

Dentistry Education Innovation during the COVID-19 Pandemic in the World in 2020 - 2022

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ABSTRACT

Introduction: the teaching and learning process in the Faculty of Dentistry around the world during the COVID-19 Pandemic has a challenge, where institutions must continue to carry out educational processes for the community and produce quality dentists. Purpose: to find out the educational process of dental faculties in the world during the COVID - 19 Pandemic. Methods: using a narrative review with online databases and the BMC Oral Health website, PubMed, and Google Scholar. The references used are from 2021 - 2022. Conclusion: Dentistry students can play a role in preventing and handling the COVID-19 outbreak by embedding E-learning and government regulations are needed in the teaching and learning process.

INTRODUCTION

The COVID-19 pandemic has shaken the whole world from 2020 to 2022, forcing the world to experience crises in all fields, especially education and health. Various countries have instituted various forms of quarantine, disrupting many normal routines, affecting work, free movement, commerce and especially education. Many countries have temporarily closed the Faculty of Dentistry due to the COVID-19 Pandemic so that the learning and teaching process has been shifted to online methods. This has become a habitual lifestyle for the new world's people who previously were not too close to the online world to become very dependent on the online world. The latest communication technologies, such as: ZOOM meeting, Google Classroom, Google meet, Skype are an option for carrying out the teaching process. Most dentistry faculties in the world are also challenged to continue the learning and teaching process during the COVID-19 pandemic so that dental faculty leaders in the world must be able to think about the processes that were carried out before the COVID-19 pandemic.

In addition, high anxiety problems occur in lecturers, students, and patients as a result of the high transmission rate during dental practice. This is a big problem for the sustainability of the Faculty of Dentistry in the world. The purpose of this writing is to find out the teaching and learning process in the Faculty of Dentistry in the world during the COVID-19 Pandemic, where institutions must continue to carry out the educational process for the community and produce quality dentists.

LITERATURE REVIEW

Impact on Dentistry Education

At a time when the world's population is practicing social distancing and reducing all face-to-face contact, it will also have an impact on teaching and training programs in the field of dental education. Around the world, universities have been dealing with the outbreak of the COVID-19 pandemic. Lockdown in pre-clinics and clinics has disrupted student access to learning processes and. Apart from that, there are also challenges faced in dental education, namely there is no treatment available for patients in dental faculty clinics.

Many dental faculties in the world have suspended clinical practice except for emergencies. In pre-clinical education, social distancing is also carried out in pre-clinical laboratory practicum activities using simulations. The practice of simulating mannequins is often a pain for dental schools around the world, but they have no other option to teach online. However, this pandemic has given birth There are many academic strategies in dental faculties around the world to maintain coaching in the continuity of the academic year. Dentists are basically a profession in clinical practice, but during the COVID-19 pandemic, virtual learning was required, and this became a challenge for universities around the world. Nonetheless, dentistry academics in the world continue to use virtual simulation methods and online learning applications.

Dentistry education is indeed an educational program that requires careful preparation both in terms of course planning and the competence of teachers from various specialization disciplines, but also requires specific teaching and learning methodologies. However, during the COVID-19 pandemic, dental faculties around the world prioritized the safety and health of lecturers and students by stopping all face-to-face teaching processes. A recent international article looks at the thinking of the dean of the faculty of dentistry at Queen Mary University in London about the COVID-19 outbreak, that they that the initiative was taken based on a moral judgment to stop all patient care for professional and specialist education program students to save the lives of students, lecturers, and patients.

The psychological impact of COVID-19 on Dentistry Students

Many students in dental schools around the world are suffering from depression and have been negatively affected by the fear of being infected with the virus during the COVID-19 Pandemic. At that time, many health workers including dentists in the world died because of the COVID-19 Pandemic. This causes the Faculty of Dentistry to need psychological therapy to deal with anxiety by dental students. In China, most dental students experience anxiety due to the COVID-19 pandemic, so the government provides incentives to psychologists to deal with the dental student's anxiety. In Europe, there are 30% of dental faculties who are serious about dealing with the psychological impact of their students due to the COVID-19 pandemic, which at first they did not really think about it. This is proven to be able to help students to carry out their activities as students in the dental faculty, namely by treating patients. Of course it is supported by complete protective equipment so that there is no transmission of COVID-19.

