








Resumption of Brazilian oral medicine health care during the second period of the COVID-19 pandemic

Nelson Pereira Marques^{1,*} , Denise Maria Mendes Lúcio da Silveira² , Nádia Carolina Teixeira Marques³ , Edson Hilan Gomes de Lucena⁴ , Daniella Reis Barbosa Martelli² , Danyel Elias da Cruz Perez⁵ , Hercílio Martelli Júnior² 

¹ Piracicaba Dental School, University of Campinas, Piracicaba, Sao Paulo, Brazil.

² Primary Care/Health Science Postgraduate Program, State University of Montes Claros, Unimontes, Montes Claros, Minas Gerais, Brazil.

³ University Center of Lavras (UNILAVRAS), Lavras, Minas Gerais, Brazil.

⁴ Clinical and Social Dentistry Department, Federal University of Paraíba, João Pessoa, Brazil.

⁵ Department of Clinical and Preventive Dentistry, School of Dentistry, Federal University of Pernambuco, Recife, Pernambuco, Brazil.

Corresponding author:

Nelson Pereira Marques
Piracicaba Dental School, University of Campinas, Piracicaba
901 Limeira Avenue, Piracicaba,
São Paulo, 13414-018, Brazil.
E-mail: neomarques@hotmail.com

Editor: Dr. Altair A. Del Bel Cury

Received: March 24, 2023

Accepted: May 27, 2023

Aim: This present study aims to compare the data from the Brazilian Unified Health System on the number of clinical consultations of Oral Medicine from the first 6 months (March-August 2020) of the COVID-19 pandemic in Brazil with the last 6 months (September-February 2020/2021) to update the data, verify the measures' effectiveness to return clinical activities in the following months. **Methods:** perform a literature review of recent articles that report the impact of the COVID-19 pandemic on Oral Medicine. **Results:** There was an increase in the number of Oral Medicine clinical consultations in the second half of the pandemic throughout Brazil (+64.2%), representing over 9,235 appointments in this period. **Conclusion:** measures for the return of health assistance and the practice of Telemedicine proved to be effective after the second period of the pandemic. Even so, strengthening security measures against the coronavirus is essential to ward off a new wave since the Omicron variant emerged in the country and, consequently, possible new lockdowns that might affect healthcare in Brazil.

Keywords: COVID-19. Dental care. Oral medicine. Pandemics.



Introduction

The COVID-19 pandemic began in early 2020, when the World Health Organization (WHO) designated the disease caused by the SARS-CoV-2 virus as a public health emergency of international concern for its rapid spread, resending a major challenge to health authorities around the world^{1,2}. Since then, the implementation of restrictive measures sought to control disease transmission, including social isolation rules, suspension of face-to-face activities, and the planning and adoption of health measures, such as biosafety awareness campaigns, sanitary barriers, and suspension of specialized health services^{3,4}.

Due to this scenario, in March 2020, the Federal Council of Dentistry (CFO) requested the Brazilian Ministry of Health to suspend elective dental care in the public health network and the reinforcement of biosafety practices for private services. Among health professionals on the front line against COVID-19, a low rate of dental professionals becoming contaminated, according to the report published by the Ministry of Health in July 2020. In addition, a survey carried out by the CFO showed that 82% of professionals maintained dental care in this period⁵.

Consequently, the Ministry of Health updated the regulation of dental care in the Unified Health System (SUS), by the recommendations of the CFO, and proposed the gradual resumption of care in specialized services, following guidelines from managers, based on epidemiological characteristics against the COVID-19 pandemic⁵.

In our first study, the data collected from the public database (DATASUS, 2021) showed the damage caused by Brazil's COVID-19 pandemic in Oral Medicine (OM) (Stomatology) practice⁶. The mean number of clinical consultations in the pre-pandemic period compared to the first half of the pandemic (March-August 2020) dropped in all Brazilian regions, and the mean general deficit was 65.59%, representing more than 21,000 clinical consultations⁶.

In this way, this study aimed to perform a literature review of recent papers that report the impact of the COVID-19 pandemic on OM, update the data of the Brazilian OM to the COVID-19 pandemic, and verify the effectiveness of restrictive measures to return to clinical activities, by comparing the data from the Brazilian SUS⁷ on the number of clinical consultations of OM from the first 6 months (March-August 2020) of the COVID-19 pandemic in Brazil with the last 6 months (September-February 2020/2021).

