

# Dentistry, new perspectives due to the COVID-19 Pandemic - Literature Review.

Odontología, nuevas perspectivas por pandemia COVID-19  
Revisión Bibliográfica.

Piero Pesenti Moreira.<sup>1</sup>  
Esteban Muñoz Jiménez.<sup>1</sup>  
Valeria Campos Cannobio.<sup>1,2</sup>

#### Affiliations:

<sup>1</sup>Facultad de Odontología, Universidad de Concepción, Chile.

<sup>2</sup>Departamento de Prevención y Salud Pública Odontológica Facultad de Odontología, Universidad de Concepción, Chile.

**Corresponding author:** Valeria Campos Cannobio. Facultad de Odontología, Universidad de Concepción, Chile. Avenida Roosevelt # 1550, Concepción, Chile. **Phone:** (56-41) 220 4232. **E-mail:** vcampos@udec.cl

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## INTRODUCTION.

At the end of 2019, a suspicious increase in pneumonia cases occurred in the region of Wuhan, China.<sup>1,2</sup> Scientists isolated a new type of corona-virus, and it was named SARS-Cov-2.<sup>1,2</sup> The world Health Organization (WHO) declared the uncontrolled spread of SARS-Cov-2 on January 30, 2020, then, on March 20, 2020, it was declared a pandemic.<sup>2,10</sup>

The incubation period for this virus can be up to 14 days, therefore patients can be asymptomatic or feel and report a variety of mild symptoms such as a dry cough, general discomfort, productive cough, and dyspnea, among other more severe symptoms, such as respiratory distress, which can lead to death. This pathology mainly affects those with systemic diseases, regardless of their age. The common routes of transmission are the direct (coughing, sneezing, among others) and via contact (physical contact).<sup>1,4</sup>

Dentists would have a high risk of nosocomial infection, becoming a potential vector. It is estimated that this risk may be due to the work performed that results in the generation of aerosols, which can remain suspended in the air for long periods of time, to the use of sharp instruments and to the proximity of the dentist to the oral cavity while working.<sup>2,4,5</sup>

Given this situation, the SARS-CoV-2 pandemic has limited and modified the **management** of the care and **appointments** given to patients in the dental area, **thus, increasing** the emergency dental cases and decreasing access to routine care, both in the public sector as well as in the private one and in dental schools.<sup>5,6</sup>

## MATERIALS AND METHODS.

### Objetive

The objective of this study is to describe the changes that dentistry has experienced considering epidemiological, educational, economic and patient factors in the context of the COVID-19 pandemic.

## Databases

The databases used were selected according to the coverage of biomedical disciplines included: *PubMed* data (NCBI) and *Web of Science* (Clarivate Analytics), both in which the following search algorithm was used: (Dental emergency OR dental emergencies OR dental pain urgent care) AND (Prevalence OR morbidity OR Impact) AND (Diagnosis OR diseases) AND (Covid-19 OR SarsCoV2 OR Coronavirus); and *SCIELO*, where the search was performed using the following terms: ((Covid-19) AND (Dental)), ((Coronavirus) AND (Odontología)), ((Covid-19) AND (Odontología)).

Initially, all types of articles were included: in English and in Spanish and from every country of origin.

## Inclusion and Exclusion Criteria

The articles selected were articles published in Spanish and English in peer-reviewed journals between the years 2018 and 2020.

All types of studies were included, such as bibliographic reviews, longitudinal studies, cross-sectional studies, epidemiological studies, letters to the editor, and case studies.

## Characterization and data summary

For the selected articles, the following variables were recorded: databases, author(s), country of origin, year of publication, journal, type of publication. These were recorded on an Excel spreadsheet.

## Characterization of the studies

A total of 28 articles were selected to be analyzed. Three articles were published between the years 2018-2019 and 25 in the year 2020.

In reference to the origin of the articles, 6 were from Brazil, 5 from the United Kingdom, 4 from Saudi Arabia, 3 from both China and the United States, 2 from Canada and 1 each from Chile, Germany, and India.

