

**THE IMPACT OF COVID-19 ON THE DEVELOPMENT OF DENTAL DISEASES**

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**Abstract.** The COVID-19 pandemic has had a significant impact on the global healthcare system, and this impact has not bypassed the field of dentistry. This article explores the direct and indirect effects of the SARS-CoV-2 virus on the oral cavity and the development of dental diseases. According to research findings, COVID-19 not only causes various symptoms in the oral cavity but also exacerbates existing dental conditions. Due to pandemic-related restrictions and limited medical services, many patients were unable to receive timely dental care, which led to the progression of diseases and the emergence of complications. The article provides a more detailed analysis of COVID-19's impact on oral health and the prevention and treatment of dental diseases.

**Keywords:** COVID-19, SARS-CoV-2, dentistry, oral cavity, gingivitis, periodontitis, stomatitis, impact of the pandemic

**Introduction.** The COVID-19 pandemic, which originated in Wuhan, China, at the end of 2019 and subsequently spread throughout the world, has had a significant impact on all areas of healthcare, including dentistry. The SARS-CoV-2 virus affects not only the respiratory system but also other organs and systems, including the oral cavity. Dental diseases are one of the global health problems and are widespread in almost all regions of the world. Restrictions and suspension of medical services during the COVID-19 pandemic had a significant impact on the development and treatment of these diseases.

**Direct effect of COVID-19 on the oral cavity**

Localization of the virus in the oral cavity

The SARS-CoV-2 virus enters through ACE2 receptors in the oral cavity. These receptors are present in high concentrations in the tongue, salivary glands, and gingival tissues. The virus multiplies in the oral cavity, causing various symptoms.

Oral symptoms

The following dental symptoms are observed in patients with COVID-19:

**Loss of taste (ageusia) and altered taste (dysgeusia)** - this is one of the most common symptoms of COVID-19, observed in 80-90% of patients. Taste disorders occur as a result of damage to the taste and smell receptors.

**Dry mouth (xerostomia)** - COVID-19 reduces the activity of the salivary glands, resulting in a decrease in the amount of saliva in the oral cavity. This condition reduces the self-cleansing ability of the oral cavity and increases the risk of developing bacterial infections.

**Oral ulcers and stomatitis** - some patients develop small ulcers and aphthous stomatitis on the mucous membranes of the tongue, cheeks, and lips.

**Swelling of gingival tissues** - aggravation of gingivitis and periodontitis is commonly observed in patients with COVID-19.

### **Indirect impact of COVID-19 on the development of dental diseases**

**Weakening of the immune system**

COVID-19 weakens the immune system, which contributes to the proliferation of pathogenic microorganisms in the oral cavity and the development of dental diseases. As a result of the weakened immune system:

- Gingivitis and periodontitis develop more rapidly
- Muscle infections recur frequently
- The healing process slows down
- Complications develop more often after dental procedures

**Stress and psychological factors**

Stress and anxiety during the pandemic exacerbate bruxism (teeth grinding) and temporomandibular joint disorders. Prolonged stay at home and quarantine regimes reduce patients' attention to oral hygiene, leading to the development of diseases.

**Limited access to medical care**

Due to strict restrictions during the pandemic, many dental clinics suspended or limited their operations. This situation led to the following consequences:

- Extended treatment durations
- Increase in severe forms of diseases
- Rise in cases requiring emergency dental care
- Postponement of preventive treatments

### **Impact of the pandemic on the prevalence of dental diseases**

**Increased incidence of caries**

Disruption of eating habits during home confinement, excessive consumption of sweets, and decreased attention to oral hygiene led to an increase in dental caries.

Due to school closures, the incidence of caries in children increased significantly.

**Worsening of periodontal diseases**

Stress, decreased immunity, and difficulty in accessing medical care led to an increase in severe forms of gingivitis and periodontitis. Many patients could not receive immediate help when symptoms appeared.

**Increase in toothaches**

Due to pandemic restrictions, many patients sought emergency care for acute toothaches. This situation mainly arose as a result of delayed treatment and the development of severe forms of dental diseases.

### **The impact of dental diseases on the risk of developing COVID-19**

**Periodontal diseases and COVID-19**

Studies have shown that patients with severe periodontal diseases are more susceptible to severe forms of COVID-19. Periodontal diseases exacerbate systemic inflammation, which can lead to severe consequences of COVID-19.

### Oral hygiene and risk of infection

Poor oral hygiene increases the risk of developing respiratory infections, including COVID-19. Bacteria in the oral cavity can enter the lungs through the respiratory tract, causing pneumonia and other complications.

#### Treatment and prevention strategies

##### Dental care during the pandemic

To prevent the spread of COVID-19, the following measures were implemented in dental clinics:

- Enhancement of personal protective equipment
- Limitation of aerosol-generating procedures
- Prioritizing treatment of emergency cases
- Utilization of telemedicine

##### Improved oral hygiene

Recommendations for oral hygiene during the pandemic:

- Brushing teeth at least twice a day, for 2 minutes each time
- Using mouthwashes with antimicrobial properties
- Regular use of dental floss and interdental brushes
- Proper nutrition to strengthen immunity

##### Psychological support

To address dental problems associated with bruxism and stress:

- Learning relaxation techniques
- Using a mouth guard
- Tips for reducing stress levels

**Conclusion.** The COVID-19 pandemic has had a significant impact on the development and treatment of dental diseases. The direct impact of the virus on the oral cavity, weakening of the immune system, stress factors, and limited access to medical care have led to an increase and exacerbation of dental diseases.