Materials and Methods

To measure OM care in the Brazilian SUS, we evaluated the number of clinical consultations performed between March and August 2020 and between September to February 2021. The data from Table 1 were extracted and analyzed from the public database (DATASUS) (<http://tabnet.datasus.gov.br/cgi/tabcgi.exe?sia/cnv/qauf.def>).

Table 1. Difference between the number of Oral medicine consultations, performed in geographical Regions by the Brazilian public health system between March and August of 2020 compared to September-February of 2020/2021.

Region of Brazil	Mar-Aug 2020	Sep-Feb 2020/21	Difference	%	p*
North	663	520	-143	-21.6	< 0.001
Northeast	3,435	6,381	+2,946	+85.8	< 0.001
Southeast	8,077	13,048	+4,971	+61.5	< 0.001
South	1,766	2,734	+968	+54.8	< 0.001
Midwest	439	932	+493	+112.3	< 0.001
Total	14,380	23,615	+9,235	+64.2	< 0.001

* p-value - obtained by chi-square Chi2-statistic

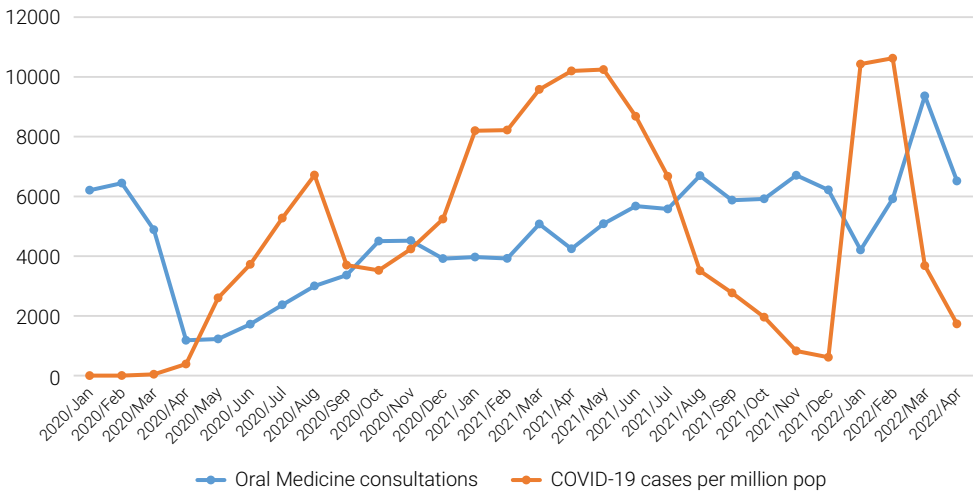
Moreover, a computerized search was performed in the “PubMed” database using the descriptors “ORAL MEDICINE,” OR “STOMATOLOGY”, AND “COVID-19,” OR “SARS-COV 2”. Two examiners reviewed the initial list and applied inclusion criteria to determine the final sample. The inclusion criteria for selecting scientific articles covered studies that compared OM data from the pandemic period with previous periods, published from March 2020, in English, with full text available. The exclusion criteria involved studies that did not assess the pandemic period.

The initial search using the descriptors found 60 papers. After reading the abstracts, 20 studies remained for analysis of inclusion criteria. Then, after reading the full text of these studies, only 3 papers^{5,8,9} fit the criteria for discussion in Table 2.

Results

Table 1 shows the comparison of the second half of the pandemic period (September 2020-February 2021) with the first half of the COVID-19 pandemic (March-August 2020). The number of OM clinical consultations in the second half of the pandemic increased throughout Brazil (+64.2%), representing over 9,235 appointments in this period. This had repercussions in almost all Brazilian regions, with a significant increase in the Midwest (+112.3%) and Northeast regions (+85.8%), except in the North region where the OM consultations slightly dropped (-21.6%) in this period.

After the second half of the pandemic, even with the increase in COVID-19 cases, the second wave between January 2021 and May 2021, and the arrival of the new variant Omicron in January 2022, the number of consultations in OM remained stable until the most recent data provided by DATASUS (Figure 1).



Source: World Health Organization (WHO) and Ministry of Health Brazil – DATASUS

Figure 1. Monthly distribution of clinical consultations in Oral Medicine and COVID-19 cases in Brazil per million population (Jan 2020-Apr 2022).

