

Dental practice during the covid-19 pandemic and the new biosafety guidelines: a scope review

Prática odontológica durante a pandemia da covid-19 e suas novas diretrizes de biossegurança: uma revisão de escopo

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Abstract

INTRODUCTION: The COVID-19 pandemic, in 2020, brought to Dentistry a readjustment, due to the emergence of new protocols that seek to treat the patient by reducing the risk of direct or cross-contamination. **OBJECTIVES:** This study aims to analyze the biosafety guidelines adopted in dental practice during the COVID-19 pandemic. **METHODS:** This is a Scoping Review, with the following guiding question: “What are the new biosafety guidelines in dental practice during COVID-19?”. Searches were conducted in Lilacs (Latin American and Caribbean Literature on Health Sciences), Scopus, Web of Science and PubMed databases via Medline, considering publications between 2020 and 2021. A total of 922 studies were found, and 40 were selected for full reading, resulting in 7 articles to compose the sample. **RESULTS:** Among the most prevalent biosafety guidelines adopted during the pandemic period in dental care, virtual pre-clinical screening, use of personal protective equipment with higher level of safety, air filtration after procedures or renewal of air by opening doors and windows, longer time interval between clinical care, paramentation and deparamentation stood out, strictly following protocols and conducting remote consultations. **CONCLUSION:** In this context, it is concluded that the recommendations on biosafety in dentistry after the emergence of COVID-19 were reappropriated and implemented before, during and after the procedures, to contain cross-contamination.

Keywords: containment of biohazards; covid-19; dentistry.

Resumo

INTRODUÇÃO: A pandemia da COVID-19, em 2020, trouxe para a Odontologia uma readequação, devido ao surgimento de novos protocolos que buscam tratar o paciente diminuindo o risco de contaminação direta ou cruzada. **OBJETIVO:** Este estudo tem como objetivo analisar as medidas de biossegurança adotadas na prática odontológica durante a pandemia da COVID-19. **MATERIAIS E MÉTODOS:** Trata-se de uma Revisão de Escopo, com a seguinte pergunta norteadora: “Quais são as novas diretrizes de biossegurança na prática odontológica durante a COVID-19?”. Foram realizadas buscas nas bases de dados LILACS (Literatura Latino-Americana e do Caribe em Ciências da Saúde), Scopus, Web of Science e PubMed via Medline, levando em consideração publicações entre os anos de 2020 e 2021.

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Foram encontrados 922 estudos, sendo selecionados 40 para leitura na íntegra, resultando em 7 artigos para compor a amostra. RESULTADOS: Dentre as medidas de biossegurança mais prevalentes adotadas durante o período pandêmico no atendimento odontológico, destacam-se a triagem pré-clínica virtual, uso de equipamentos de proteção individual com maior nível de segurança, filtragem do ar após os procedimentos ou renovação do ar com abertura de portas e janelas, maior intervalo de tempo entre os atendimentos clínicos, paramentação e desparamentação seguindo rigorosamente os protocolos e realização de consultas remotas. CONCLUSÃO: Diante desse contexto, conclui-se que as recomendações sobre biossegurança na Odontologia após o surgimento da COVID-19 foram readequadas e implementadas antes, durante e após os procedimentos, como forma de conter a contaminação cruzada.

Palavras-chave: contenção de riscos biológicos; covid-19; odontologia.

Introduction

Sars-CoV-2 is the virus that causes COVID-19, a member of the Coronavirus family, which can cause reactions ranging from fever, dry cough, myalgia, partial or total loss of smell, apathy and even respiratory and renal failure, leading to death¹. Transmission occurs by direct or indirect route of saliva or body fluids, through coughing, sneezing, splashes, contact with oral, nasal or ocular mucosa². The virus can be incubated between 5 to 6 days on average and can remain in the body for up to 14 days³.

