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The Impact of Dental Pathology on the Quality of Life of Patients

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Annotation: Patients in need of dental treatment due to the poor condition of the organs and tissues of the mouth had a lower level of quality of life, such indicators as “physical pain”, “functional limitation”, “physical limitation” had the greatest impact on the quality of life of dental patients. The quality of life of patients is affected by such dental pathology as dental anomalies, periodontal disease, defects in the dentition, especially the frontal group, as well as the loss of stabilization and retention of removable dentures after orthopedic treatment.

Keywords: quality of life, dental pathology.

The World Health Organization defines the quality of life of patients as "the perception by individuals of their position in life in the context of the culture and value systems in which they live, and in accordance with their own goals, expectations, standards and concerns" [8, 13, 22, 23, 50]. The study of the quality of life of people has now become an important component of various sociological medical studies [12]. The quality of life is perceived by each individual quite subjectively, while the ability of people to perceive their quality of life can vary widely depending on the political, social and cultural situation in the country [32, 38]. The same trend can be noted in people's perception of their general state of health, since it is influenced by the individual characteristics of the body and the characteristics of the community in which they are located [33, 38]. In medicine, quality of life is understood as "the totality of physical, psychological, emotional, and social functioning of a person based on his subjective perception" [48]. Quality of life is a multifaceted concept that can be influenced by a large number of factors, and one of these factors is the state of health of organs and tissues of the mouth [60].

Dental health affects both the physical and psychological state of a person, as well as his social well-being. Dental diseases affect the general health of a person, causing significant pain and suffering, changing well-being, diet, speech, i.e. affecting his personal quality of life [5, 17, 25, 26]. Dental pathology always causes disorders in the structural, functional and aesthetic optimum of a person not only in the maxillofacial area, but also in other body systems; In addition, it causes serious psychosocial deviations, which, of course, affects the quality of life of patients [3, 28]. The health of the organs and tissues of the mouth in the elderly is traditionally assessed using a clinical picture, such as tooth loss. However, this traditional approach does not always take into account the impact of oral organ and tissue health problems on human life, psychological and social well-being [44, 53]. Without successful organizational and financial resources, it is almost impossible to achieve success in ensuring the preservation of teeth to a ripe old age, which is an indicator of a high quality of life for both an individual and society as a whole [2].

Oral Health-Related Quality Of Life (OHRQoL) is a multidimensional concept of the impact of dental diseases on human life, well-being, and quality of life [46, 47]. It can be defined as the absence of a negative impact of dental pathology on social life and a positive sense of self-confidence [60]. "Almost all OHRQoL indicators are based on D. Locker's concept of the impact of diseases of oral organs and tissues, which, in turn, was based on the WHO health model. This model presents five consequences of diseases of oral organs and tissues: functional limitation, pain/discomfort, damage, disability and physical disability. Also, this model assumes that these parameters in the disease are gradually concentrated, combined with each other, aggravating the general condition of a person" [47].

The association between clinical outcomes and quality of life in older adults with dental pathology has not been fully elucidated. OHRQoL is known to be associated with regular dental visits,

socioeconomic status, as well as a person's subjective chewing function. The presence of more intact teeth has the most justified effect on OHRQoL, while the data on the impact of a different number of decayed teeth on the quality of life of the elderly are quite variable and contradictory [29, 35, 53]. It is possible to consider various prosthetic structures used to replace defects in the dentition as one of the components of oral organ and tissue health in the elderly [29, 59]. The quality of life in elderly people using removable dentures is affected by: functional state and poor fixation of dentures, satisfaction with existing dentures, the presence of pain and mucous membrane lesions, xerostomia, halitosis [42, 62, 63].

Socioeconomic and demographic indicators affect quality of life related to dental health, with a direct link between a person's social status and OHRQoL in older adults. For example, people with a low level of education note a significant impact of pathology of the organs and tissues of the mouth on their usual daily life [37, 53]. In addition, people with a low socioeconomic status usually have poor oral organs and tissues, as determined by various clinical and subjective indicators [34, 39, 61].

The main reasons for the difference in relation to diseases of organs and tissues of the mouth, as well as in the field of general human health, are associated with systematic social shortcomings and differentiated access to health care in different social circles [39, 45]. Family life also affects a person's health and is closely related to the mental state. So, married people have lower levels of anxiety, depression, psychological stress than single people. Married older adults report a greater impact of oral organ and tissue health on their quality of life than lonely older adults [60]. The association between oral organ and tissue health problems and socioeconomic and geographical inequalities suggests that negative factors affecting the individual are associated with less favorable health of oral organs and tissues [32, 38]. A study of the dental health of 1516 citizens from gerontological institutions of social protection showed that the majority of respondents assess the state of their health as good and satisfactory, while every fourth (25.3%) assessed the state of their health as poor [24]. Dental diseases sharply reduce the quality of life of elderly citizens, so for 66.3% of respondents living in social protection institutions, the poor condition of organs and tissues of the mouth caused psychological discomfort [38, 43].