Table 2 shows the results of the literature review on the impact of the COVID-19 pandemic on oral medicine in the world.

Table 2. Summary of literature about the impact of the COVID-19 Pandemic on Oral Medicine

Author / Reference	Country	Data analyzed	Findings	Comment
Dong et al. ¹⁰ , 2021	China	<ul style="list-style-type: none"> This paper aimed to reproduce the impacts of the COVID-19 epidemic on the clinical services and academic activities in the department of stomatology of a tertiary hospital in Wuhan, China. 	<ul style="list-style-type: none"> Was noted a significant decrease in the number of patients seeking outpatient services for the year 2020, which decreased by two-thirds from 2018 to 2020. Emergency cases also decreased significantly in 2020. The monthly number of teaching hours decreased from 3.8 in 2018 and 4.7 in 2019 to 1.7 during the pandemic period. The number of interns has dropped by more than 77% in 2020. 	<ul style="list-style-type: none"> Stomatology clinic impacts of the COVID-19 pandemic were significant, with an important decrease in clinical services and education. It's inescapable to find solutions to keep as many dental professionals as needed remaining on the frontline of oral health care.
Marques et al. ⁶ , 2020 (Previous study)	Brazil	<ul style="list-style-type: none"> This investigation seeks to compare Brazilian Unified Healthcare System (SUS) Oral Medicine clinical care, before and while the pandemic. Oral Medicine care in the SUS was measured by assessing the number of clinical consultations performed between March and July 2015 to 2020. The data was extracted from the public database (DATASUS). 	<ul style="list-style-type: none"> Clinical consultations number in the pre-pandemic period were higher in all Brazilian Regions when compared to the current period. The deficit of the general Brazilian average is 65.59%, representing more than 21,000 clinical Oral Medicine consultations. 	<ul style="list-style-type: none"> Regarding oral cancer, early diagnosis is essential for effective treatment with a good prognosis. As a result, this reduction in the number of Oral Medicine clinical consultations becomes even more worrisome, and the authors suggested quick and safe actions to regularize or at least minimize both critical and immediate risks.

Continue

Continuation

Sandhu et al. ⁹ , 2022	USA	<ul style="list-style-type: none"> • This study aimed to assess Oral Medicine students' perception of the effect of the COVID-19 pandemic on the training experience, education, and psychological well-being of oral medicine residents. 	<ul style="list-style-type: none"> • Most residents reported an important reduction in patient volume at its worst during the pandemic. • Regarding educational activities, most students reported a complete switch of didactic training, academic examinations, and off-site resident rotations to a virtual platform. 	<ul style="list-style-type: none"> • Even with restrictions related to the COVID-19 pandemic, Oral Medicine residency programs continued their clinical activities, didactic training, and research productivity through virtual means.
--------------------------------------	-----	--	--	--

Discussion

As in the first article published by this group, the patient volume reduced considerably in the first period of the COVID-19 pandemic in other countries, such as China and the USA^{8,10}. To our knowledge, the present study is the first to assess the data in the second period of the pandemic.

The return of Oral Medicine health assistance is extremely important for critical situations, such as the early diagnosis of oral cancer, an essential condition to provide a favorable prognosis for the patient⁶. These positive numbers become even more relevant since the risk estimated by the National Cancer Institute (INCA) of new cases of oral cancer is the fifth highest among men and thirteenth among women of all cancers (<https://www.inca.gov.br/estimativa>). The increase in OM performed consultations can be explained by the several implementations that have begun after the lockdown in the 1st half of 2020, mainly due to the return of health assistance, which followed strict hygiene and safety protocols against the dissemination of COVID-19. In the second half of 2020, the Brazilian SUS published a manual for dentistry and released many resources for investment in the adequacy of public dental offices¹¹⁻¹³. Therefore, the resumption of dental appointments had a great encouragement, especially for emergencies, patients at risk, and mouth injuries, even before starting vaccination in the country¹¹⁻¹³. The vaccination in Brazil started on 01/17/2021, and the 2nd dose of vaccinations began around April 2021¹⁴. It is observed that these measures increased OM consultations, and nowadays, the numbers were normalized and stabilized due to the vaccination, which decreased the number of cases and deaths caused by COVID-19.