With the advent of Sars-CoV-2, another problematic scenario, although unpredictable enough, has increased the concern before scientists with the appearance of new strains, through mutations more virulent to humans. It is a fact that requires attention, given the dynamics of the virus in changing the global socioeconomic characteristics of the pandemic, reaching different locations and different people/ethnicities, generating not only more infections with more serious diseases, and even an increase in the number of deaths. According to the European Center for Disease Prevention and Control, the first variant detected was B.1.1.7, first found in the United Kingdom, known scientifically as 20I/501Y.V1 or VOC-202012/01, it carries the N501Y mutation that increases the affinity of the virus for the ACE-2 receptor, which may cause a greater risk of contamination. In addition to it, other have emerged, such as the South African variant B.1.351

(501Y.V2 or 20H/501Y.V2), which has three major mutations (K417N, E484K and N501Y), and is therefore more transmissible and less likely to generate antibodies from a previous infection or vaccine⁴. Another strain is P.1, originated in Brazil, in the state of Amazonas, which carries a large set of mutations, among which K417T, E484K and N501Y⁵ stand out, with initial studies estimating that the P.1 strain can be between 1.4 and 2.2 times more transmissible than its precursors⁶. It is worth noting that after the detection of variants, public health workers warned about the problems and the high risk of spreading or worsening clinical outcomes of diseases as a result of COVID-19 to local authorities⁵.

Dental surgeons are constantly exposing themselves to chemical, physical, ergonomic and biological risks. Regarding the latter, microorganisms such as viruses, bacteria and fungi can be a risk for the professional⁷. Thus, biosafety aims at reducing the risks of contamination between professionals and patients, and it is the responsibility of the dental surgeon to provide a safe environment. The greatest risks occur during procedures, which generate aerosols particles, droplets of fluids, and accidents with sharp instruments. Disinfection with 1% sodium hypochlorite, 2% glutaraldehyde, 0.12% chlorhexidine and 70% alcohol are used in equipment and instruments, as well as the cleaning and sterilization process. Nevertheless, the use of personal protective equipment (PPE), vaccines and waste handling are relevant for protection, with

failure in these processes acting as possible routes of contamination^{8,9}.

Given the current pandemic scenario, dental practice has become even more exposed to the eminent risks arising from the spread of Sars-Cov-2, given that Dentistry is considered one of the health areas that has been most affected, mainly due to the direct contact of the professional with the patients' oral cavity, which allows exposure to droplets of saliva and aerosol particles, representing the main routes of transmission of the virus¹⁰. Thus, it was necessary to expand biosafety guidelines in dental practice, adopting specific protocols to contain the spread of the new coronavirus in the clinical environment¹¹.

In this perspective, the Federal Council of Dentistry (CFO) launched a biosafety manual aimed at dental practice during the COVID-19 pandemic¹² providing for the importance of limiting visits only to an emergency level, such as in cases of acute odontogenic pain (pulpitis), pericoronitis, alveolitis, dental or periodontal abscesses, tooth fracture resulting in pain or trauma to oral soft tissues; and emergency, such as uncontrolled bleeding, trauma to the facial region with a high risk of impairing the passage of air in the airways and cellulitis due to infection by bacteria that can cause damage to the airways¹³.

In addition, there was a need to intensify the use of PPE and adopt other equipment, such as: *face shield*, shoe covers, waterproof coat, N95 or PFF2 masks, among others. It was essential to limit access to waiting rooms, through scheduled visits, pre-clinical teleconsultation and the presence of companions. At the entrance to the dental clinic, body temperature measurement is now recommended, as well as an increase in the distance between chairs, provision of 70% alcohol gel and disposable protective masks for patients¹⁴.

With the advent of vaccines against the new coronavirus, the CFO requested, on December 3, 2020, the inclusion of these

professionals in the priority group for vaccination against COVID-19, and the right was finally granted on January 18, 2021¹⁵. The vaccination campaign in Brazil, through the Unified Health System (SUS), represents a great advance, however, it is essential to maintain biosafety habits in dental practice, in order to prevent and avoid compromising the health of individuals who are part of the team and patients. In addition, even with treatments or vaccines, professional practice will probably not return to the previous situation, as the new restrictions may become permanent¹⁶. Considering the forms of contagion of COVID-19 and its lethality, the need for a study addressing the changes in dental practice during the pandemic period became imperative. Given this context, this study aims to carry out a scope review on the biosafety measures adopted in dental practice during the COVID-19 pandemic.

