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Article Review

Comparison of Dental Care Policies Before and During The COVID-19 Pandemic: A Literature Review

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ABSTRACT

Dental care services have the highest risk of transmitting the COVID-19. Many countries and health organizations published policies or procedures for dental care services implementation during the COVID-19 pandemic. This study compared the dental care policies before and during the COVID-19 pandemic. This study narratively reviewed policies of dental care services before and during the COVID-19 pandemic. We searched for recommendations and guidelines on dental care policies by The Ministry of Health of Indonesia and The Centers for Disease Control and Prevention (CDC). The study result showed that the dental care policy before the COVID-19 pandemic explained infection preventive action in dental care facilities. Dental care policy during the COVID-19 pandemic explained COVID-19 preventive efforts and changes in the dental procedure like the use of teledentistry (to assess the dental condition of patients and follow up patients), postponing of elective surgeries, restricting the number of patients, screening COVID-19 for all patients, and implement of COVID-19 health protocol. The most striking differences among dental care policies before and during the COVID-19 pandemic were the pre-visit screening aspect (the use of teledentistry to assess dental condition) and the screening aspect (ensuring patients didn't have COVID-19 symptoms).

Keywords: COVID-19, Dental Care, Guidelines, Policies

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INTRODUCTION

COVID-19 is a communicable disease caused by SARS-CoV-2, a new type of coronaviruses [(1)]. COVID-19 found in 2019 in Wuhan city has become pandemic because the virus spreads to many countries for a relatively short period [(1)]. COVID-19 can spread through droplets from the mouth or nose of infected individuals when they speak, cough, and sneeze [(2)]. Common symptoms of COVID-19 are fever, impairment in smell (anosmia), impairment in taste (ageusia), cough, and exhaustion [(3)]. Dangerous symptoms of COVID-19 are out of breath and impairment in mobility or feeling dazed [(4)].

In Indonesia, there were 3.804.943 confirmed cases of COVID-19 and 115.096 cases of deaths until 14 August in 2021 [(5)]. Those cases are the highest in Southeast Asia [(5)]. But, COVID-19 confirmed cases still increased. In Indonesia, until 12 September 2021, there were 4.167.511 confirmed cases of COVID-19 with 138.889 deaths [(5)]. Globally, the highest death cases of COVID-19 per 14 August in 2021 have happened in the United States, reaching 614.267 cases of deaths [(5)].

A high number of COVID-19 cases caused a lack of access to healthcare for other disease services [(6)]. Because of COVID-19, adults in the United States (40.9%) had postponed or restricted medical treatment including 12% of emergency care and 32% of periodic control [(7)]. There was a change in treatment for patients during the COVID-19 pandemic caused by a lack of access to health services [(8)].

Because of these problems, many countries or health organizations make policies for performing health services during the COVID-19 pandemic. One of the most necessary policies during the COVID-19 pandemic was the dental care policy. Dental care practices have the highest risk of COVID-19 transmission [9]. COVID-19 can spread because of direct contact with patients and during the service procedures [10]. COVID-19 can transmit in dental care because of the specificity of its practices, using a lot of equipment that generates aerosols in any activities such as tooth preparation, scaling, and oral surgery [11,12]. However, dental care services still have high demand. In 2018, 57.6% of the population had impaired dental care, only 10.2% of them got treatment [13].

During the COVID-19 pandemic, many problems occurred in dental care services. Most of the dentists (87%) had worried about providing Personal Protective Equipment (PPE) [14]. In the United States, 57 dentists (2.6%) have ever been COVID-19 diagnosed [15]. Dentists in Pakistan (75%) were afraid of getting COVID-19 infected, 88% of dentists were anxious while providing dental care treatment [16]. The existence of asymptomatic patients for COVID-19 makes patients and staff protection difficult [17].

Several studies have discussed dental care policies during the COVID-19 pandemic, but they didn't explain the differences among dental care policies before and during the COVID-19 pandemic. This literature review focuses on dental care policies during the COVID-19 pandemic and comparison with dental care policies before the COVID-19 pandemic. The objective of the literature review is to know the differences between dental care policies before and during the COVID-19 pandemic. This literature review can increase the understanding of readers about the differences in dental care policies before and during the COVID-19 pandemic.