This increase in the number of OM consultations in the second half of the pandemic can also be elucidated by the importance of the oral cavity for this period. The buccal cavity stands out as a relevant axis of infection due to its potential for dissemination of the inflammatory response in the surrounding tissues¹⁵. Thus, some oral manifestations affected patients positive for COVID-19, such as lesions characterized by white and erythematous plaques, irregular ulcers, small blisters, petechiae, and desquamative gingivitis in the region of the tongue, lips, gums, and buccal mucosa. Thus, early detection of COVID-19, through proper understanding of symptoms and testing, as well as adequate treatment of the disease, are recommended to improve the patient's condition¹⁶.

Legislation that authorizes the use of Telemedicine came into force based on the health services restrictions, impacting positively assistance for patients who seek care from OM, with a total of 322 telemedicine consultations since the beginning of the pandemic^{17,18}. This instrument helped in the exchange of information between patients and professionals¹⁸. Virtual consultations increased significantly in cancer centers during the period of social isolation¹⁹. In addition to assisting in the control of chronic diseases and facilitating early diagnosis, telemedicine has contributed to the screening of patients with possible symptoms of COVID-19. Since this approach allows the tracking of suspected cases at a distance and makes face-to-face care an option only when it is necessary, preventing, this way, the spread of viruses among patients, health professionals, and the community¹⁸.

The negative numbers of OM appointments attributed to the Northern region probably occurred due to a delay in the data delivery from the main states in this region or possibly due to the difficulty in accessing the Brazilian Unified Health System care during the COVID-19 pandemic period in this region. The use of telemedicine can minimize the challenges in accessing health care. Delay in data delivery is the main limitation in studies that depend on data from a public system. However, when compared to the previous study by the same authors⁶, the data obtained are consistent and with a good degree of accuracy.

In conclusion, initially, the first pandemic period dramatically reduced OM clinical consultations in Brazil. However, measures for the return of health assistance and the practice of Telemedicine proved to be effective after the second period of the pandemic. Even so, strengthening security measures against the coronavirus seems to be essential to ward off a new wave since the Omicron variant emerged in the country and, consequently, possible new lockdowns that might affect healthcare in Brazil.

Conflict of Interest

The authors declare that they have no conflict of interest.

Author Contribution

Nelson Pereira Marques: Conceptualization; Data curation; Formal analysis; Investigation; Methodology; Roles/Writing - original draft; Writing - review & editing. **Denise Maria Mendes Lúcio da Silveira:** Formal analysis; Investigation; Methodology; Writing - review & editing. **Nádia Carolina Teixeira Marques:** Conceptualization; Formal analysis; Writing - review & editing. **Edson Hilan Gomes de Lucena:** Conceptualization; Data curation; Formal analysis; Methodology; Writing - review & editing. **Daniella Reis Barbosa Martelli:** Formal analysis; Investigation; Methodology; Roles/Writing - original draft; Writing - review & editing. **Danyel Elias da Cruz Perez:** Formal analysis; Investigation; Methodology; Writing - review & editing. **Hercílio Martelli-Júnior:** Conceptualization; Formal analysis; Methodology; Project administration; Supervision; Roles/Writing - original draft; Writing - review & editing.

All authors actively participated in the manuscript's findings, revised and approved the final version of the manuscript.