Materials and methods

TYPE OF STUDY

This is a scoping review, which consists of synthesizing a theme, analyzing its extension, variety and nature, through a heterogeneous and broad investigation with different methodological approaches, allowing to identify research gaps¹⁷. With this, it became valid the need to map and evaluate the new guidelines of dental practice during the pandemic of COVID-19 in an effective and efficient manner. Because this is a scoping review, the research was not submitted to the Research Ethics Committee, and the authors' ideas of the articles used in the development of this study were kept.

This scoping review was registered in the Open Science Framework (<https://osf.io/>) under the DOI number 10.17605/OSF.IO/29KPC and was conducted following the recommendations of the Joanna Briggs Institute Manual - JBI Manual for Evidence Synthesis¹⁸. This

review followed the steps: formulation of the guiding question, definition of inclusion and exclusion criteria, elaboration of the strategy and search in databases, use of a form to extract data from articles, analysis of studies and narrative discussion, interpretation of results and review text writing.

The following guiding question was defined “What are the new biosafety guidelines in dental practice during COVID-19?”, including the elements of the PCC, Population (P), Concept (C) and Context (C), this being a pertinent acronym the methodology adopted in the study, guiding and directing in the definition of the criteria of the question in the research¹⁷. In this study, the Population was represented by the new biosafety guidelines; the Concept was configured as biosafety in dental practice and the Context involves the COVID-19 pandemic. These, in turn, guided the definition of Boolean descriptors and operators for searching the databases.

DATA COLLECTION AND ORGANIZATION

The bibliographic survey in the databases took place between February and March 2021. All these descriptors were verified on the Descriptors in Health Sciences (DeCs/) and Medical Subject Headings (MeSH) portal, both in Portuguese and in English. The search strategies followed the specifics of each database, keeping the guiding question of the research. For the literature search, Lilacs (Latin American and Caribbean Literature in Health Sciences), Scopus, Web of Science and PubMed databases via Medline were defined and, as gray literature, Google Scholar. A search was carried out in the databases with the following search strategies: *Lilacs and Scopus*: COVID-19 AND biosafety OR biosecurity OR containment of biohazards OR disease transmission AND dentistry OR dental practice; *Web of Science*: (COVID-19 AND biosafety OR biosecurity OR "containment

of biohazards" AND "disease transmission" AND "dentistry" OR "dental practice"), in which only articles related to "Dentistry Oral Surgery Medicine" were included, as way to limit the results only in the dental field; *Pubmed/Medline*: “((((((COVID-19 [Title/Abstract]) AND (biosafety[Title/Abstract])) OR (biosecurity[Title/Abstract])) OR (containment of biohazards[Title/Abstract])) OR (Disease transmission[Title/Abstract])) AND (Dentistry[Title/Abstract])) OR (Dental practice[Title/Abstract])”.

As for the gray literature, *Google Scholar* was used, with the descriptors: “COVID-19 AND biosafety OR biosecurity OR containment of biohazards OR disease transmission AND dentistry OR dental practice”, only the first 100 results were collected.

The inclusion criteria used were:

1. Articles in English, Portuguese or Spanish, between the years 2020 and 2021;
2. Primary study articles that addressed clinical protocols and guidelines for dental practice during COVID-19 and that worked with regulations involving before, during, and after dental care

The exclusion criteria used were:

1. Articles prior to 2020, which addressed dentistry in the university environment and dealt with practice in dental specialties

Reference managers, Mendeley and Rayyan, were used for phases I and II of the study. Phases I and II, which constitute study selection by title and abstract and full reading of the articles, respectively, were carried out by two independent researchers through a double-blind procedure. In situations of divergence in the selection of studies, a third researcher acted for definition and consensus.