METHOD

This study used a narrative review method by comparing dental care policies before and during the COVID-19 pandemic. This study collected information about dental care policies on official websites of The Ministry of Health of Indonesia (www.kemkes.go.id) and The Centers for Disease and Preventing (www.cdc.gov) from the first week of August to the fourth week of 2021. This study also analyzed dental care policies by The Centers for Disease and Prevention (CDC) because developed countries have a better effort for disease prevention than developing countries [18].

Dental care policies analyzed include *Petunjuk Teknis Pelayanan Kesehatan Gigi dan Mulut di FKTP pada masa Adaptasi Kebiasaan Baru* (2021), *Keputusan Menteri Kesehatan Republik Indonesia No. 284 Tahun 2006 Tentang Standar Pelayanan Asuhan Kesehatan Gigi dan Mulut*, Centers for Disease and Prevention (CDC) Interim Guidance for Dental Settings During The COVID-19 Pandemic (2020), Summary of Infection Prevention Practices in Dental Settings (2016). An overview of literature review findings could be seen in Table 1. This table outlined dental care policies before and during the COVID-19 pandemic. This study elaborating results descriptively because searching for information related to the objective, explained clearly defined goals, plan how to approach, and collect various kinds of information or data [19].

RESULTS

Table 1. An overview of the guidelines for implementation of dental care services by The Ministry of Health of Indonesia and Centers for Disease Control and Prevention (CDC) before and during the COVID-19 pandemic

Policies	Aspects	Before COVID-19 pandemic	During COVID-19 pandemic
The Ministry of Health of Indonesia	Preparation	**Room management** - Neat, clean, bright, good ventilation, and comfortable room. - The shape and location of the room as needed.	**Room management** - Dentists must manage the practice rooms (ventilation, airflow, room management, and clean water management). There must be good air circulation. Avoid using fans or air conditioners on the ceiling or in front of

Policies	Aspects	Before COVID-19 pandemic	During COVID-19 pandemic
			the dental chair during dental care procedures **Physical barrier** - Dental care facilities that provide more than one dental care unit without physical barriers must make physical barriers. If it's impossible to do, use one dental care unit only **Warning signs** - Health care facilities must provide a banner, poster, or sticker about COVID-19 and safety protocol for COVID-19
	Pre-Visit Screening	Not applicable	**The use of tele dentistry** - Used tele dentistry and set schedules **Limit of total patients** - There is a limit of total patients (based on the number of practice rooms, practice space, the layout of infrastructure facilities, and the time needed to clean infrastructure)
	Screening (during patient visit)	Not applicable	**Screening** - Body temperature measured, wash hand before entry to the dental care facilities
	Post-Visit	**Disinfection and sterilization** - Disinfect all work environments and arrange equipment in the room	**Disinfection and sterilization** - Disinfection and sterilization of the work environment - Follow up patients using tele dentistry
The Centers for Disease Control and Prevention (CDC)	Preparation	**Room management** - Develop and maintain infection prevention health programs or policies - Assign at least one person to coordinate programs or policies for infection prevention - Dental care facilities have systems or methods for the earliest identification and control **Personal Protective Equipment (PPE)** - Provide supplies for protection from infection include cough protocol or respiratory hygiene, a place for hand hygiene, safer tools or devices, and protective clothing or Personal Protective Equipment (PPE)	**Room management** - Remove magazines and all frequently touched items from the waiting room - Provide supplies for cough protocol and hand hygiene (handwashing facilities or alcohol-based hand rub with 60% alcohol). Also, provide a facemask if supplies are sufficient **Personal Protective Equipment (PPE)** - Dental health care personnel must cover up the body with a clean protective suit, eye protection, and gloves - Monitor and manage dental health care personnel. Ensure that dental health care personnel implement physical distancing, use an N95 mask or higher level of face protection, and perform hand hygiene (use cleanser and running water for a minimum of 20 seconds or apply hand antiseptic) **Ventilation management** - Properly maintain ventilation systems **Warning signs** - Post a sign or poster that provides instructions about cough etiquette or respiratory hygiene and hand hygiene **Physical barrier** - Install physical barriers in the reception areas and arrange a seat in the waiting room with a gap of approximately 6 feet