Challenges in Teaching and Learning

During the COVID-19 Pandemic there were many challenges in the learning system at the Faculty of Dentistry around the world. In the United States, The American Dental Education Association (ADEA) implements a varied and creative dental education teaching system, namely by using an online system for both preclinical and clinical education. Dental schools in the United States have limited clinical activities except for emergencies. In addition, there is also social distancing which can limit laboratory activities as a support for dental education. There are also dentistry faculties that use simulations with mannequins which are very difficult to teach online given the time, effort and technology required for learning. The biggest challenge in clinical education at dental faculties is delaying patient care. Faculty and administration struggle to balance the need to comply with the recommendations of state and government agencies, while keeping students engaged and motivated to continue learning remotely in this dynamic environment.

Due to the uncertain conditions for staying at home, school calendars and schedules were affected; the licensing exam has been postponed or cancelled. Therefore, it can be the responsibility of dental schools to certify the competency of dental graduates. One solution is to use a multidisciplinary Objective Structured Clinical Exam (OSCE) coupled with a written exam for seniors.

Anticipating the Negative Impact of COVID-19 in Dentistry

In connection with the COVID-19 pandemic, the government has advised students to carry out teaching and learning activities from home for students at all tertiary institutions in Indonesia, including students at Dental Education Institutions, both in the Academic Program, Undergraduate Professional and Specialist Programs, Masters and Doctoral. The condition of the COVID-19 pandemic, although it has a negative impact on dental education, there is also a positive side that can be drawn from this condition. For example, lecturers and students are simultaneously required to master the distance learning system. Every Dentistry student who is currently undergoing an educational stage and dealing with patients, is at high risk of exposure to and transmission of COVID-19. Therefore, it is necessary to anticipate every patient encountered, both pediatric patients, adults, elderly, with and/or those who are categorized as asymptomatic people (OTG), people with monitoring (ODP), or patients with monitoring (PDP). COVID-19 should be seen as a source of infection for COVID-19. Based on the literature, the transmission of COVID-19 mainly occurs through small droplets that come out of the mouth or nose of a person infected with SARS-CoV-2 when coughing, sneezing, or talking, although the droplets are relatively heavy so they don't fly around and quickly fall on solid surfaces. Airborne transmission is also possible in the work room, so it is necessary to anticipate the transmission of COVID-19 during Dentistry procedures, by preparing a negative pressure work space to prevent transmission of the virus that causes COVID-19. The habit of washing hands with soap in the right way, for at least 20 seconds, using Level 3 personal protective equipment (PPE), maintaining a safe distance between the operator and the patient.

METHODOLOGY

At this writing, references are collected in journal form through online databases and the BMC Oral Health, PubMed, and Google Scholar websites. The reference used is from 2021 - 2022 at which time the COVID-19 pandemic was still occurring. The method used is Narrative review.

DISCUSSION

The COVID-19 pandemic has brought a world situation that is experiencing new changes in people's daily activities, especially in the field of dental education. In America, The American Dental Education Association (ADEA) recommends an online teaching and learning system and other creative teaching methods so that the teaching and learning process continues even though there are limitations. Lectures in dental education in the world use a teaching and learning process using online mode learning applications and the use of virtual simulation methods to maintain learning progress for their dental students, but simulated mannequins often make it difficult for schools that do not have the option to teach online given the time, manpower, and technology needed for teaching.

Every Dentistry student who is currently undergoing an educational stage and dealing with patients, is at high risk of exposure to and transmission of COVID-19. Therefore, it is necessary to anticipate, every patient encountered must be seen as a source of infection with COVID-19. Transmission of COVID-19 mainly occurs through small droplets that come out of the mouth or nose of a person infected with SARS-CoV-2 when coughing, sneezing or talking, although the droplets are relatively heavy so they don't fly around and fall quickly to solid surfaces. Airborne transmission is also possible in the work room, so it is necessary to anticipate the transmission of COVID-19 during Dentistry procedures, by preparing a negative pressure work space to prevent transmission of the virus that causes COVID-19. The habit of washing hands with soap in the right way, at least 20 seconds, using Level 3 personal protective equipment (PPE), keeping a safe distance between operator with patient.