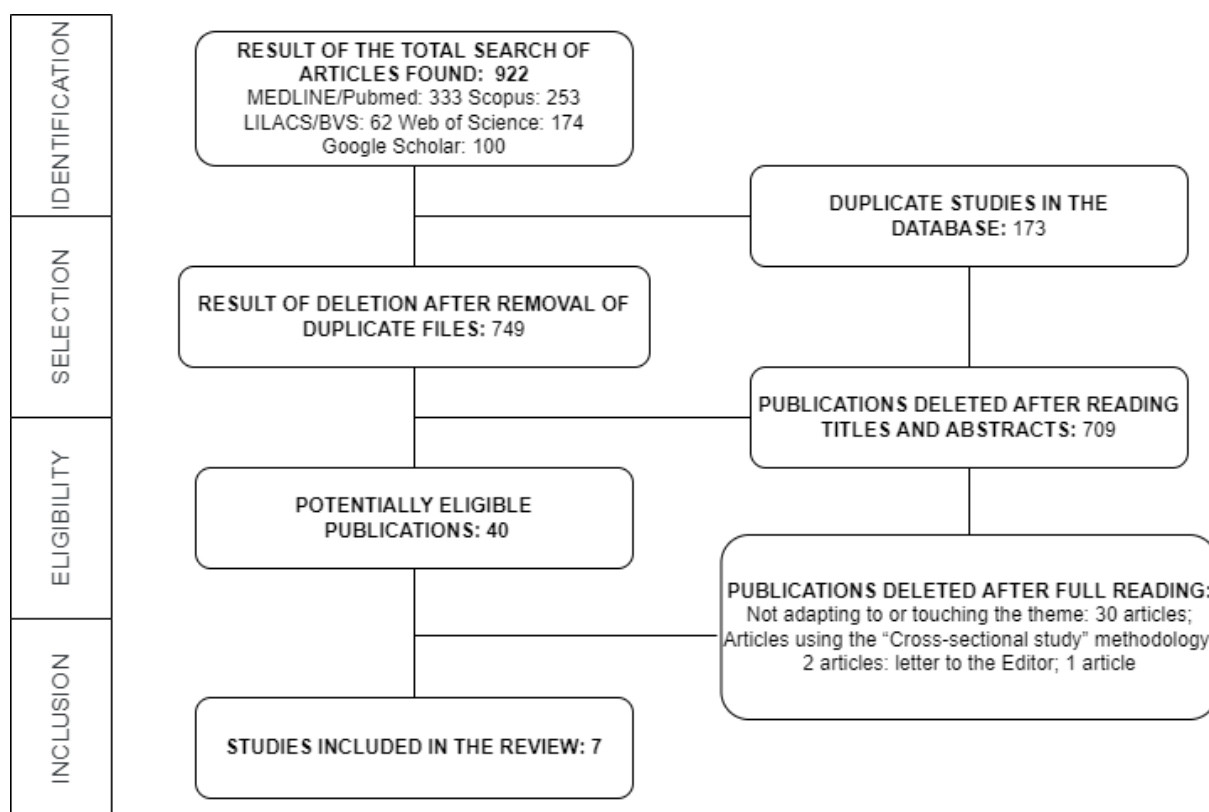
DATA ANALYSIS

As a result of the search, 922 studies were identified, of which 173 were

excluded because they were duplicated in the databases, totaling 749 articles for title and abstract reading. After reading titles and abstracts, 40 articles were selected for full reading. After reading the full text, 33 studies were excluded for not meeting the inclusion criteria: 30 studies were excluded for tangentiality and/or not explicitly addressing the topic; 2 articles with a "Cross-sectional study" methodology; 1

article as a letter to the editor. The 7 remaining studies were characterized as eligible for this scoping review, as seen in the flowchart (Figure 1). In order to analyze which procedures were adopted in order to avoid contamination of the patient by COVID-19, the clinical protocols are grouped into 3 categories: before, during and after dental care.