Policies	Aspects	Before COVID-19 pandemic	During COVID-19 pandemic
	Pre-Visit Screening	Not applicable	**The use of tele dentistry** - Evaluate the dental condition/disease of patients with tele dentistry and arrange the date for meet up to decrease a lot of people in the waiting area (postpone elective surgeries/procedures or non-urgent outpatient) **Limit of total patients** - Request patients to restrict the total of people to go with patients to dental care
The Centers for Disease Control and Prevention (CDC)	Screening (during patient visit)	Not applicable	**Screening (recommended precaution infection and practices management for periodic control in dental healthcare during the COVID-19 pandemic)** - Screen everyone that enters a dental care facility (body temperature measures, document absence of COVID-19 signs and symptoms, implement hand hygiene, make sure all visitors use their facemask to avoid COVID-19 infection, and manage everyone with symptoms of COVID-19 properly) - Encourage physical distancing **Recommended precaution of infection and practices management for a suspected or confirmed patient COVID-19** - If an emergency and dental treatment are needed, dental health care personnel should adhere to "Interim Infection Prevention and Control Guidance for Health Care Personnel During the Coronavirus Disease 2019 (COVID-19) Pandemic" - Perform dental care in a single room and make sure that the door is closed - Dental health care personnel who enter the room of patients with COVID-19 should avoid aerosol-generating procedures. If it's impossible to do, perform aerosol-generating practice in an airborne infection isolation room. The total number of dental health care personnel must be limited. They should clean, disinfect rooms and limit the movement of the patient. They have to schedule patients and not schedule another patient at the time - Dental health care personnel must delay entry into the operatory to reduce or remove any potentially infectious particles
	Post-Visit	**Disinfection and sterilization** - Protocols of sterilization, routine cleaning, and cleanse of all items of medical treatment	**Disinfection and sterilization** - Protocols of sterilization, routine cleaning, disinfection of patient-care items

Policies	Aspects	Before COVID-19 pandemic	During COVID-19 pandemic
			- Implementing hand hygiene after taking off Personal Protective Equipment (PPE) is necessary - Provide protection and closed storage for all supplies or equipment and keep away from all possible infections

Sources: *Petunjuk Teknis Pelayanan Kesehatan Gigi dan Mulut di FKTP pada masa Adaptasi Kebiasaan Baru*, 2021; *Keputusan Menteri Kesehatan RI No. 284 Tahun 2006 Tentang Standar Pelayanan Asuhan Kesehatan Gigi dan Mulut*; Centers for Disease and Prevention (CDC) Interim Guidance for Dental Settings During The COVID-19 Pandemic, 2020; Summary of Infection Prevention Practices in Dental Settings: Basic Expectations for Safe Care, 2016

DISCUSSION

Preparation

Room Management

Health care facilities have to manage their room to provide optimum care [20]. Room management in the pandemic era of COVID-19 includes removing magazines or all frequently touched items in the waiting room [21]. There were three zones of room management in dental care facilities during the COVID-19 pandemic [11]. Yellow zones for a reception area or patient reception counter, waiting room, and staff room [11]. Orange zones for particular rooms for patients to consult with dentists or non-aerosol generating activity [11]. Red zones for aerosol-generating activity and Personal Protective Equipment (PPE) decontamination room and medical equipment [11].

Room management guidelines for donning and doffing Personal Protective Equipment (PPE) are needed because microorganisms can transmit to the dental health care personnel bodies [11,22]. Donning (putting on) and doffing (putting off) Personal Protective Equipment (PPE) protocol can reduce the risk of COVID-19 infection [23]. Also, limit the movement during removing Personal Protective Equipment (PPE) by providing a marker that distinguishes infected and noninfected zones [11].

