https://doi.org/10.26493/978-961-293-397-5.49-56

Oral Health-related Quality of Life in the Adult Population of Slovenia in 2019

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Abstract

Introduction: Problems with the oral cavity and/or teeth cause pain, discomfort and functional limitations of the oral cavity and/or teeth and affect quality of life. Oral health-related quality of life (OHRQoL) can assess the impact of oral health on a person's life, self-image, social interactions and work performance. *Methods:* As part of the »National Oral Health Survey of Adults in Slovenia in 2019«, indicators of OHRQoL were monitored using a questionnaire among 3,200 adults in Slovenia aged 18 to 74 years. Participants received an invitation to the online survey by post, and a written questionnaire was included in the notification letter for people over 44 years of age. The OHRQoL questions related to the frequency of eating difficulties, feelings of tension due to oral and/or dental problems, problems performing daily tasks, dental pain, painful gums/mouth sore and limitations in social interactions due to the appearance of teeth. The results were analysed using demographic data. The chi-square (χ^2) test and the CCP test were used to statistically analyse the differences between the categories. *Results:* 31.9% of adults occasionally or more often experienced a decrease in OHRQoL due to one or more limitations caused by oral and/or dental problems. Occasionally or more often, 27% of adults reported painful gums/mouth sore, 20% had difficulty eating and 19% felt tense due to oral and/or dental problems. 10% reported difficulties performing daily tasks and 12% reported dental pain; no differences were found between men and women. Adults over 54 years of age were more likely to have difficulties eating than younger people (χ^2 test=22.434, $p<0.001$). A higher proportion of adults with less education reported limitations due to problems with the oral cavity and/or teeth. Difficulty eating was reported by 27% of adults with primary, 20% with secondary and 13% with at least tertiary education (χ^2 test=11.388, $p=0.003$). 12% of adults with primary and secondary education and 6% with at least tertiary

education reported difficulties performing daily tasks (χ^2 test=6.491, p=0.039), and dental pain was reported by 19% of adults with primary, 13% with secondary and 9% with at least tertiary education (χ^2 test=6.491, p=0.039). Similar differences in educational status were also found for limitations in social interactions due to dental appearance. *Discussion and conclusions:* OHRQoL is related to socioeconomic factors such as age and education, but not to gender. The proportion of people who rate their OHRQoL more negatively is higher among those over 44 years of age and those with less education. The differences in OHRQoL indicate that older people and people with less education are more at risk. Understanding the socioeconomic characteristics of populations with poorer OHRQoL is crucial for appropriate public health approaches to improve the oral health of the adult population in Slovenia.

Keywords: *quality of life, oral health, oral health care*

Introduction

Modern evidence-based references consider oral health as an integral part of general health. With their chewing, phonation and aesthetic functions, teeth contribute significantly to a better quality of life and social interaction, and their functional impairment has an impact on general health (WHO, 2003; Ranfl et al., 2017; Baiju et al., 2017; Sischo and Broder, 2011). Oral health is therefore not only the absence of disease in the oral cavity, but also enables individuals to carry out everyday activities and thus participate in interpersonal relationships (Baiju et al., 2017).

Various oral health conditions represent a major public health problem due to their prevalence and their social, economic and psychological consequences at individual and societal levels (Baiju et al., 2017; Johansson and Osterberg, 2015). These conditions cause pain and limitations in everyday tasks such as chewing, speaking and laughing, thus reducing the individual's quality of life (Paredes-Rodriguez et al., 2016).

In 1988, Locker introduced the oral health-related quality of life (OHRQoL) model, which led to the patient's perspective being incorporated into treatment (Locker, 1988). This is important because the biomedical view of health has also been developed into a biopsychosocial model in the field of oral health. OHRQoL is a concept that can be used to assess the impact of oral health on a person's daily life, i.e. self-image, social interactions, educational and occupational performance, and more (Sischo and Broder, 2011). The assessment of OHRQoL varies throughout a person's life and depends on several factors: Functional ability (chewing, speech), pain and discomfort (acute pain, chronic pain), psychological factors (satisfaction with appearance, self-image), and social factors (interpersonal relationships, communication) (Bennadi et al., 2013). People generally understand their health in a broader sense and not just as the presence or absence of disease.

The subjective assessment of OHRQoL is also important because it affects the actions individuals take with regard to their health, which in turn is reflected in their health status. Finally, the assessment of OHRQoL is also important with regard to inequalities in access to dental care (Sischo et al., 2011). Research on OHRQoL is important to identify groups at increased risk of poor oral health (Kragt et al., 2016).

Methods

The data were collected as part of the cross-sectional survey »National Oral Health Survey of Adults in Slovenia in 2019«. A representative sample of 3,200 adults aged 18 to 74 years was included. The survey was conducted using the EGOHID questionnaire. 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.