Figure 1 - Flowchart of selection of studies for inclusion in the review. Brazil, 2022.



Results

The sample data are shown in chart 1 with the following variables: country,

year, study design and categories before, during and after dental care.

Chart 1. Distribution of articles according to author, year and country of publication; biosafety protocols before, during and after dental care. Brazil, 2022.

BIOSAFETY PROTOCOLS				
AUTHOR/YEAR/COUNTRY	TITLE	BEFORE DENTAL CARE	DURING DENTAL CARE	AFTER DENTAL CARE
Naqvi, Mubben, & Shah/2020/ Pakistan/	Challenges in providing oral and dental health services in COVID-19 pandemic	Pre-service/teleconsultation ; Screening for COVID-19; Prioritize urgent care; Waiting room with protocols; Mouthwash with Chlorhexidine or Povidone Iodine - 0.2% or Hydrogen Peroxide 1%).	Reduce aerosol particles spreading; Prioritize extraoral images; Use of Rubber insulation; High-volume dental saliva ejectors; Use of PPE; HEPA filter.	Staff refresher training; Waste with appropriate/specialized disposal; Recirculation/Renewal of air with opening of windows; 20-minute hold until the next patient.
Meng et al./ 2020 / Wuhan - China/	Coronavirus Disease 2019 (COVID-19): Emerging and Future Challenges for Dental and Oral Medicine.	Infection control protocols; Pre-clinical assessments and screenings; Adequacy of treatments in case of emergency.	Use of PPE at 3 levels; Four-handed Dentistry; use of dental saliva ejectors.	Staff refresher training; Continuous post-procedure contact, if COVID-19 is suspected in the team or patients in the future; Post-procedure teleconsultations.
Peditto, Scapellato, Marciànò, Costa, & Oteri/ 2020 Italy	Dentistry during the COVID-19 Epidemic: An Italian Workflow for the Management of Dental Practice	Risk analysis of contamination by instruments; Screening of procedures and patients; Pre-service protocols; Dispose of hygiene products; Mouthwash with povidone-iodine and H2O2 (both 1%) followed by chlorhexidine (0.2/0.3%) for 1 minute.	Use of PPE; Restriction of access to the procedure site.	Analysis of patient contamination; Disinfection of the dental office for the next procedure.
Zhang & Ling /2020/ China	Guidelines on the Prevention and Control of Disease in Dental Practice during the Coronavirus Outbreak.	Patient screening and pre-screening; Prioritize ventilated locations; Sanitize the pre-screening location.	Anticipated instrument planning; Four-handed dentistry; Use of PPE according to the level of contamination.	Disinfection, disposal and post-treatment sterilization; Adequate undressing; Recirculation/Renewal and air disinfection.
Guo, Xie, & Wu/2020/ China	Preventive Measures for COVID-19 in Dental Treatments.	Prioritize emergency cases; Teleassistance and Triage on 3 levels with body temperature tests on 2 levels; Mouthwash with 1% povidone-iodine 2 minutes before the procedure	Anticipated instrument planning; Protection by PPE in 3 levels according to the level of contamination; Four-handed dentistry; Rubber isolation in the surgical field.	Daily symptom assessment and team training; Complete hand hygiene.

BIOSAFETY PROTOCOLS				
AUTHOR/YEAR/COUNTRY	TITLE	BEFORE DENTAL CARE	DURING DENTAL CARE	AFTER DENTAL CARE
Ceraulo, Lauritano, Caccianiga, & Baldoni/2020/Italy	Reduce the spread of COVID-19 within the dental practice: the era of single use.	Constant use of alcohol gel; Screening for COVID-19.	Use of PPE (surgical masks, face shield, gloves, disposable apron).	Proper undressing sequence; Proper disposal of disposable material; Environmental disinfection.
Lo Giudice/2020/Italy	The Severe Acute Respiratory Syndrome Coronavirus-2 (SARS CoV-2) in Dentistry. Management of Biological Risk in Dental Practice.	Triage and categorization of patients and care; Perform only urgent and emergency consultations; Minimum distance of 2 meters in the waiting room chairs; Provide hygienic products.	Use of PPE; Use of FFP2 or FFP3 mask in procedures with risk of aerosol particles production; Use of air purifier; Use of rubber insulation.	Decontamination, disinfection and sterilization with 75% ether and disinfectants containing chlorine, peracetic acid and chloroform; Wash hands frequently.