Physical Barrier

One of the differences between dental care policies before and during the COVID-19 pandemic is the physical barrier. Physical barriers such as glass or plastic windows can minimize exposure to SARS-CoV-2 [24]. Physical barriers can give more protection to dental health care personnel [25]. A physical barrier application in the room/area patients will visit such as the emergency room, room of registration, or pharmacy room for patient medication taking [24]. Install physical barriers in dental care facilities that provide more than one dental care unit [11]. Also, install physical barriers in the reception areas of dental care [21].

Ventilation Management

Before the COVID-19 pandemic, there were policies to ensure that dental care had good ventilation to prevent infection [26]. Also, during the COVID-19 pandemic, there were guidelines for dental health care facilities to maintain ventilation systems properly and settle airflow in the dental practice room [11]. It's necessary to have good ventilation in the patient's room [27]. This means having fresh and clean air as much as possible [27]. The difference in the pandemic era of COVID-19, dental care facilities must avoid using fans or air conditioners on the ceiling or in front of the dental chair during dental care procedures [11].

Warning Signs

Post warning signs such as standing banners or posters as reminders for visitors, patients, and dental health care personnel to implement the protocol of COVID-19. Posters can be alternative media for public education that are affordable, easy to make, and practice to use [28]. The poster as a media of education can change individual behavior to prevent infection in the COVID-19 pandemic [29]. The poster includes steps for elderly dental health care personnel to put on and remove Personal Protective Equipment (PPE) when providing dental treatment for suspected or confirmed patients COVID-19 [30]. It also includes instructions to attach N95 respirators [30].

Personal Protective Equipment (PPE)

Personal Protective Equipment (PPE) provided by dental care facilities must be adequate and appropriate [31]. Personal Protective Equipment (PPE) to cover the body from potential contamination [32]. Before the

COVID-19 pandemic, there were policies or guidelines about Personal Protective Equipment (PPE) setting in dental care. Using Personal Protective Equipment (PPE) during the COVID-19 pandemic should be selected depending on the condition of patients, epidemiology situation, and the risk of the dental care procedures [33].

The level of risk in dental care procedures during the COVID-19 pandemic was a minimum hazard, medium hazard, or very dangerous [33]. Personal Protective Equipment (PPE) in dental care with minimum potential infection (low risk) were face masks, face guards, suits, and clinical shoes [34]. Personal Protective Equipment (PPE) in dental care with medium hazard (moderate risk) for cleaning and sterilization were caps, protective glasses, face masks, suits, impermeable apron, thick gloves, and clinical shoes [34]. While in clinical procedures without aerosol-generating procedures were caps, protective glasses, face masks, waterproof gowns, gloves, clinical footwear, and shoe cover [34]. The protection in dental care with high danger (high risk) should increase the protective respiratory mask with High Efficiency Particulate Air (HEPA) such as an FFP3 mask [34,35].

Pre-Visit Screening

Use of Tele dentistry

Tele dentistry means the use of telehealth systems in dentistry [36]. Tele dentistry means using a mix of technologies and strategies to deliver virtual medical and education services [36]. Tele dentistry can help to provide the dental practices and management of patients without involving the risks of COVID-19 transmitted [37]. Tele dentistry has many subunits functioning as teleconsultation, telediagnosis, and telemonitoring [38].

The Ministry of Health of Indonesia urges health care facilities to implement health services through information and communication technology during the COVID-19 pandemic [39]. Also, there was Indonesian Medical Council Regulation number 74 of 2020 concerning clinical authority and medical practice through telemedicine during the COVID-19 pandemic [40]. Because of that, the willingness of patients to use tele dentistry during the COVID-19 pandemic increased. 54.5% of patients are willing to use technology to communicate with dentists during the COVID-19 pandemic [41].

According to The Ministry of Health of Indonesia (2021), the use of tele dentistry for pre-visit screening, set schedules, and follow-up patients. Follow-up patients with tele dentistry are feasible and diagnostic accurately [42]. Evaluate the dental disease of patients with tele dentistry and schedule the date for meet-up to reduce the total number of visitors in the waiting room [21].