The data collected in the survey were analysed in »Microsoft Excel 2016«. The data were weighted by gender, age and education, taking into account age groups of one year. The weighted data per sample and population were analysed using the computer software »IBM SPSS Statistics for Windows«, version 21.0 (IBM, 2020).

The OHRQoL questionnaire contained nine questions on the frequency of dental problems when eating, the frequency of difficulties in performing daily tasks, the frequency of dental pain, the frequency of painful gums/mouth sore and the frequency of avoiding conversations, the frequency of avoiding social activities and the frequency of embarrassment about the appearance of teeth. Respondents could choose between five response options on a 5-point Likert scale (never, almost never, occasionally, often, very often). We defined occasionally, often and very often as the most frequent occurrence of limitations. Only people who answered all 6 questions on quality of life were included in the further analysis.

The interpretation of the results is based on the number and percentage of people in the selected categories according to demographic variables such as gender, age, education and living environment. The distributions of proportions between different categories were tested using the chi-square (χ^2) test and the CCP test (Column Comparison Proportion test) to compare the proportions between different groups.

Results

After the exclusion factor, which was taken into account in the further data analysis, the final sample size was 1,164 people. There were slightly more men (50.9%), and the age group with the most participants was between 35 and 54

years old (40.3%). Most participants had at least a secondary education (58.7%) and came from urban (35.1%) and rural (42.2%) living environment.

Most of the participants had no limitations. 31.9% of adults experienced occasionally or more often impairment of OHRQoL due to at least one limitation caused by dental problems. There were differences in the prevalence of specific limitations, with the most common limitations being painful gums/mouth sore (26.9%), 19.5% had difficulty eating and 19.1% felt tense due to oral and/or dental problems. 10% reported difficulty performing daily tasks and 12.7% reported dental pain. We also found differences in the prevalence of limitations in social interactions due to the appearance of teeth: 13.2% reported that they avoided smiling or laughing, 9.1% reported that they felt embarrassed about the appearance of their teeth (or dentures), and about 5% reported that they avoided conversations or social activities due to the appearance of their teeth. The detailed data are shown in Table 1.

Table 1: Prevalence of certain limitations that occurred occasionally or more often (N=1,164).

	Participants with occasional or more often limitations	
	(N)	*(%)*
Painful gums/mouth sore	287	26.9
Difficulty eating	220	19.5
Felt tense	206	19.1
Difficulty performing daily tasks	106	10.0
Dental pain	143	12.7
Avoiding smiling/laughing	151	13.2
Avoiding conversations	56	5.0
Avoiding social activities	52	4.7
Felt embarrassed	102	9.1

We found no differences between men and women who occasionally or more often experienced limitations in their daily lives due to oral and/or dental problems. However, a slightly higher proportion of women reported feeling embarrassed occasionally or more often about the appearance of their teeth (or dentures) (women 4%, men 2%; CCP test, p=0.042).

Regarding age, the frequency of limitations in daily life due to oral and/or dental problems increased with age. The proportion of people with more frequent limitations in daily life was highest in the 55–74 age group, then gradually decreased and was lowest in the 18–34 age group, as shown in Figure 1. In contrast, no differences were found in the avoidance of social interactions due to the appearance of the teeth in relation to the age of the participants.

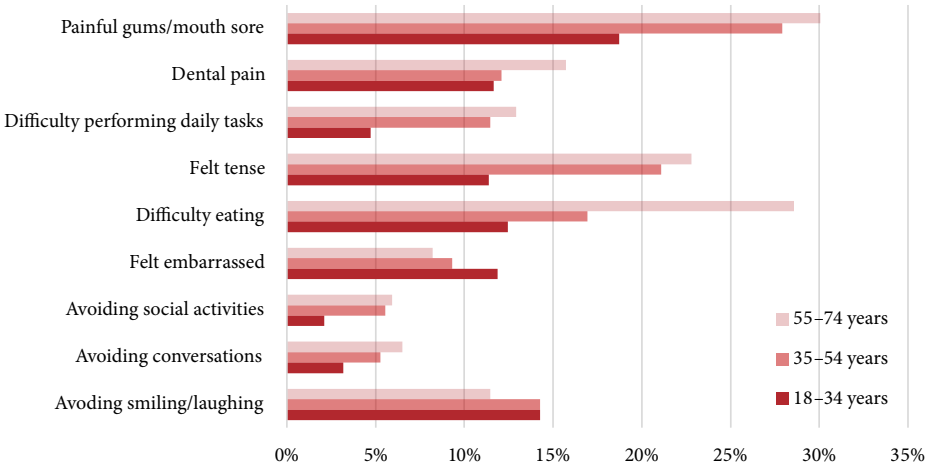

Figure 1: Proportion of adults aged 18–74 years who were occasionally or more often limited in their daily lives due to oral and/or dental problems, by age.