In preparation for similar future pandemics, it is crucial to ensure the continuity of dental services, widespread use of telemedicine, and educating patients about oral hygiene.

Data on dental diseases increasing the risk of COVID-19 development once again confirms the importance of maintaining oral health for overall well-being.

#### References

1. Meng L, Hua F, Bian Z. Coronavirus Disease 2019 (COVID-19): Emerging and Future Challenges for Dental and Oral Medicine. *J Dent Res.* 2020;99 (5):481-487.
2. Peng X, Xu X, Li Y, Cheng L, Zhou X, Ren B. Transmission routes of 2019-nCoV and controls in dental practice. *Int J Oral Sci.* 2020;12 (1):9.
3. Sabino-Silva R, Jardim ACG, Siqueira WL. Coronavirus COVID-19 impacts to dentistry and potential salivary diagnosis. *Clin Oral Investig.* 2020;24 (4):1619-1621.
4. Bourgeois D, Inquimbert C, Ottolenghi L, Carrouel F. Periodontal Diseases and COVID-19: At the Heart of the Problem. *J Clin Med.* 2021;10 (4):859.
5. Carrouel F, Conte MP, Fisher J, et al. COVID-19: A recommendation to examine the effect of mouthrinses with  $\beta$ -cyclodextrin combined with citrox in preventing infection and progression. *J Clin Med.* 2020;9 (4):1126.

6. Marouf N, Cai W, Said KN, et al. Association between periodontitis and severity of COVID-19 infection: A case-control study. *J Clin Periodontol*. 2021;48 (4):483-491.
7. Takahashi Y, Watanabe N, Kamio N, et al. Expression of the SARS-CoV-2 receptor ACE2 in oral tissue. *J Dent Res*. 2020;99 (8):91-4.
8. La Rosa GRM, Libra M, De Pasquale R, Ferlito S, Pedullà E. Association of viral infections with oral cavity lesions: Role of SARS-CoV-2 infection. *Front Med*. 2021;7:571214.
9. Iranmanesh B, Khalili M, Amiri R, Zartab H, Aflatoonian M. Oral manifestations of COVID-19 disease: A review article. *Dermatol Ther*. 2021;34 (1):e14578.
10. Ahmed MA, Jouhar R, Ahmed N, et al. Fear and practice modifications among dentists to combat Novel Coronavirus Disease (COVID-19) outbreak. *Int J Environ Res Public Health*. 2020;17 (8):2821.
11. Sadullaev, S. E., Ibragimov, S. J., Bobojonov, Y. B., Yoqubov, Q. Y., Abdullayeva, D. K., & Khasanova, J. R. (2024). PREVALENCE OF DIARRHEAL DISEASES IN THE REPUBLIC OF UZBEKISTAN. *International Journal of Education, Social Science & Humanities*, 12(3), 356-363.
12. Sadullaev, S. E., Ibragimov, S. J., Bobojonov, Y. B., & Mamatqulov, T. T. (2025). INTESTINAL IMMUNITY. *Multidisciplinary Journal of Science and Technology*, 5(2), 485-488.
13. Урунбаева, Д. А., & Кадирова, Н. И. (2025, February). ЛЕЧЕНИЕ ДИАБЕТИЧЕСКОЙ ДИСЛИПИДЕМИИ У БОЛЬНЫХ САХАРНЫМ ДИАБЕТОМ 2 ТИПА РОЗУВАСТАТИНОМ В КОМБИНАЦИИ С ЭЗЕТИМИБОМ. In *Health Horizon: Congress on Public Health and Biomedical Sciences (Vol. 1, No. 1, pp. 14-15)*.
14. Урунбаева, Д. А., & Кадирова, Н. И. (2024). РОЗУВАСТАТИН И ЭЗЕТИМИБ В ЛЕЧЕНИИ ДИАБЕТИЧЕСКОЙ ДИСЛИПИДЕМИИ У БОЛЬНЫХ САХАРНЫМ ДИАБЕТОМ 2 ТИПА.
15. Рахимов, Б. С., Собирова, С. К., & Кадирова, Н. И. (2015). Анализ методов вычисления коэффициентов приближения параболическими сплайнами. In *Актуальные вопросы технических наук (pp. 62-65)*.
16. Artikov, I. A., Sadullaev, S. E., Ibrakhimova, H. R., & Abdullayeva, D. K. (2023). *RELEVANCE OF VIRAL HEPATITIS EPIDEMIOLOGY. IMRAS*, 6 (7), 316–322.
17. Ibrakhimova, H. R., Matyakubova, O. U., Sadullaev, S. E., & Abdullayeva, D. K. (2023). HELMINTISES IN CHILDREN AMONG THE POPULATION IN UZBEKISTAN. *IMRAS*, 6(7), 323-327.
18. Ералиев, У. Э., & Садуллаев, С. Э. (2020). Molecular genetic characteristics of rotavirus infection in children. *Молодой ученый*, (38), 46-48.
19. Sadullaev, S. E., Bobajanov, A. O., Khusinbayev, I. D., Durdiev, E. S., & Ismoilova, A. R. (2025). PSYCHOLOGICAL REHABILITATION DURING THE CORONAVIRUS PANDEMIC. *Multidisciplinary Journal of Science and Technology*, 5(2), 429-433.