References

1. World Health Organization. Coronavirus disease (COVID-19) pandemic. WHO; 2020 [cited 2023 Jan 6]. Available from: <https://www.who.int/emergencies/diseases/novel-coronavirus-2019>.
2. Zhu N, Zhang D, Wang W, Li X, Yang B, Song J, et al; China Novel Coronavirus Investigating and Research Team. A Novel Coronavirus from Patients with Pneumonia in China, 2019. *N Engl J Med*. 2020 Feb;382(8):727-33. doi: 10.1056/NEJMoa2001017.
3. Aquino EML, Silveira IH, Pescarini JM, Aquino R, Souza-Filho JA, Rocha AS, et al. Social distancing measures to control the COVID-19 pandemic: potential impacts and challenges in Brazil. *Cien Saude Colet*. 2020 Jun;25(suppl 1):2423-46. doi: 10.1590/1413-81232020256.1.10502020.
4. Jarvis CI, Van Zandvoort K, Gimma A, Prem K; CMMID COVID-19 working group; Klepac P, et al. Quantifying the impact of physical distance measures on the transmission of COVID-19 in the UK. *BMC Med*. 2020 May;18(1):124. doi: 10.1186/s12916-020-01597-8.
5. Federal Council of Dentistry. [COVID-19 Information]. CFO; 2020 [cited 2021 Dec 12]. Available from: <https://cfo.org.br>. Portuguese.
6. Marques NP, da Silveira DMML, Martelli PJJ, Martelli DRB, de Lucena EHG, Martelli-Júnior H. Brazilian Oral Medicine and public health system: The enormous impact of the COVID-19 Era. *Oral Dis*. 2022 Apr;28 Suppl 1(Suppl 1):1001-2. doi: 10.1111/odi.13677.
7. Brazilian Ministry of Health. DATASUS. [Information Technology at the Service of the SUS]. DATASUS; 2021 [cited 2022 Jul 7]. Available from: <http://tabnet.datasus.gov.br/cgi/tabcgi.exe?sia/cnv/qauf.def>. Portuguese.
8. Sandhu S, Sankar V, Sroussi HY, Villa A. Effect of COVID-19 on training and mental health of oral medicine residents in North America. *Oral Surg Oral Med Oral Pathol Oral Radiol*. 2022 Jan;133(1):34-41. doi: 10.1016/j.oooo.2021.09.011.
9. Qiao W, Bian Z, Meng L. Experience on reopen dental services of Hospital of Stomatology Wuhan University in COVID-19 crisis. *Oral Dis*. 2022 Nov;28 Suppl 2:2548-50. doi: 10.1111/odi.14026.
10. Dong Q, Kuria A, Weng Y, Liu Y, Cao Y. Impacts of the COVID-19 epidemic on the department of stomatology in a tertiary hospital: A case study in the General Hospital of the Central Theater Command, Wuhan, China. *Community Dent Oral Epidemiol*. 2021 Dec;49(6):557-64. doi: 10.1111/cdoe.12680.
11. Brazilian Ministry of Health. [Guidance guide for dental care in the context of COVID-19]. 2020 [cited 2022 Jul 18]. Available from: <https://www.gov.br/saude/pt-br/coronavirus/publicacoes-tecnicas/guias-e-planos/guia-de-orientacoes-para-atencao-odontologica-no-contexto-da-covid-19>. Portuguese.
12. Brazilian Ministry of Health. [Ordinance No. 3,017, of November 4, 2020] [cited 2022 Jul 18]. Available from: <https://www.in.gov.br/en/web/dou/-/portaria-n-3.017-de-4-de-novembro-de-2020-286969272>. Portuguese.
13. Brazilian Ministry of Health. [Ordinance No. 3,008, of November 4, 2020] [cited 2022 Jul 18]. Available from: <https://www.in.gov.br/en/web/dou/-/portaria-n-3.008-de-4-de-novembro-de-2020-286409445>. Portuguese.
14. Brazilian Ministry of Health. Vaccination. [updated 2022 June 15; cited 2022 June 15]. Available from: <https://www.gov.br/saude/pt-br/vacinacao>. Portuguese.
15. Mariz BALA, Brandão TB, Ribeiro ACP, Lopes MA, Santos-Silva AR. New Insights for the Pathogenesis of COVID-19-Related Dysgeusia. *J Dent Res*. 2020 Sep;99(10):1206. doi: 10.1177/0022034520936638.

16. Amorim Dos Santos J, Normando AGC, Carvalho da Silva RL, Acevedo AC, De Luca Canto G, Sugaya N, et al. Oral Manifestations in Patients with COVID-19: A 6-Month Update. *J Dent Res*. 2021 Nov;100(12):1321-9. doi: 10.1177/00220345211029637.
17. Legislative Power of Brazil. [Law No. 13,989, of April 15, 2020] [cited 2022 Jul 18]. Available from: <https://www.in.gov.br/en/web/dou/-/lei-n-13.989-de-15-de-abril-de-2020-252726328>. Portuguese.
18. Machado RA, de Souza NL, Oliveira RM, Martelli Júnior H, Bonan PRF. Social media and telemedicine for oral diagnosis and counselling in the COVID-19 era. *Oral Oncol*. 2020 Jun;105:104685. doi: 10.1016/j.oraloncology.2020.104685.
19. Alves FA, Saunders D, Sandhu S, Xu Y, de Mendonça NF, Treister NS. Implication of COVID-19 in oral oncology practices in Brazil, Canada, and the United States. *Oral Dis*. 2021 Apr;27 Suppl 3(Suppl 3):793-5. doi: 10.1111/odi.13493.