## RESULTS.

### Financial Implications

General dentistry practices were suffering huge financial losses. In a survey performed by the Irish Dental Association (IDA) to 369 dentists, it was reported that a fifth of dentists has closed their offices (temporarily or permanently).<sup>7</sup>

The standard clinical practice is very different from what it was pre-pandemic. Furthermore, these dentists face difficulties in preventing the spread of Covid-19,

and a decrease in the use of rotary instruments, the use of additional numerous personal protection equipment (PPE), the use of rubber dams and the installation of new devices which increases care costs.<sup>8</sup>

Practically speaking, it was calculated how these measures financially affected per patient and an annual cost was determined with an average of 4,064 visits per year. Pre-pandemic, the cost was R\$0.84 (USD \$0.16/CLP \$121) per patient and R\$3,413.94 (USD \$642/CLP \$489.800) per year.<sup>10</sup>

The costs of post-Covid-19 biosafety recommendations were R\$16.01 (USD \$3/CLP \$2.293) per patient and R\$32.657,96 (USD \$6.141/CLP \$4.680.401) per year.<sup>9</sup>

### Teledentistry

Blackhall *et al.*,<sup>3</sup> tested a platform with a real-time updating, with total of 529 patients, of which 395 attended face-to-face consultations and 134 patients received remote consultations by phone or video call. Of a total of 216 dental emergency cases, 68% were able to be treated in the primary care setting.

Tools for teledentistry, like the one researched by Carrard *et al.*,<sup>10</sup> the Estomato Net Program, resulted in a 98% user satisfaction. The researchers concluded that according to their findings, they encouraged the use of telemedicine in primary oral care to support decision-making in care.<sup>11</sup>

### Academic Training

Another form of dental service are dental schools which mostly remained closed and have changed towards a complete virtual dental curriculum.

In March 2020, several governments implemented physical distancing and stay-at-home measures to reduce infections and academic dental institutions adapted accordingly.

Many dentistry schools intend to use the current "lockdown" period to pre-include the curriculum with academic activities that involve online learning, in the hope that students will have more time in clinics when they return.<sup>12</sup>

### Modifications to Public Dental Care systems

de Lucerna *et al.*,<sup>13</sup> reported reduced access to oral health in primary care and how the main concern is the negative impact this will have on oral health data in the country.

## Private Sector<sup>8</sup>

Among the measures that the private sector implemented are appointments that are scheduled with more time one from the other to minimize possible contact between patients in the waiting room, while this allows more time to ensure disinfection in the dental rooms.

Patients are encouraged to attend alone to reduce the number of people in the waiting room. All non-essential items, including magazines and toys, are removed from the waiting room.

### Implications for the patient

One of the reasons for the decrease in general care and increase in emergency cases is the anxiety that dental care generates in users of different services. There is some related data available where a specific population is surveyed to assess their attitude towards dental care.

- 38.3% stated they would attend a dental appointment if the dentist/staff called them to schedule it.
- 44.2% said they would go only if it was an emergency case.
- 17.5% replied they would not go for any reason at all.<sup>14</sup>

## DISCUSSION.

Dental care was particularly affected during the COVID-19 pandemic and this has led to major changes such as clinical care protocols, which have increased the cost of care.

This has happened due to government policies decreed to reduce the risk contagion between operator and user, that includes the use of N95 and PFF2 type respirators, the acquisition of additional equipment such as aerosol aspirators and room separators, and the evolution of teledentistry.

The latter caused a decrease in the flow of patients to both public and private systems, and the dental schools have had to adapt to this new challenge through virtual platforms.<sup>5</sup>

As a result of the pandemic, patient consultation pattern in dental has changed significantly; emergency dental care has increased and access to routine case has decreased, both the in public and private sector as well as in dental schools.<sup>5,6</sup>

Faced with the current pandemic and quarantine, Bai *et al.*,<sup>4</sup> reported that the percentage of dental emergency cases in 2020 was significantly higher than it was in 2019, and the percentage of non-urgent cases was significantly lower than in 2019.

Having this in mind, it is speculated that people's requirements of dental services could grow exponentially post COVID-19.<sup>1,15</sup>

### Limitations

The limitations of this study deserve to be considered. First, there was a relatively scarce number of publications on the topic, which lead to a lack of updated interpretations about the pandemic on dental care, which has been affected on multiple factors. Good quality data on the topics addressed in this article are limited and unrepresentative, due to the very heterogeneous populations described in the different studies.

There is a difficulty in reconciling the different policies implemented by the countries from which we collected information, considering the perspective of the authors on the measures taken in the country from which this article is written, Chile, associated with dental practice.

Despite these limitations, this review gathers relevant topics from dentists worldwide, which help to construct a global perspective, become aware of changes and adapt to them.

## CONCLUSION.

The restrictions generated for dental care are clear. It is impossible to ignore the process the world is going through and as health professionals, dentists have focused on the creation of new protocols to be able to carry out dental care. On one hand, emergency cases, as classified by each health entity were generally the most recurrent. On the other hand, other action carried out by dental surgeons such as rehabilitation and periodontics have decreased. Prospective studies are very necessary.

Finding information on how oral pathologies behave in situations as that of a COVID-19 pandemic, allow a better approach to public and private policies that optimize the resources that are always supposed to offer opportunities and quality in the attention to the users of the system.

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