Postponed of Elective Surgeries

Elective surgeries/procedures for non-urgent outpatients must be postponed [21]. During the COVID-19 pandemic, dental health care facilities only treat urgent treatment of dental diseases [43]. The priorities of treatment are emergency cases [44]. Elective procedures are periodic control for dental treatment, scaling, orthodontic treatment without any complaints of pain or irritation, tooth extraction on tooth condition without gripe, restorative care, and dental aesthetic care [11].

Limit of Total Patients and Visitors

Restrict the number of patients and visitors during the COVID-19 pandemic in dental care to deliver patient treatment adequately but not enhance the transmission of COVID-19 [31]. Dental treatment must be restricted depending on separate usable operating and waiting rooms [45]. Patients are limited based on the total number of practice rooms, practice space, the layout of infrastructure facilities, time needed to clean infrastructure [11]. Also, request the patient to limit the number of individuals to go with patients to dental care [21].

Screening (during patient visit)

Physical Distancing

Implementation of physical distancing means making and maintaining a space or distance between one person and another person who is not your family or household [46]. During the COVID-19 pandemic, physical distancing policies can minimize the chance of interpersonal contact and COVID-19 transmission [47]. Also, dental care services must manage the total number of chairs in the corridor/lobby and the waiting room to 6 feet distance [48]. Physical distancing policies can be effective based on their inflexibility and patient obedience [47]. Early implementation of social distancing can postpone the epidemic curve [49]. So, the application of physical distancing

during the COVID-19 pandemic is necessary.

Screening

Screening patients before entry to the dental care facilities during the COVID-19 pandemic is necessary to identify patients who are potential COVID-19 infected [50]. Screened COVID-19 signs and symptoms, also asked patients about the lasted contact with infected patients of COVID-19 [51]. Screening patients covered body temperature measured, washing hands before entry to the dental care facilities, the absence of COVID-19 symptoms, make sure everyone uses their facemask to avoid the transmission of COVID-19 [11]. Dental care facilities can control properly for patients or visitors who have symptoms like COVID-19. Dental health care personnel must also be screened [21]. Monitor and manage dental health care personnel like ensure that dental health care personnel implement physical distancing, use an N95 mask or higher level of face protection, perform hand hygiene in running water and use a cleanser for a minimum of 20 seconds or use hand antiseptic [21].

Post-Visit

Disinfection and Sterilization

Before the COVID-19 pandemic, there were policies or guidelines about dental care disinfection for infection prevention. Those policies include performing hand hygiene when visibly soiled or after touching materials that are contaminated by blood or saliva and before and after treating patients [32]. Disinfection uses a cleanser and running water or alcohol-based hand rub with a minimum of 60% alcohol [32].

During the COVID-19 pandemic, dental care facilities must provide handwashing facilities or alcohol-based hand rubs with 80% alcohol and surface disinfection to avoid the transmission of COVID-19 [52]. The strategy to maintain that dental health care personnel perform hand hygiene is to disinfect the hands before and after caring for patients with cleanser and clean water and after touching the unclean devices/tools or contamination of fluids [53]. Implementing hand hygiene after taking off Personal Protective Equipment (PPE) is necessary [21].

CONCLUSION AND SUGGESTION

There were many differences between dental care policies before and during the COVID-19 pandemic. The significant differences are pre-visit screening and screening (during patient visit) aspects. Before the COVID-19 pandemic, there were no related policies about pre-visit screening and screening (during patient visits). Aspects of pre-visit screening during the COVID-19 pandemic are the use of tele dentistry, postponed elective surgeries, and the limit of total patients and visitors. Also, implement screening during patient visits like physical distancing and screening (body temperature measured, perform hand hygiene, document absence of symptoms of COVID-19, and use facemask). But overall, dental care policies by The Ministry of Health of Indonesia and The Centers for Disease and Prevention (CDC) do not have striking differences. All of the changes of dental care services implementation during the COVID-19 pandemic to provide optimal dental health services but minimize the COVID-19 transmitted. The results of this study can be a reference for further research about dental care policy.

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