Source: own elaboration.

Among the selected articles, the places that presented the highest number of publications on the object studied were China and Italy, both publishing 3 studies (42.86%)^{3,19,20,22,23,24} followed by Pakistan, with 1 study (14.28%)²¹.

Regarding the category “Before Procedure”, 2 (28.6%) of the articles brought Teledentistry, either by phone call or by some other means of communication such as messaging or video calling applications^{20, 21}. The screening aimed at evaluating symptoms for COVID-19 were addressed in 7 (100%) of the selected articles^{3,19,20,21,22,23,24}. Four (57.2%) studies prioritized urgent and/or emergency care, thus postponing those considered as elective^{3, 20, 21, 23}. Three (42.9%) articles brought the mouthwash with some type of antiseptic substance in the pre-care as a way of preventing transmission^{20, 21, 24}. Six (85.8%)^{3, 19, 21, 22, 23, 24} of the articles brought biosafety protocols, especially in the waiting room, on the disposal of sanitizing agents^{22, 24} (28.6%) and minimum distance between patients²³, and only 1 (14.3%)

article addressed the analysis of risk of contamination of instruments before care²⁴.

The protocols adopted during dental care are highlighted in terms of prioritizing the use of PPE, a measure reported in 100% of the articles; in cases of care for people with flu symptoms, 1 of the articles²³ (14.3%) reported the importance of using N95, PFF2 or PFF3 masks; 3 articles^{3, 21, 23} (42.8%) described the use of high power suckers, as well as indicated the use of rubber insulation and four-handed dentistry; 2 of the articles^{19, 20} (28.5%) dealt with the prioritization of extraoral radiography, as well as the importance of planning the instruments and materials used prior to the service and also on the planning of air circulation and purification of the environment; 1 article²¹ (14.3%) provided for the addition of measures to reduce aerosol particles propagation, the same percentage applied to the use of “High Efficiency Particulate Arrestance” (HEPA) filters and the importance of reducing staff and restricting access to the clinical environment.

Regarding the “After Procedure” category, 4 articles (57.2%) deal with the importance of decontamination, disinfection and sterilization of the office after individual care or associated with the use of a substance containing chlorine, peracetic acid, chloroform or alcohol^{19,20,22,23,24}; 3 articles (42.9%) address the correct disposal of materials used after the procedure^{19,21,22}; 3 articles (42.9%) talk about the importance of recycling training for the team involved in the office to review protocols and biosafety measures in order to avoid contamination and contagion^{19,21,22}; 3 articles (42.9%) brought the maintenance of contact with the patient after the procedure as a way to inform him if there is a suspicion of COVID-19 among the team and the possible contamination of the patient^{2,20,24}; 2 articles (28.6%) address frequent complete hand hygiene^{20,23}; 2 articles (28.6%) discussed air disinfection by encouraging recirculation/renovation by opening doors and windows^{19,21}; 2 articles (28.6%) portray the correct undressing sequence as a way to prevent individuals from becoming infected with the material used after performing the procedures^{19,22}; 1 article (14.3%) addressed the protocol involving a 20-minute wait until the next patient arrives, indicating that it is the ideal time for air recirculation and renewal²¹; 1 article (14.3%) dealt with post-procedure teleconsultations, when possible, in order to avoid the patient going to the office².

Discussion

The two countries that most published the topics included in the article were China and Italy, each one with 3 articles. In the literature²⁵, China ranks first when it comes to publishing.

