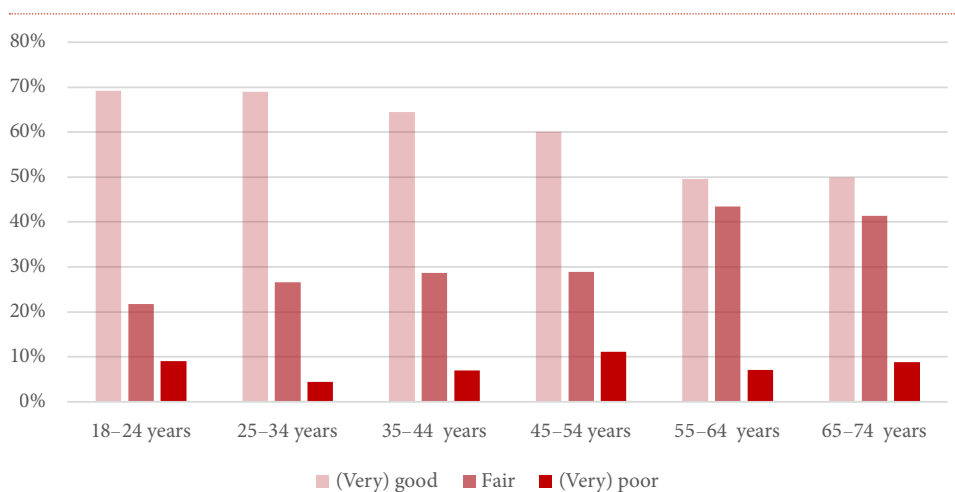


Figure 2: Proportion of adults aged 18–74 years by self-rated oral health by age.

As the level of education increased, the proportion of people who rated their oral health as moderate gradually decreased (Figure 3), compared with 4% in the group of people with tertiary education; the difference was statistically significant (test CCP, $p=0.007$).



Figure 3: Proportion of adults aged 18–74 years by self-rated oral health by education level.

Residents in urban environments rated their oral health positively in 67.4% of cases, while this proportion was 63.1% in suburban areas and 52.8% in rural environments. The differences were statistically significant (χ^2 test=19.48, $p=0.001$). Conversely, the proportion of people with poor self-rated oral health was highest in rural environments (10.4%), followed by suburban environments (7.7%) and lowest in urban environments (4.5%).

Discussion

The collected results show that the level of oral health as determined by the residents through self-assessment is not high. A significant proportion of the Slovenian population rated their oral health as poor or very poor. This trend was more pronounced among men, older people, people with a lower level of education and people living in rural environments. Interestingly, this is consistent with the findings on general self-rated health, which suggest a link between general health behaviours and self-perceived oral health (Vinko, 2018). Maintaining and improving oral health is closely linked to individual care practises. Regular tooth brushing, at least twice a day with a toothpaste containing the recommended fluoride concentration (1450 ppm), plays a crucial role in maintaining oral health (Ranfl et al., 2015).

The Scandinavian countries, which traditionally place great emphasis on good oral health, report a relatively high prevalence of a positive self-assessment of oral health. In a Swedish study of adults aged 16–74 years, the prevalence of good self-rated oral health was 75%, with self-rated oral health in younger respondents being similar to our study, but significantly better in older groups (Molarius et al., 2014). Among older adults (65–74 years) in Brazil, the prevalence of poor self-rated oral health (moderate, poor, very poor) was 46.6%, slightly lower than in Slovenia. In another Brazilian study of adults aged 20–59 years, the prevalence of poor oral health (moderate, poor, very poor) was 33.2%, which is better than the results of the study of older adults and similar to our results (Luchi et al., 2013). It is noteworthy that in this study, the proportion of poor self-assessment increased with age, with higher rates observed in women (Luchi et al., 2013). The results showed that self-rated oral health in younger and middle-aged groups is comparable to that of other countries, but is worse in older adults.

On the one hand, self-assessment of oral health is a summarising measure that provides information on how patients perceive their oral health and its overall level. At the same time, however, these results also reveal existing inequalities in oral health. Despite the numerous determinants that influence oral health, we cannot ignore the importance of personal care, adequate tooth brushing and (preventive) check-ups. Proper self-care plays a crucial role in maintaining oral health. Irregular or inadequate tooth brushing leads to dental caries and inflammation of the periodontal tissues, causing pain, discomfort and difficulty eating, communicating and participating in social activities. Untreated conditions can eventually lead to tooth loss, further complicating daily life. These problems have a direct impact on the functions that make up oral health. Individuals with problems require a certain level of dental care, which may vary geographically or financially. Given the link between self-assessment of oral health and clinical indicators, it makes sense to include self-assessment in the design and planning of health programmes (Atala-Acevedo et al., 2023). Monitoring oral health through self-assessment can also serve as a measure of

access to dental care, while trends over time allow an assessment of the effectiveness of interventions to improve and strengthen oral health.

Conclusions

As the results on self-rated oral health show, there are some particularly vulnerable groups: Men, older people, people with a lower level of education and people from rural environments as well as people with a lower socioeconomic status. This fact should be taken into account when developing and designing materials to promote oral health in the future. Existing materials and activities should be adapted accordingly in order to achieve greater success with the target groups.

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