Since 1990, a sufficient number of different methods of evaluating OHRQoL have appeared, which have been ratified and are widely used today. The most common types of questionnaires are: GOHAI, OHIP14, OHIP49, OHIP-EDENT. All these questionnaires use various social, physical, and psychological aspects to assess the condition and impact of healthy organs and tissues of the mouth on the patient's quality of life [55, 57, 58].

Of the variety of questionnaires offered, the OHIP questionnaire is the most widely used to assess the quality of life in the daily activities of dental patients [27, 29, 31, 44, 52]. In 1994, G.D. Slade et al. presented the OHIP-49 questionnaire containing six conceptually formulated dimensions (functional limitation, physical pain, physical disability, psychological discomfort, psychological disability, and physical disability) based on a theoretical model of oral organ and tissue health [58]. This questionnaire has been widely recognized and turned out to be quite reliable and reliable, but it is somewhat limited in clinical trials, clinical practice, and various examinations due to the large number of questions [13, 30, 51]. In geriatric practice, shorter questionnaires are significantly more advantageous in assessing the quality of life associated with the health of organs and tissues of the mouth when choosing measurement parameters [40]. The criteria for assessing the quality of life of this questionnaire allow not only to study the dental quality of life of patients for scientific purposes, but also to apply the results of research when planning the work of dental organizations, as well as to use them in the daily work of a dentist [11]. It is advisable to further improve this questionnaire in order to create formulas for assessing the quality of life of dental patients that are convenient for daily clinical appointments, there is a need to find additional criteria that identify correlations between clinical and subjective indicators of quality of life [14].

According to V.D. Wagner et al. (2013), "in order to identify persons who need more attention from a dentist, it is advisable to determine the quality of life of dental patients even before treatment. The

lower the quality of life is observed in patients, the more attentive the doctor's attitude should be. If it is impossible to determine the quality of life, then among the patients seeking aesthetic dental treatment, the most attentive attitude of the doctor should be in relation to the following groups of people: people aged 41-50 years, divorced, having aesthetic defects localized on the anterior teeth of the upper jaw, as well as those patients who have at least one tooth extracted or have fixed prosthetic structures. These types of treatment can improve the quality of life to the greatest extent" [13]. V. Sáez-Prado et al. (2016) used the OHIP-14 questionnaire to assess the impact of the dental condition of patients on the quality of life during the examination of 202 people (103 men, 99 women) aged 65 to 88 years. "We conducted a survey of patients and assessed the condition of the organs and tissues of the mouth, the average total value was revealed, which was 8.88 points. It has been established that such indicators as hygienic status and tooth loss have a negative impact on the general health and quality of life of the elderly" [54].

M. Masood et al. (2017) conducted a study of quality of life related to the health of organs and tissues of the mouth in 1277 people over 65 years of age based on a questionnaire using the OHIP-14 questionnaire. "The parameters for assessing the dental status were: the number of missing teeth, toothache, root caries, the presence of an active carious process, tooth abrasion, the presence of periodontal pockets (more than 4 mm deep), loss of attachment (more than 9 mm), the presence of severely destroyed teeth (with visible involvement of the tooth pulp), as well as the wearing of dentures. An increase in the scores of the questionnaire was associated with an active carious process, the presence of decayed teeth, toothache and wearing dentures. Wearing a denture was the factor that patients rated their quality of life worse, and this was due to the quality of workmanship, poor retention, maladaptation, and loss of stabilization of dentures" [47].

At present, there is an increased interest in the problem of quality of life associated with the quality of dental orthopedic treatment [5, 15, 16, 20, 21]. M. Motallebnejad et al. (2015) studied the quality of life in 300 elderly patients (183 men and 117 women) according to the OHIP-14 questionnaire, with an average age of 71.4±5.6 years. "Patients used 139 full removable dentures for complete loss of teeth, 41 patients had partial removable dentures for partial loss of teeth, 36 had conditionally removable dentures, After a clinical examination, it was found that 128 (90.8%) people needed periodontal treatment, 55 (39%) needed endodontic treatment, 60 (42.6%) needed surgical treatment, and 107 (75.9%) needed orthopedic treatment. In 142 patients, complete absence of teeth was revealed and only 3 patients did not use any prosthetic constructions. On the OHIP-14 scale, the average total value was 22.4±8.2 points, the best indicators were registered in terms of psychological discomfort. The mean total OHIP-14 value in respondents with prosthetic appliances was significantly lower than in patients without orthopedic rehabilitation. Patients with partial missing teeth had higher scores than patients with no teeth at all. Examined patients requiring dental treatment due to poor oral organs and tissues had a lower level of quality of life" [49].