In the present study, 2 articles^{20,21} addressed Teledentistry as a form of anamnesis. The literature^{25,26} similarly reinforces the use of these technologies as a way of preventing contamination. However, this resource also collaborates as a way of monitoring and referring patients. Although useful, its use is limited, and face-

to-face care is important in many cases²⁶. Evaluative screening for COVID-19, which includes questions related to fever, respiratory symptoms, and contact with people who have had COVID-19 has been shown to be present in all articles in the study in question, and also in 25%²⁷ and 46%²⁵ in studies in the literature. In a Chinese hospital, a pre-examination and screening test system was established on three levels (hospital entrance, outpatient orientation desk and before consultation with the dentist) and two temperature measurements (hospital entrance and front desk). With this methodology, 2 patients were diagnosed with COVID-19, proving to be a reference protocol²⁰.

In the literature^{26,27,28}, urgency and emergency are considered as a priority, while elective procedures are postponed, in agreement with 57.2% of the articles added to the study. Such an attitude allows infections to decrease and resources to be used in the best way²⁸. In the studies analyzed, there was a variety of substances used antiseptically in pre-care, such as povidone-iodine^{21, 22, 24}; Hydrogen Peroxide^{21, 24} and Chlorhexidine^{21, 24}, thus emphasizing the divergence in their adoption²⁷. In the literature^{25,27,28}, the use of 1% hydrogen peroxide or 0.2% povidone-iodine for about 60s is recommended. However, although present in some studies, chlorhexidine does not have scientific evidence to be used as a mouth rinse before treatment, since the virus is vulnerable to oxidation. However, more research is still needed to assess the evidence of mouthwashes as a form of prevention^{25, 28, 29}.

With regard to the waiting room, the protocols found generally agree with the literature regarding the provision of sanitizing agents^{25, 26, 27}. However, there is disagreement regarding the minimum distance between patients, since data as 1 meter^{25, 26}; 1.5 meters²⁷ and 2 meters²³ were found.

The implementation of biosafety protocols aimed at COVID-19 during dental

practice was a decisive measure so that urgent and emergency care could be maintained safely for staff and patients. In this research, the results found showed strong adherence to the frequent use of PPE^{22, 20, 23, 3, 21, 24,19}, including the addition of new items, such as the N95 mask and PFF2²³; in addition to indication of high-power dental saliva ejectors^{3, 21}; and rubber isolation as one of the first steps during most clinical procedures^{20,23,21,19}, among other recommendations, which proved to be similar to each other, regardless of the countries where the articles analyzed were published. All these data are correlated with recent publications in the scientific literature, which also reveal a high prevalence of the use of these protocols during dental practice, in addition to showing their implementation in several countries, such as Brazil, China, India, Russia and South Africa^{14,30}.

When we analyze the importance of decontamination, disinfection and sterilization of the dental office after individual care or associated with the use of a substance containing chlorine, peracetic acid, chloroform or alcohol, there is unanimity regarding the need to perform these procedures after clinical care, with some authors bringing complementary protocols in order to help and amplify the cleaning of the environment by opening windows and air circulation^{19,22,23,24}. There are, however, disagreements regarding the use of specific cleaning products and actions, such as ultraviolet rays and heat, which can inactivate the virus when exposed to a region with a temperature of 56 °C for 30 min, as well as using lipid solvents such as ether, 75% ethanol and disinfectants containing chlorine, peracetic acid and chloroform in specific concentrations²⁴. These results converge with a study found in the literature³¹, in which the use of Ethanol (78–95%), Isopropyl Alcohol (70–100%), Povidone-iodine (0.23–7.5%), Hydrogen peroxide (0.5%) or Sodium hypochlorite (0.21%<) are effective in cleaning and disinfecting

surfaces and certain dental objects, as long as they respect the minimum necessary time of contact, for each substance, of the product with the contaminated surface.

Studies^{20,21,22} address the importance of proper disposal of materials used after the procedure as something strictly necessary to avoid cross-contamination. This procedure must follow the protocols for “contaminating waste disposal”, so that it is directed to the company responsible for the correct processing of this waste. This practice is also adopted in a previous study¹, in which garbage should be placed in “closed plastic bags and identified as infectious”.