Due to uncertain living-at-home conditions, calendars and school schedules are affected. Therefore, for dental schools to be responsible for certifying the competency of dental graduates, it is important to design assessments that cover the skills, knowledge, aptitudes, and behaviors required to become competent dentists. One solution is to use a multidisciplinary Objective Structured Clinical Exam (OSCE) coupled with a written exam for seniors. The COVID-19 pandemic has also brought great anxiety to the Faculty of Dentistry around the world. According to Alzahrani et al. in China, most students experience anxiety because of the epidemic. And the government provides psychologists to deal with anxiety in students and lecturers. whereas in Europe there are only 30% of universities that have special support for COVID-19 for students and lecturers providing emergency telephone numbers in dealing with anxiety due to the COVID-19 Pandemic.

Anxiety that occurs in the university community at the faculty of dentistry requires the government to make a policy. The policies set in several countries are as follows:

- a. According to Tsai-Yu Chang et al. The results of research from several countries such as Australia, Cambodia, Hong Kong, Japan, Malaysia, Philippines, Switzerland, Taiwan, Thailand, USA show that almost all lectures are transferred online. Using appropriate applications based on their needs, namely : ZOOM, Google meet, Skype, Microsoft team, Panopto, Canvas.
- b. According to Parvaty Lyer et al, in America educational methods such as e-learning (distance education using online) are adapted to the experiences and attitudes of students, namely using the VoiceThread (VT) application. VT is an excellent cloud-based program that allows video and PowerPoint to be integrated in presentations. Besides that, it also uses EDpuzzle which is an innovative communication tool where students can increase student engagement. Whereas for formative exams using learning management systems such as Canvas and summary exams at ExamSoft, and small group discussions using WebEx.
- c. According to Meng L. et al, strategies in dental education during the outbreak, among others: First, to avoid unnecessary gathering of people and the associated risk of infection, online lectures using case studies and problem-based learning tutorials are used. Second, students are required to carry out online activities based on programs and policies that have been designed by the government. Third, providing psychological services for those who need students and lecturers to overcome their anxiety.
- d. In Indonesia, the ministry of education and culture has issued Decrees No.2 and No.3 of 2020 concerning Prevention and Handling of COVID-19 on March 9 2020. On March 17 2020 the Minister of Education and Culture issued Circular No. 36962/MPK.A/HK/2020 concerning Online Learning and Working from Home which is addressed to all Higher Education and Private Higher Education Leaders, as a follow-up to steps to prevent the spread of COVID-19. The facilities and infrastructure for E-Learning and PJJ used are Google Classroom, Zoom Meeting, Whatsapp and Email. Specifically for Dentist Profession education refers to the AFDOKGI decision letter number: 587/sk/afdokgi/2020 concerning guidelines for activities to fulfill dental professional education learning activities on the specific problems of the Corona Virus Disease 19 (COVID-19) pandemic. Strengthening cognitive activities is carried out in the form of journal studies, case discussions and for psychomotor activities wherever possible using skill substitution using video simulations and presented online using several forms of clinical skills assessment.

CONCLUSIONS AND RECOMMENDATIONS

As a dentistry student, you must also participate in the prevention and management of the COVID-19 outbreak. As we know, the spread of COVID-19 is through droplets that come out of the mouth or nose of a person infected with SARS-CoV-2 when they cough, sneeze, or talk. Airborne transmission may also occur indoors, so anticipate the transmission of COVID-19. One of the ways in which dental students can play a role in preventing and handling the COVID-19 outbreak is by embedding E-learning during this pandemic. E-learning can also be maximized by using applications that can maximize E-learning activities for dental students, namely for example: ZOOM, Google meet, Skype, Microsoft team.

This scientific writing is recommended to dental faculties around the world so that their institutions have an overview and evaluation of dental education programs and can prepare a better curriculum for the future. Meanwhile for the general public, this writing can explain the challenges of dental faculties in conducting academic and clinical processes for students during the COVID-19 pandemic, so that they understand that preparing students to become dentists during the COVID-19 pandemic requires a strategy. and regulations so that the faculty of dentistry continues to produce qualified dentist graduates.

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