C. Perea et al. (2013) evaluated the impact of dental health on quality of life among patients using removable dentures with complete tooth loss. "The study included 51 patients aged 50 to 90 years who had at least one full denture, with an average time of 15.5±13.1 years of wearing these prostheses. According to the results of the study, the level of influence of the dental condition of patients on the quality of life was 23.5%, and the total average OHIP-14 score was 19±9.8. It was revealed that such indicators as "physical pain" (discomfort when using a prosthesis - 11.8%), "functional limitation" (problems with pronunciation of words - 11.8%, change in taste - 15.7%), "physical limitation" (eating disorders - 7.9%, unsatisfactory nutrition - 7.8%) had the greatest impact on the quality of life. Other OHIP-14 measures found only minor effects on quality of life, although higher totals were found in patients who had been using removable dentures for less than 5 years, which was explained by the need for psychological adaptation to their wearing of a full denture. High rates were also noted in patients who used mandibular prostheses, while patients complained of difficulties in holding it in the mouth when chewing and talking and low stability of the prosthesis" [51].

Loss of stabilization and retention of removable dentures causes functional limitations and discomfort, which is the main cause of dissatisfaction with prosthetic structures and adversely affects the quality of

life of patients related to dental health [31, 41, 55]. Therefore, identifying which pathologies of the organs and tissues of the mouth have the greatest impact on the general condition can improve the prevention and treatment of patients [47].

The study by E.V. Vedeneva (2010) "involved 284 people with an average age of 37 years, including 146 men and 138 women. Patients' quality of life was assessed using a specialized OHIP-14 dental questionnaire and administered prior to the start of the study and 6 months after treatment. In all patients, the preservation of masticatory and speech functions was noted. The effect of aesthetic defects in patients on quality of life depending on age was studied. In patients aged 21-30 years and 31-40 years, a satisfactory quality of life was noted. But patients aged 41-50 years have a significantly worse quality of life, almost 1.2 times compared to the previous groups. Patients who applied for aesthetic dental treatment objectively did not have impaired chewing and speech function, so the identified deterioration in the quality of life is psychological. Patients with aesthetic dental defects localized to the upper jaw have the worst quality of life. Patients whose defect is located in the area of the anterior teeth (incisors and canines) also belonged to the group with the worst quality of life. The localization of the aesthetic dental defect on the anterior teeth of the upper jaw is 1.4 times worse, and on the entire upper jaw – 1.2 times worse than in patients with the localization of the defect on the lower jaw. 6 months after aesthetic treatment, the patients' overall quality of life improved by 2.3 times" [7].

Also, periodontal diseases have a more negative impact on the quality of life of dental patients. The overall score above 30 points in patients with severe periodontal disease was 6.7 times ($p<0.001$), and the average score was 2.2 times higher ($p<0.05$) than in patients with caries [19]. As noted by C.D. Faria (2011), "in patients with severe periodontal disease, emotional reactions of 2 points or more occurred 1.8 times ($p<0.05$) more often than in caries. In patients with periodontal disease, in comparison with patients with caries, the indicators of "sleep" and "social isolation" in relation to the score of more than 2 points were noted in 9.3 ($p<0.001$) and 2.6 ($p<0.01$), respectively, the average score was 3.2 ($p<0.001$) and 2.1 ($p<0.05$) times, respectively. In 14.5% of patients with high intensity of caries, motor activity was characterized by 8 points, the same assessment was observed in 27.03% of patients with severe periodontitis ($p<0.05$)". Thus, periodontal disease had a more negative impact on the quality of life [36].

The influence of dental status and the importance of aesthetics in self-perception and relationships in society have a significant impact on the level of quality of life of students. The high prevalence of dentofacial anomalies (83.12%) and the need for their treatment dictate the need to improve prevention programs and therapeutic measures among students. The assessment of the quality of life of students using the OHIP-14 questionnaire allows us to determine priorities, improve doctor-patient interaction and assess the patient's response to the treatment [1].

The correlations between the health of organs and tissues of the mouth and quality of life, as well as body mass index, were analyzed. Logistic regression analysis showed that underweight (BMI<20) correlated with dental caries and dentition defects. The overall health of oral organs and tissues in older adults in southwest China was poor. Periodontitis and dentition defects have a significant negative impact on the quality of life among this population group [56]. A number of studies have convincingly proven that timely and effective reconstructive therapy of affected teeth using modern restoration technologies and materials, focused on a long-term aesthetic and functional result, can provide a high quality of treatment, objectively ascertained by the doctor and subjectively interpreted by the patient in the exact criteria of quality of life [4, 9, 10, 18].

Thus, the quality of life related to the health of oral organs and tissues can be defined as the absence of negative effects of dental pathology on social life and a positive sense of self-confidence. Patients who need dental treatment due to poor condition of oral organs and tissues have a lower quality of life. When studying OHIP-14 indicators, such indicators as "physical pain", "functional limitation", and "physical disability" have the greatest impact on the quality of life of dental patients. Patients aged 21-30 years and 31-40 years have a satisfactory quality of life, but already at the age of 41-50 years and

older, patients have a significantly worse quality of life compared to these groups. The quality of life of patients is affected by dental pathologies such as dentofacial anomalies, periodontal diseases, defects of the dentition, especially of the anterior group, as well as the loss of stabilization and retention of removable dentures after orthopedic treatment.

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