In the literature^{3,20,24}, it is discussed how relevant are the recycling training of the team involved in the office in order to analyze the protocols and biosafety measures adopted and the management within the dental environments to avoid contamination and contagion in the current scenario. This idea is confronted and affirmed by Silva et al. (2020), since due to the severity that COVID-19 can cause in infected people, more rigidity is required when following the guidelines adopted during the pandemic of the new coronavirus, in order to prevent new cases and cross-infections.

In the literature¹, it is ideal that the space between visits is between 1 and 2 hours, with the use of means for air renewal (opening windows or using exhaust fans) so that there is sedimentation of particles and the consequent cleaning of the place. The use of materials such as covers and disposable devices help in a more effective cleaning and disinfection of the environment. This fact follows what was proposed in previous articles^{21, 19}, which treat air disinfection with the incentive to recirculation/renewal, through the opening of doors and windows, going against another study²¹ that adopts a protocol of waiting 20 minutes until the arrival of the next patient, being the ideal time for air recirculation.

In studies^{22,19}, the correct undressing sequence is addressed as a way to prevent the infection of individuals with the material used after the procedures have been performed, since the use of instruments such as disposable aprons (with a weight above 40g), masks N95 and Face shield, for example, considerably reduce the possible contact with splashes, droplets and/or aerosol particles between the patient and the dental team. As discussed in a previous study¹, this entire process of undressing must also be followed by correct hand hygiene, in line with the study by^{20,23}, which deals with the need to sanitize the hands well frequently, so that there is no cross-transmission. This process must happen before, during and, especially, after the procedures, with cleaning right after the service and, repeat the washing after the removal of the PPE, in which it must occur with the use of water and soap in addition to disinfection with alcohol 70° (hydrated ethyl alcohol 70° INPM (National Institute of Weights and Measures))¹. Although it is known the importance of using waterproof aprons as a way of protecting professionals' clothing from contamination¹⁴, it was noted that in the articles raised in question, only two^{22,19} directly addressed its use.

Articles^{20,24} highlight the importance of maintaining contact with patients after the procedure as a way of informing them if there is a suspicion of COVID-19 among the team and possible contamination of the patient and, in the literature³, post-procedure teleconsultations were used, when possible, as a way to avoid the return of the patient to the clinic. However, although virtual contact with the patient can bring benefits, in some cases, face-to-face care remains necessary.

With the advent of COVID-19 and the determination of the state of a pandemic, some measures became necessary in order to prevent the spread of the virus in the dental environment. The National Health Surveillance Agency (ANVISA)³² started to require the use of

various PPE and biosafety protocols by dental professionals to avoid contamination, such as disposable aprons (with a weight above 40g), face shields, disposable caps, masks with a higher level of particle filtration (N95 or PFF2, for example), correct sequence of dressing and undressing and horizontal monitoring of the patient, from the arrival at the dental office to complete recovery through teledentistry³². Before the pandemic, the requirements for dentists were more lenient and restricted to the use of non-surgical lab coats, surgical masks, disposable gloves, eyewear and protective gloves, as well as some biosafety protocols related to the disposal of biological materials and sharps to avoid cross-contamination³³.

Among the limitations found in this study, the methodology applied suggests that the protocols on biosafety in Dentistry during the COVID-19 pandemic are not yet unified, thus, the development of research is necessary.

Conclusion

The new biosafety guidelines for dental practice during COVID-19 are: recommending the use of PPE with a higher level of protection, such as PFF2/PFF3/N95 masks; use of disposable aprons (weighing more than 40g); air filtration after procedures or renewal of air by opening doors and windows; longer time interval between clinical visits; dressing and undressing strictly following the protocols; carrying out pre-clinical screenings to classify the priority of care (elective, urgency or emergency), but also to check for patients with symptoms related to COVID-19; performing remote consultations to monitor patients who have had procedures.

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