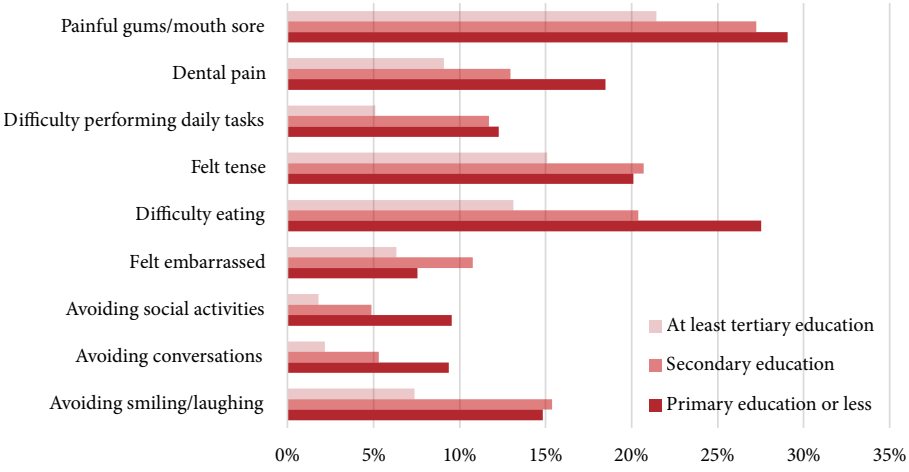

Figure 2: Proportion of adults aged 18–74 years who were occasionally or more often limited in their daily lives due to oral and/or dental problems, by education.

A higher proportion of adults with lower levels of education reported being occasionally or more often limited in their daily lives by oral and/or dental problems (Figure 2), with statistically significant differences by education level only for the following statements: difficulty eating (χ^2 test=11.388, p=0.003); difficulty performing daily tasks (χ^2 test=8.251, p=0.016); and dental pain (χ^2 test=6.491, p=0.039). Similarly, adults with a higher level of education (at least upper secondary school) were less likely to report problems in social interactions than adults with a lower level of education (primary school or less). Thus, there were statistically significant differences between the proportions

of adults who reported occasionally or more often avoiding smiling or laughing (χ^2 test=9.416, p=0.009), avoiding conversation (χ^2 test=8.877, p=0.012) and avoiding social activities (χ^2 test=10.773, p=0.01), while there were no statistically significant differences in whether they felt embarrassed about the appearance of their teeth (or dentures).

The survey also analysed differences in OHRQoL by living environment. The highest proportion of adults from rural areas compared to urban and suburban areas reported occasional or more often limitations in daily life due to oral and/or dental problems, but only for difficulty eating (urban 17%, suburban 15%, rural 23%), and dental pain (urban 8%, suburban 14%, rural 15%). We found no differences in the frequency of avoidance of social interactions among adults by living environment.

Discussion

The results of the present survey show that almost one third of the adult population in Slovenia occasionally or more often experiences a reduction in quality of life due to oral and/or dental problems or avoids social contact because of these problems. A higher proportion of older people, people with lower levels of education and people from rural areas experience some limitations in their daily lives due to oral and/or dental problems, indicating inequalities in OHRQoL according to the socioeconomic status of adults.

In our study, we found no differences in daily life limitations due to oral and/or dental problems according to gender, which is consistent with the results of a study conducted in Brazil, which also showed no influence of gender on oral health-related quality of life (Zucoloto et al., 2016).

In addition to education, age is most strongly associated with differences in OHRQoL in adults. Our results are consistent with a study conducted in Brazil on the impact of OHRQoL, which showed that, in addition to pain and the presence of a chronic disease, age also has an impact on oral health-related quality of life (Zucoloto et al., 2016). On the other hand, the results of a national survey in the United States did not show a linear relationship between age and oral health-related quality of life, but adults aged 50–64 years reported the worst oral health-related quality of life (Rozier and Pahel, 2008).

Differences in the experience of limitations in daily life due to oral and/or dental problems according to educational level were also confirmed in a study of a North American sample: 62% of adults with primary education reported poor or average oral health-related quality of life, compared with 28% of adults with at least secondary education (Rozier and Pahel, 2008).

Some of the differences in oral health-related quality of life suggest that older people and those with less education are more at risk. We believe that it is worthwhile to increase oral health promotion activities in order to reduce the differences in the prevalence of oral health-related limitations in daily life in the Slovenian adult population.

Conclusions

Oral health is an integral part of general health and has a major impact on quality of life. Almost one third of adults in Slovenia have occasional or more often limitations in daily life and occasionally or more often avoid social activities due to oral health problems. The OHRQoL is lower among older adults, adults with less education and people living in rural areas. Public dental health interventions should include oral health promotion activities for these vulnerable adults.

Acknowledgements

The research was supported by the Slovenian Research Agency (research core funding No. P3-0429, Slovenian Research Programme for Comprehensive Cancer Control SLORApro and No. V3-1715, Analysis of Oral Health Indicators and Oral Health Promotion of Slovene Population).

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